The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

Via FedEx

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Information Technology Unit
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: First Quarter 2020 NPDES Discharge Monitoring Report
Compliance File CI-6027 and NPDES No. CA0001309
Santa Susana Field Laboratory
Ventura County, California

The Boeing Company (Boeing) hereby submits this Discharge Monitoring Report (DMR) for the Santa Susana Field Laboratory (Santa Susana Site) for the period of January 1 through March 31, 2020 (First Quarter 2020). This DMR was prepared as required by, and in accordance with the National Pollutant Discharge Elimination System Permit No. CA0001309 (NPDES Permit) issued by the Los Angeles California Regional Water Quality Control Board (Regional Board) in 2015. The NPDES Permit covers the entire Santa Susana Site, which includes approximately 2,400 acres owned by Boeing, approximately 450 acres owned by the United States and administered by the National Aeronautics and Space Administration (NASA), and approximately 290 acres of Boeing's land for which the Department of Energy (DOE) has assumed responsibility for soil remediation.

Hard copies of this DMR are available to the public at the California State University Northridge Oviatt Library, the Simi Valley Public Library, and the Platt Branch of the Los Angeles Public Library. An electronic version of this DMR is located at: http://www.boeing.com/principles/environment/santa-susana/monitoring-reports.page

FIRST QUARTER 2020 DMR CONTENTS

This DMR includes the following sections and appendices:

- **Discharge and Sample Collection Summary:** This section describes the number of rain events, the number of samples collected, sample dates, and sample locations during the First Quarter 2020. Table I summarizes the First Quarter 2020 sampling record by outfall or location and sample type collected per the requirements of the NPDES Permit.
- **First Quarter 2020 Summary of Exceedances and/or Non-Compliance:** This section summarizes the First Quarter 2020 sample results that exceeded NPDES Permit Limits, Benchmarks, and Receiving Water Limits, and the potential causes thereof.
- **Stormwater Treatment System at Outfall 018 Activities:** This section summarizes the First Quarter 2020 activities at the stormwater treatment system at Outfall 018.
- **First Quarter 2020 Santa Susana Site Stormwater Pollution Prevention Plan (SWPPP)/Best Management Practices (BMP) Activities:** This section presents the Santa Susana Site SWPPP and BMP-related activities implemented in the First Quarter 2020 as well as activities associated with NASA, DOE, the Stormwater Expert Panel (Expert Panel), the Northern Drainage, and the Outfall 001/002 BMP Compliance Report. Table II summarizes typical BMP-related activities that occur at outfalls every quarter. Table III summarizes specific BMP activities completed during the First Quarter 2020 by outfall location.
- **Reasonable Potential Analysis:** This section discusses the results of the analysis.

- **Figure 1** shows the stormwater collection and conveyance system, the Bell Creek Receiving Water sampling location (RSW-001, Outfall 002), and Santa Susana Site features; **Figure 2** shows the Arroyo Simi Receiving Water sampling location (RSW 002, Frontier Park) and upstream monitoring location.
- **Appendix A** summarizes the rainfall measured at the Santa Susana Site during the First Quarter 2020.
- **Appendix B** tabulates waste shipment details during the First Quarter 2020.
- **Appendix C** presents chemical analytical results from the First Quarter 2020 stormwater and/or receiving water sample discharge monitoring in tabular form by outfall locations, constituents evaluated (analytes), sample dates, and data validation qualifiers.
- **Appendix D** summarizes the NPDES Permit Limit, Benchmark, and Receiving Water Limit exceedances.
- **Appendix E** contains copies of the laboratory analytical reports, chain of custody forms, and data validation reports (if validation was performed).
- **Appendix F** tabulates the Reasonable Potential Analysis.
- **Appendix G** presents the observations of the receiving water monitoring program required by the NPDES Permit and includes the Arroyo Simi, Bell Creek, and Dayton Canyon surveys.
- **Appendix H** presents laboratory methods and limits, followed by QA/QC procedures and State Water Resources Control Board (SWRCB) Environmental Laboratory Accreditation Program (ELAP) renewal certifications for each laboratory.

DISCHARGE AND SAMPLE COLLECTION SUMMARY

Stormwater samples were collected at Outfalls 001, 002, 008, 009, and 018 during First Quarter 2020. The Santa Susana Site had three qualifying rain events during the First Quarter 2020 that measured greater than 0.1 inch of rainfall within a 24-hour period and were preceded by at least 72 hours of dry weather (Appendix A). All three qualifying rain events produced stormwater discharges. One of the three rain events produced seven days of continuous flow, and additional samples were collected during this extended event. Automated flow-weighted composite samplers (autosamplers) were set in preparation for all rain events and reset to collect the seven-day sample. Boeing also collected stormwater samples from Outfalls 002 and 018 during a dry weather event in early January because Boeing operated the Stormwater Treatment System (SWTS) at Outfall 018 to increase the capacity in Silvernale Pond. In March, Boeing operated the SWTS at Outfall 018 during the two rain events. There were no changes in the discharge as described in the NPDES Permit during the reporting period.

In addition to outfall sampling, receiving water samples were collected. An offsite receiving water sample was collected at the Arroyo Simi location (RSW-002, Frontier Park; see Figure 2) and an onsite receiving water sample was collected at Outfall 002 (RSW-001). Four additional receiving water grab samples were collected at RSW-001 and RSW-002 to calculate the geometric mean.

Table I summarizes the First Quarter 2020 sampling record by location, sample frequency, and sample type collected per NPDES Permit requirements, and the results are included in Appendix C.

TABLE I: Sampling Record during the First Quarter 2020

Date	Outfall/Location	Sample Frequency	Sample Type
1/7-1/8/2020	Outfall 002/Outfall 002 (RSW-001) [1]	Annual, Toxicity	Grab, Composite
1/7-1/8/2020	Outfall 018	Annual, Toxicity	Grab, Composite
1/11/2020	Outfall 002 (RSW-001)	Geometric Mean	Grab
1/12/2020	Outfall 002 (RSW-001)	Geometric Mean	Grab
1/13/2020	Outfall 002 (RSW-001)	Geometric Mean	Grab
1/14/2020	Outfall 002 (RSW-001)	Geometric Mean	Grab
1/17/2020	Outfall 002	Routine, Toxicity	Grab, Composite
3/13-3/14/2020	Outfall 018	Routine, Toxicity	Grab, Composite
3/13-3/14/2020	Outfall 009	Annual, Toxicity	Grab, Composite
3/13-3/14/2020	Outfall 008	Annual, Toxicity	Grab, Composite
3/13-3/14/2020	Outfall 002	Routine, Species Sensitivity Screening	Grab, Composite
3/13/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Annual	Grab
3/20-3/21/2020	Outfall 009	Routine (7-day Continuous Flow)	Grab, Composite
3/20-3/21/2020	Outfall 002	Routine (7-day Continuous Flow)	Grab, Composite

Date	Outfall/Location	Sample Frequency	Sample Type
3/23-3/24/2020	Outfall 008	Routine, Toxicity	Grab, Composite
3/23-3/24/2020	Outfall 001	Annual, Toxicity	Grab, Composite
3/25-3/26/2020	Outfall 018	Routine	Grab, Composite
3/26-3/27/2020	Outfall 002	Routine	Grab, Composite
3/20/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab
3/27/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab
4/03/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab
4/13/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab

Notes:

Routine = 1 per discharge event.

Toxicity is required during the 1st and 2nd Rain or Flow Event in a calendar year.

The 30-day period of collecting five equally spaced geometric mean samples at RSW-002 began at the end of March and ended in April. Since laboratory results were available prior to the publication of this DMR, the sample results and the geometric mean calculation are included in this report.

Species sensitivity screening is required every 24 months. *Selenastrum capricornutum* is the representative species for the next 24 months.

(1) = One sample was collected for both the Outfall and receiving water requirements.

All analyses were conducted at analytical laboratories certified by the State Water Resources Control Board (SWRCB) for such analyses (i.e., all have current certification from the Environmental Laboratory Accreditation Program [ELAP] established by the California Environmental Laboratory Improvement Act) or have been approved by the SWRCB Executive Officer in accordance with current U.S. Environmental Protection Agency (EPA) guideline procedures or as specified in the NPDES Permit. Laboratory analytical reports, including validation reports and notes (if validation was performed), are included in Appendix E. Attachment H of the NPDES Permit presents the SWRCB's minimum levels laboratories are expected to achieve for reporting and determining compliance with NPDES Permit Limits. The analytical laboratory achieved these minimum levels in the First Quarter 2020 except when reporting limits were above the minimum levels (generally because of matrix interference). In cases where the NPDES Permit Limit was less than the reporting limit and minimum level, the reporting limit was used to determine compliance.

The annual requirement for including reporting limits, method detection limits, laboratory analytical methods, SWRCB ELAP renewal certifications for all laboratories, and associated laboratory quality assurance and quality control (QA/QC) procedures are included in Appendix H.

FIRST QUARTER 2020 SUMMARY OF EXCEEDANCES AND/OR NON-COMPLIANCE

As summarized in Appendix D, the First Quarter 2020 exceedances of Daily Maximum Benchmarks, Daily Maximum Permit Limits, or Receiving Water Limits included:

- Escherichia coli (*E. coli*) at Arroyo Simi – Frontier Park (RSW-002);
- *E. coli* at Bell Creek (RSW-001);
- Iron, manganese, and dioxins (TCDD) Toxic Equivalent (TEQ) at Outfall 001; and
- Iron at Outfall 002.

A detailed discussion of the exceedances is provided below.

Boeing is committed to fulfilling the requirements of the NPDES Permit. Boeing and NASA each took actions during the First Quarter 2020 to manage stormwater discharges (e.g., erosion and sediment transport, road runoff, etc.) on each party's property and/or area of responsibility. Boeing's actions are described in Tables II and III and in the sections below related to SWPPP/BMP Activities and Outfall 001/002 BMP Compliance Report Related Activities. Repair and other erosion control measures associated with BMPs undertaken by NASA and DOE are also described below. The Expert Panel is currently evaluating the data contained in this DMR and will include the results of their analysis on the likely causes of the exceedances described below in their 2020 Annual Report.

Arroyo Simi – Frontier Park (RSW-002)

Bacteria

On March 13, March 20, and April 13, 2020, *E. coli* was detected at 4,900, 235, and 1,400 most probable number per 100 milliliters (MPN/100mL), respectively in samples collected offsite at the Arroyo Simi – Frontier Park (RSW-002) location, approximately four miles downstream of Outfall 009. These three samples were above the single sample maximum receiving water limit of 235 MPN/100mL. Two additional samples were collected at the Arroyo Simi – Frontier Park (RSW-002) location on March 27 and April 3, and all five samples were used to calculate the geometric mean for *E. coli*. The calculated geometric mean for *E. coli* of 395 MPN/100mL was above the geometric mean receiving water limit of 126 MPN/100mL.

On March 13, 2020, a stormwater sample was collected and subsequently analyzed for human specific Bacteroides from Outfall 009 to test if some of the bacteria present in this sample was likely from human sources. Laboratory analysis reported human-specific markers were present at very low levels (detected but not quantified). The human bacteria results are viewed as episodic. Since discharge from Outfall 009 was the only Santa Susana Site Outfall contributing surface water flow at this time to Arroyo Simi and human specific Bacteroides were detected at very low levels, bacteria detected at Arroyo Simi – Frontier Park (RSW-002) from the Santa Susana Site would be predominately from natural/wildlife.

Bell Creek – (RSW-001)

Bacteria

On January 7, 2020, *E. coli* was detected at 1,100 MPN/100mL in a sample collected at the Bell Creek receiving water location (Outfall 002, RSW-001); this was above the single sample maximum receiving water limit of 235 MPN/100mL. Four additional samples were collected at the Bell Creek (RSW-001) location on January 11, 12, 13, and 14, and all five samples were used to calculate the geometric mean for *E. coli.* The calculated geometric mean for *E. coli* of 49 MPN/100mL was below the geometric mean receiving water limit of 126 MPN/100mL. Outfall 002 was also analyzed for human-specific Bacteroides to test if the bacteria present in these samples were from human sources. The results of the Bacteroides analysis demonstrated that human-specific markers were not present at Outfall 002. As such, Boeing believes that the detected *E. coli* was caused by the animals that live at or cross through the Santa Susana Site.

Outfall 001

Metals: Iron and Manganese

On March 23, 2020, a stormwater sample was collected from Outfall 001. Iron was detected at 5.4 milligrams per liter (mg/L), above the Daily Maximum Benchmark of 0.3 mg/L, and manganese was detected at 90 micrograms per liter (µg/L), above the Daily Maximum Benchmark of 50 µg/L.

The industrial areas upstream of Outfall 001 are monitored by Outfall 011. Given that Outfall 011 did not produce flow, and the property in the watershed between Outfall 011 and Outfall 001 includes little to no industrial materials, equipment, activities, or developed areas, and that the primary developed surfaces are dirt roads, Boeing believes the higher metals concentrations at Outfall 001 during the First Quarter 2020 are attributable to increased erosion of natural soils following the 2018 Woolsey Wildfire. This conclusion is consistent with the findings in prior site studies conducted by the Expert Panel which confirmed that elevated metals are naturally occurring in site soils unrelated to former industrial operations.

As discussed in the 2019 Expert Panel Annual Report, Section 2.2.1.1, "spatial and temporal patterns indicate the elevated iron [and manganese] concentrations in stormwater this year [were] likely due to post-fire conditions." Recently published research supports that higher erosion following wildfires may produce elevated iron and manganese concentrations in stormwater runoff. The Expert Panel compared particulate strengths in stormwater samples and solids concentration in potential source material samples and determined that natural background soils were likely the source of iron and manganese. The Expert Panel also reviewed metal ratio fingerprinting that further supports natural background soils as the likely source of both iron and manganese in the samples having exceedances. Geosyntec and the Expert Panel are in the process of updating the analysis from the "SSFL Metals Background Report: Sources of Metals in SSFL Watersheds" (Pitt, 2009), and analyzing the latest NPDES outfall exceedances to determine their causes and formulating additional actions to reduce sources; the results of the Expert Panel's analysis will be included in their 2020 Annual Report.

The actions completed during First Quarter 2020 to control sources in the Outfall 001 watershed are described in the First Quarter 2020 Santa Susana Site SWPPP/BMP Activities section below. Boeing and the Expert Panel will continue to monitor and evaluate the effectiveness of BMPs within the Outfall 001 watershed.

Dioxins (TCDD) Toxic Equivalent (TEQ)

On March 24, 2020, TCDD TEQ was calculated in a stormwater sample collected from Outfall 001 at 3.3E-08 µg/L, which is above the Daily Maximum Benchmark of 2.8E-08 µg/L.

The Department of Toxic Substances Control's (DTSC) Chemical Soil Background Study found TCDD congeners in background soils and concluded that they could have originated from wildfire combustion processes and atmospheric deposition (DTSC, 2012). In addition, the Expert Panel has reported that elevated dioxin concentrations may be found in road runoff and soils adjacent to telephone/utility poles (treated wood), both of which can be mobilized by surface water flow following a wildfire event.

As discussed in the 2019 Expert Panel Annual Report, a comparison of particulate strengths in stormwater samples and solids concentration in potential source material samples indicated that soil near treated wood, atmospheric deposition, and/or road runoff were the likely sources of TCDD TEQ in samples exceeding permit limits. The Expert Panel also reviewed congener fingerprinting that further supports that soil near treated wood as the likely source of TCDD TEQ in samples exceeding permit limits.

The Expert Panel is evaluating the data contained in this DMR, as well as potential dioxin sources, and will include the results of their analysis on the likely cause of this exceedance in their 2020 Annual Report.

Outfall 002

Metals: Iron

On March 14, 2020, a stormwater sample was collected from Outfall 002. Iron was detected at 1.3 mg/L, above its Daily Maximum Benchmark of 0.3 mg/L.

The industrial areas upstream of Outfall 002 are monitored at Outfall 018. Given that iron at Outfall 018 was non-detect on March 14; the property in the watershed between Outfall 018 and Outfall 002 lacks industrial materials, equipment, activities or developed areas; and that the primary developed surfaces are dirt roads, Boeing believes that the higher iron concentrations at Outfall 002 during the First Quarter 2020 are attributable to increased erosion of natural soils following the 2018 Woolsey Wildfire. This conclusion is consistent with the findings in prior site studies conducted by the Expert Panel which confirmed that elevated metals are naturally occurring in site soils unrelated to former industrial operations.

As discussed in the 2019 Expert Panel Annual Report, Section 2.2.1.2, "spatial and temporal patterns indicate the elevated iron concentrations in stormwater this year was likely due to post-fire conditions." Recently published research supports that higher erosion following wildfires may produce elevated iron concentrations in stormwater runoff. The Expert Panel compared particulate strengths in stormwater samples and solids concentration in potential source material samples and determined that natural background soils were likely the source of iron. The Expert Panel also reviewed metal ratio fingerprinting that further supports natural background soils as the likely source of iron in samples having exceedances. Geosyntec and the Expert Panel are in the process of updating the analysis from the "SSFL Metals Background Report: Sources of Metals in SSFL Watersheds" (Pitt, 2009), and analyzing the latest NPDES outfall exceedances to determine their causes and formulating additional actions to reduce sources; the results of the Expert Panel's analysis will be included in their 2020 Annual Report.

The actions completed during First Quarter 2020 to control sources in Outfall 002 are described in the First Quarter 2020 Santa Susana Site SWPPP/BMP Activities section below. Boeing and the Expert Panel will continue to monitor and evaluate the effectiveness of BMPs within the Outfall 002 watershed.

STORMWATER TREATMENT SYSTEM AT OUTFALL 018 ACTIVITIES

The SWTS located at Silvernale Pond discharges through Outfall 018. Maintenance items completed in the First Quarter 2020 were as follows:

- Calibrated pH probes;
- Calibrated turbidity meters;
- Installed a bypass before the Buffer Tank to stabilize the ACTIFLO prior to sending water through the Sand Filters;
- Reconfigured the HCL lines to allow dosing into ChemBox 3;
- Repaired the concrete beneath the PPE shed;
- Removed the rusted intake line for P-102, reconfiguring the line to allow suction from P-101 intake line;
- Repaired Air Compressor AC-101 at SWTS 018; and
- Repaired the faulty check valve on P-106.

The SWTS operated three times during the First Quarter 2020 (see Figure 1). Operational data are summarized below.

1st Operational Event:

- The SWTS operated from January 6 through 11, 2020, and discharged for approximately 91 hours; and
- The total amount of water treated and discharged from Silvernale Pond was 7,549,300 gallons.

2nd Operational Event:

- The SWTS operated from March 13 through 15, 2020, and discharged for approximately 46 hours; and
- The total amount of water treated and discharged from Silvernale Pond was 3,243,500 gallons.

3rd Operational Event

- The SWTS operated from March 25 through 29, 2020, and discharged for approximately 46 hours; and
- The total amount of water treated and discharged from Silvernale Pond was 5,650,700 gallons.

The total amount of solids generated by operation of the SWTS was approximately 60 cubic yards.

FIRST QUARTER 2020 SANTA SUSANA SITE SWPPP/BMP ACTIVITIES

Boeing implemented significant BMP activities in compliance with the Site-Wide SWPPP (Haley & Aldrich, 2019) to assist in improving stormwater quality and compliance at the Santa Susana Site. Table II summarizes typical BMP-related activities that occur at outfalls every quarter.

TABLE II: Routine Quarterly Outfall BMP Activities

BMP Activities	Outfalls											
	001	002	003	004	005	006	007	008	009	010	011	018
Conducted erosion, sediment control, and drainage stabilization inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation.	X	X	X	X	X	X	X	X	X	X	X	X
Inspected the flume for sediment/debris.	X	X	X	X	N/A	X	N/A	X	X	X	N/A	X
Inspected the weir for sediment/debris.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A
Cleaned the sample box of sediment and debris, checked for the presence of animals, and performed weed abatement as needed.	X	X	X	X	X	X	X	X	N/A	X	X	X
Checked the flow meter control box for the presence of debris and/or animals.	X	X	X	X	N/A	X	N/A	X	X	X	X	X
Cleaned the outfall area of sediment and debris and performed weed abatement as needed.	X	X	X	X	X	X	X	X	X	X	X	X
Reset the flow meter and replaced the tape monthly.	X	X	X	X	N/A	X	N/A	X	X	X	X	X
Conducted maintenance inspections of the stormwater conveyance system.	N/A	N/A	X	X	X	X	X	N/A	N/A	X	X	X
Conducted maintenance inspections of the stormwater retention system.	N/A	N/A	X	X	X	X	X	N/A	N/A	X	X	X
Conducted maintenance inspections of the flow-through structure.	N/A	N/A	X	X	N/A	X	N/A	N/A	N/A	X	X	N/A

Notes:

X = BMP activity is applicable to the outfall and was completed in First Quarter 2020.

N/A = BMP activity is not applicable to the outfall because the outfall does not have a flume, sample box, flow meter, retention system or flow-through structure or is not part of the stormwater conveyance system.

Table III summarizes the additional activities completed during the First Quarter 2020 by outfall or BMP location.

TABLE III: Additional First Quarter 2020 BMP Activities

Outfall or BMP Location	BMP Activities During First Quarter 2020
001	Painted the handrails and the angle iron holding the builder tube to prevent rusting.
002	Painted the handrails to prevent rusting. Installed wattles around utility poles in the Outfall 002 watershed.
004	Removed damaged ball valve on the Charles King line and installed a check valve.
006	Repaired the upper media drain hose and reinstalled fiber rolls along the upper perimeter of the media bed.
011	Removed the deteriorated plastic corrugated cover over the media bed.
018	Installed a HDPE line to allow transferring water from the flume up and into R2A.
Lower Lot	Fabricated and installed a new suction and discharge line for use of a Charles King pump at the Cistern.
CM-2, 3, and 4	Removed sediment via SuperVac.
CM-3	Removed spent media, rebuilt the underdrains, and installed new media.
Trail south of Sage Ranch	Replaced washed out wattles and replaced damaged sandbag swale along lower trail.
Various sitewide	Replaced spent wattles around utility poles.

In addition to SWPPP-related activities, specific BMP projects included: NASA, DOE, Expert Panel, Northern Drainage, and Outfall 001/002 BMP Compliance Report. These are discussed in more detail below.

NASA-Related Activities

Demolition BMPs and stormwater activities covered by NASA's Construction SWPPP (dated May 16, 2017) for the Alfa and Bravo areas are inspected in accordance with the Construction General Permit (CGP). All demolition and soil disturbance activities were completed in 2018. During the First Quarter 2020, NASA maintained fiber rolls as linear sediment controls, maintained silt fencing, and maintained hydroseeded areas within these sites where construction activities had been completed.

Demolition BMPs and stormwater control activities covered by NASA's Construction SWPPP (dated December 4, 2017) in the Coca Test Stand Area are inspected in accordance with the CGP. All demolition and soil disturbance activities in the Coca Test Stand Area were completed in Fourth Quarter 2018. During First Quarter 2020, NASA maintained fiber rolls as linear sediment controls and maintained sandbags.

Demolition BMPs and stormwater control activities covered by NASA's Construction SWPPP (dated September 20, 2018) for the LOX and Bravo Areas are inspected in accordance with the CGP. During the First Quarter 2020, NASA received a NOT (Notice of Termination) for the Construction SWPPP at LOX and Bravo. These areas will continue to be inspected in accordance with the Site-Wide SWPPP (Haley & Aldrich, 2019).

DOE Related Activities

DOE reported no BMP-related activities during the First Quarter 2020.

Expert Panel-Related Activities

The BMP activities discussed below were performed, commenced, or completed during the First Quarter 2020 in coordination with the Expert Panel.

Culvert Modifications

Twelve culvert modifications (CMs) were constructed in 2009 at various locations at or along the main road adjacent to the Northern Drainage. The CMs were designed to treat stormwater from roads and/or the surrounding hillsides. The First Quarter 2020 activities included:

- BMP inspections, including the culvert inlets and riprap check dams;
- All CMs, basins, and weir boards were cleaned of debris, as needed;
- Removed sediment via SuperVac at CM-2, CM-3, and CM-4; and
- Removed spent media, rebuilt the underdrains, and installed new media at CM-3.

NASA Expendable Launch Vehicle (ELV) Area BMPs

BMPs and drainage improvements were installed between June and October 2013 at the NASA ELV to improve the quality of stormwater from the ELV area. After being pumped from the cistern at the bottom of the swale to the ELV system, stormwater is gravity-driven through the tank system, starting with the settling tanks, then through the filter media tank, before discharging to a tributary that flows to Outfall 009. In the Second Quarter 2016, a sandbag berm was placed across the ELV asphalt swale to divert stormwater toward CM-1 for treatment instead of directly discharging to the Northern Drainage. A generator was installed at the ELV system during the Third Quarter 2019. The First Quarter 2020 activities included BMP inspections.

Well 13 Road

Sandbag berms located near the culvert inlet and downgradient of the hydroseeded area were reinforced and increased in height during Fourth Quarter 2017. The First Quarter 2020 activities included BMP inspections.

B-1 Area

The B-1 Area BMPs include:

- A sedimentation basin, constructed in 2012;
- A media filter, constructed in 2012; and
- An upper parking lot media filter constructed in 2017.

The First Quarter 2020 activities included continued BMP inspections and clearing the areas of sediment and debris.

Upper Parking Lot Media Filter

Construction of a media filter at the northeast corner of the upper parking lot was completed during the Second Quarter 2017. This BMP included a new media filter similar in style to the B-1 media filter and designed to treat runoff from parts of the parking lot as well as parts of the adjacent entrance road. The First Quarter 2020 activities included BMP inspections and sediment and debris removal in and around the media bed.

Former Building 1436 Detention Bioswales

Two detention bioswales were constructed at the former Building 1436 following its removal in Third Quarter 2014. The graded surface was hydroseeded, and more than 2,900 native plantings were installed in December 2014. The bioswales were designed to capture, pretreat, and detain stormwater from the adjacent parking lot and from approximately 13.9 acres of drainage area east and upgradient prior to releasing the stormwater to the former Instrument and Equipment Laboratories (IEL) storm drain, where flow is diverted to the lower lot biofilter for treatment. The First Quarter 2020 activities included BMP inspections.

Lower Lot Biofilter

The lower lot biofilter is a stormwater treatment BMP designed and built to capture, convey, and treat stormwater from the lower parking lot and former IEL watershed. The lower lot biofilter consists of a 30,000-gallon cistern, a stormwater conveyance line, a sedimentation basin, and a media biofilter.

The First Quarter 2020 activities included inspections to verify that the sedimentation basin and biofilter were free of sediment and debris, checks of the cistern area and pump, weed abatement as needed, and inspections of surrounding BMPs. Activities also included fabricating and installing a new suction and discharge line at the Cistern for use with a back-up fuel pump in the event of a power outage.

Approximately 2,800,000 gallons of stormwater were pumped from the cistern to the sedimentation basin during the First Quarter 2020.

Administration Area Inlet Filters

Four storm drain inlets were modified with either drop inlet filters or weighted wattles filled with media mixtures during the Second Quarter 2017. At the inlet closest to the lower lot, a storm drain filter sock was placed upstream of the inlet to increase solids settling. The First Quarter 2020 activities included BMP inspections and accumulated sediment removal from the drop inlet structure.

Former Shooting Range

BMPs at the Former Shooting Range consist of:

- Slope stabilization measures (i.e., vegetation planting areas);
- Riprap berms along the Northern Drainage;
- A culvert maintenance media filter;
- Fiber rolls;
- Sandbag berm;
- Silt fencing;
- Water bar across the trail;
- Three check structures on the Northern Drainage Trail;

- Sandbags with fiber rolls;
- A check structure at the dissipater; and
- Hydroseeding

The entire area continues to benefit from the growth of dense vegetation that shields lead shot from direct contact with or dislodging during precipitation events and prevents soil erosion and mobility of the shot to downstream areas.

The First Quarter 2020 activities included BMP inspections, replaced washed out wattles, and replaced damaged sandbag swale along lower trail. At the request of the Expert Panel, the Sage Ranch side of the Former Shooting Range was inspected to confirm that BMPs (i.e., fiber rolls, silt fence, etc.) control and/or treat stormwater runoff from that side of the Former Shooting Range to the Northern Drainage.

NASA and Boeing BMP Monitoring-Related Activities

In addition to activities performed in coordination with the Expert Panel described above, BMP performance monitoring samples were collected in the watersheds associated with Outfalls 001, 002, and 009 during the First Quarter 2020. These sampling results will be reported by the Expert Panel in their 2020 Annual Report.

Northern Drainage BMPs

Boeing restored the Northern Drainage (Outfall 009) following cleanup activities performed under DTSC oversight and in accordance with the requirements of the Regional Board's Cleanup and Abatement Order No. R4-2007-0054 (Regional Water Quality Control Board, 2007). The restoration and mitigation activities proposed in the Northern Drainage Restoration, Mitigation, and Monitoring Plan (RMMP)[1] were implemented in 2012. In accordance with the RMMP, regular maintenance, monitoring, and reporting were implemented in the Northern Drainage from 2012 through the Third Quarter 2017 for the stream's plant biology and geomorphology. The successful restoration and mitigation of the Northern Drainage according to the success criteria of the RMMP were documented in the fifth and final Annual Mitigation Monitoring Report (Haley & Aldrich, 2017). Based on the success of the project, Boeing requested that the Regional Board provide written notice stating that Boeing had complied with all terms of the Cleanup and Abatement Order and Boeing's obligations under the Order would therefore be terminated. Boeing will continue to inspect the Northern Drainage BMPs annually and maintain them on an as-needed basis. No RMMP-related inspections of Northern Drainage BMPs were performed during First Quarter 2020.

Outfall 001/002 BMP Compliance Report Related Activities

The Daily Maximum Benchmark exceedances at Outfalls 001 and 002 during the First Quarter 2020 did not trigger a new BMP Compliance Report. Boeing and the Expert Panel will continue to monitor and evaluate the effectiveness of BMPs within the watersheds of Outfall 001 and Outfall 002. Recommendations for these watersheds are provided in the 2019 Expert Panel Annual Report (Geosyntec and the Expert Panel, 2019) including BMP Performance monitoring samples collected during the First Quarter 2020. These sampling results will be reported by the Expert Panel in their 2020 Annual Report.

Other BMP activities

BMP observations and maintenance inspections were conducted in conformance with the Site-Wide SWPPP (Haley & Aldrich, 2019) at and around the former test stands Alfa and Bravo and former Advanced Propulsion Test Facility.

[1] Available at: http://www.boeing.com/principles/environment/santa-susana/technical-reports.page

REASONABLE POTENTIAL ANALYSIS

Stormwater discharges from the Santa Susana Site occurred at Outfalls 001, 002, 008, 009, and 018 during the First Quarter 2020. Analytical results from this quarter were added to the Reasonable Potential Analysis (RPA) dataset. RPA analysis was performed for E. coli for Outfalls 002, 008, and 009; the results from these analyses are discussed below and provided in Appendix F. Boeing believes that the analytical results for the First Quarter 2020 did not trigger a reasonable potential for any other constituent not already regulated under the current NPDES Permit.

E. Coli

On January 7, 2020, *E. coli* was detected in a stormwater sample collected from Outfall 002 as 1,100 MPN/100mL. A stormwater sample from Outfall 002 was also analyzed for human specific Bacteroides to test if some of the bacteria present in this sample was likely from human sources. The results of the Bacteroides analysis demonstrated that human specific markers were not present at Outfall 002. As such, Boeing believes that no reasonable potential has been demonstrated for human bacteria at Outfall 002, and that the detected *E. coli* was caused by the animals that live at or cross through the Santa Susana Site.

On March 13, 2020, *E. coli* was detected in a stormwater sample collected from Outfall 008 at 490 MPN/100mL. A stormwater sample from Outfall 008 was also analyzed for human specific Bacteroides to test if some of the bacteria present in this sample was likely from human sources. The results of the Bacteroides analysis demonstrated that human-specific markers were not present at Outfall 008. As such, Boeing believes that no reasonable potential has been demonstrated for human bacteria at Outfall 008, and that the detected *E. coli* was caused by the animals that live at or cross through the Santa Susana Site.

On March 13, 2020, *E. coli* was detected in a stormwater sample collected from Outfall 009 at 490 MPN/100mL. A stormwater sample from Outfall 009 was also analyzed for human specific Bacteroides to test if some of the bacteria present in this sample was likely from human sources. Laboratory analysis reported human-specific markers were present at very low levels (detected but not quantified). The human bacteria results are viewed as episodic, and the detected *E. coli* was caused by the animals that live at or cross through the Santa Susana Site. Boeing believes that no reasonable potential has been demonstrated for human bacteria at Outfalls 009.

CONCLUSIONS

Boeing continues to implement, maintain, and monitor wide-ranging control practices intended to improve water quality at stormwater discharge locations at the Santa Susana Site through methods designed to preserve the natural conditions in the watershed to the maximum extent feasible by implementing distributed, sustainable erosion control/restoration measures. The Expert Panel is reviewing the data collected this year and will make BMP and monitoring recommendations that will be communicated in the Expert Panel's 2020 Annual Report.

FACILITY CONTACT

If there are any questions regarding this report or its enclosures, you may contact Mr. Jeffrey Wokurka of Boeing at (818) 466-8800.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the 15th of May 2020 at The Boeing Company, Seal Beach, California, Site.

Sincerely,

Kim O'Rourke

Kim O'Rourke
Remediation Program Manager
Environment, Health & Safety

Enclosures:

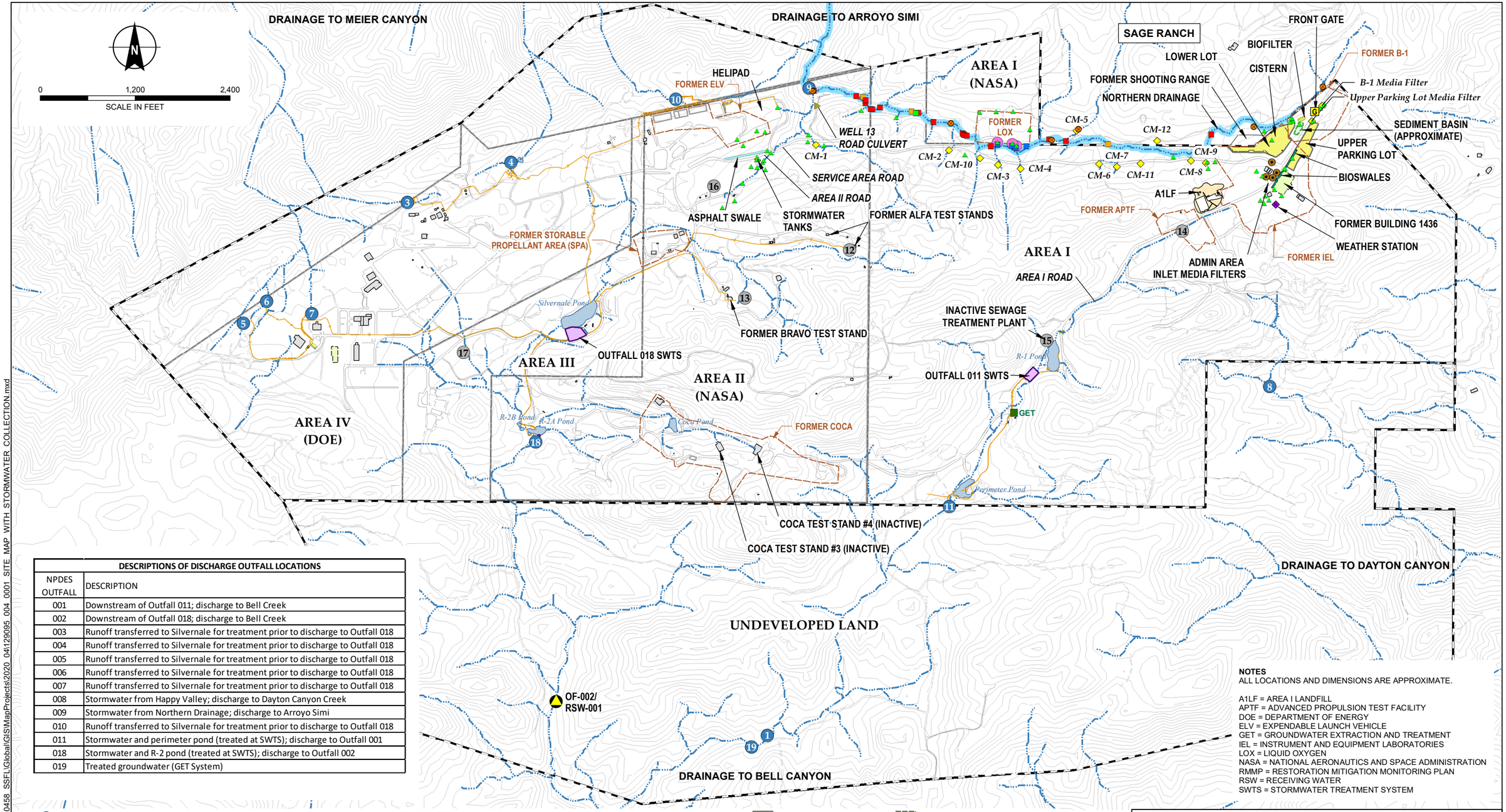
References
Figure 1 – Site Map with Stormwater Collection and Conveyance System and Site Features
Figure 2 – Arroyo Simi Receiving Water (RSW-002, Frontier Park) Sampling Location and Upstream Monitoring Point
Appendix A – First Quarter 2020 Rainfall Data Summary
Appendix B – First Quarter 2020 Waste Shipment Summary Tables
Appendix C – First Quarter 2020 Discharge Monitoring Data Summary Tables
Appendix D– First Quarter 2020 Summary of Permit Limit Exceedances and/or Non-Compliance
Appendix E – First Quarter 2020 Analytical Laboratory Reports, Chain of Custody Forms, and Validation Reports
Appendix F – First Quarter 2020 Reasonable Potential Analysis Tables
Appendix G- First Quarter 2020 Receiving Water Surveys
Appendix H – First Quarter 2020 Analytical Laboratory Methods, Method Detection Limits, Reporting Limits, QA/QC Procedures, and ELAP Certifications

c: Los Angeles Regional Water Quality Control Board; Attn: Ms. Cris Morris
California Department of Toxic Substances Control; Attn: Mr. Mark Malinowski
California State University Northridge Oviatt Library
Simi Valley Public Library
Los Angeles Public Library, Platt Branch

REFERENCES

1. California Regional Water Quality Control Board, 2007. Cleanup and Abatement Order No. R4-2007-0054. 6 November.
2. California Regional Water Quality Control Board, Los Angeles Region, 2015. Waste Discharge Requirements for The Boeing Company, Santa Susana Field Laboratory (Order No. R4-2015-0033, NPDES No. CA0001309). 12 February.
3. Department of Toxic Substances Control, 2012. Final Results Report, Chemical Soil Background Study. December 28.
4. Geosyntec and the Expert Panel, 2019. Santa Susana Field Laboratory Site-Wide Stormwater Annual Report, 2018/19 Reporting Year, Ventura County, California (NPDES No. CA0001309, CI No.6027). 31 October.
5. Haley & Aldrich, Inc., 2017. Northern Drainage 2017 Annual Report, Clean Water Act Section 401 Water Quality Certification, File No. 12-001, Cleanup and Abatement Order No. R4-2007-0054, Streambed Alteration Agreement No. 1600-2003-5052-R5, Streambed Alteration Agreement No. 1600-2015-0079-R5, U.S. Army Corps of Engineers SPL-2012-00015, Santa Susana Field Laboratory, Ventura County, California. 13 December.
6. Haley & Aldrich, Inc., 2019. Stormwater Pollution and Prevention Plan (Version 6 for Compliance with 2015 NPDES Permit). 26 September.
7. Pitt, Robert, 2009. Boeing SSFL Metals Background Report – Sources of Metals in SSFL Watersheds. November 21.

FIGURES



DESCRIPTIONS OF DISCHARGE OUTFALL LOCATIONS	
NPDES OUTFALL	DESCRIPTION
001	Downstream of Outfall 011; discharge to Bell Creek
002	Downstream of Outfall 018; discharge to Bell Creek
003	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
004	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
005	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
006	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
007	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
008	Stormwater from Happy Valley; discharge to Dayton Canyon Creek
009	Stormwater from Northern Drainage; discharge to Arroyo Simi
010	Runoff transferred to Silvernale for treatment prior to discharge to Outfall 018
011	Stormwater and perimeter pond (treated at SWTS); discharge to Outfall 001
018	Stormwater and R-2 pond (treated at SWTS); discharge to Outfall 002
019	Treated groundwater (GET System)

- ACTIVE NPDES OUTFALL LOCATION
- FORMER NPDES OUTFALL LOCATION
- BELL CREEK RECEIVING WATER (RSW-001) SAMPLING LOCATION AND OUTFALL 002
- SLOPE DRAIN DISCHARGE POINT TO NORTHERN DRAINAGE
- CULVERT MODIFICATION
- CM-12
- INLET MEDIA FILTER
- BMP MONITORING LOCATION
- SPECIAL STUDIES LOCATION
- GET SYSTEM
- STORMWATER TREATMENT SYSTEM
- FORMER STUDY

RMMP LOCATION

- CHECK STRUCTURE - MOSTLY NATURAL SANDSTONE, SOME RIP RAP
- CHECK STRUCTURE - RIP RAP
- CHECK STRUCTURE - VEGETATED RIP RAP
- SLOPE DRAIN WITH UNDERLYING CHECK STRUCTURE AND ENERGY DISSIPATING GRAVEL AT INFLUENT END

- DRAINAGE
- NORTHERN DRAINAGE
- ASPHALT SWALE
- PAVED ROAD
- DIRT ROAD
- STORMWATER CONVEYANCE PIPELINE WITH FLOW DIRECTION
- 25' ELEVATION CONTOUR

- VEHICLE PARKING
- BIOFILTER
- BIOSWALE
- SEDIMENT BASIN
- STORMWATER TANK
- SURFACE WATER POND
- EXISTING BUILDING/STRUCTURE
- FORMER BUILDING FOOTPRINT
- CONCRETE SLAB IN PLACE
- LANDFILL AREA
- SANTA SUSANA SITE PROPERTY BOUNDARY
- ADMINISTRATIVE AREA BOUNDARY

NOTES
ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

A1LF = AREA I LANDFILL
APTF = ADVANCED PROPULSION TEST FACILITY
DOE = DEPARTMENT OF ENERGY
ELV = EXPENDABLE LAUNCH VEHICLE
GET = GROUNDWATER EXTRACTION AND TREATMENT
IEL = INSTRUMENT AND EQUIPMENT LABORATORIES
LOX = LIQUID OXYGEN
NASA = NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
RMMP = RESTORATION MITIGATION MONITORING PLAN
RSW = RECEIVING WATER
SWTS = STORMWATER TREATMENT SYSTEM

HALEY ALDRICH

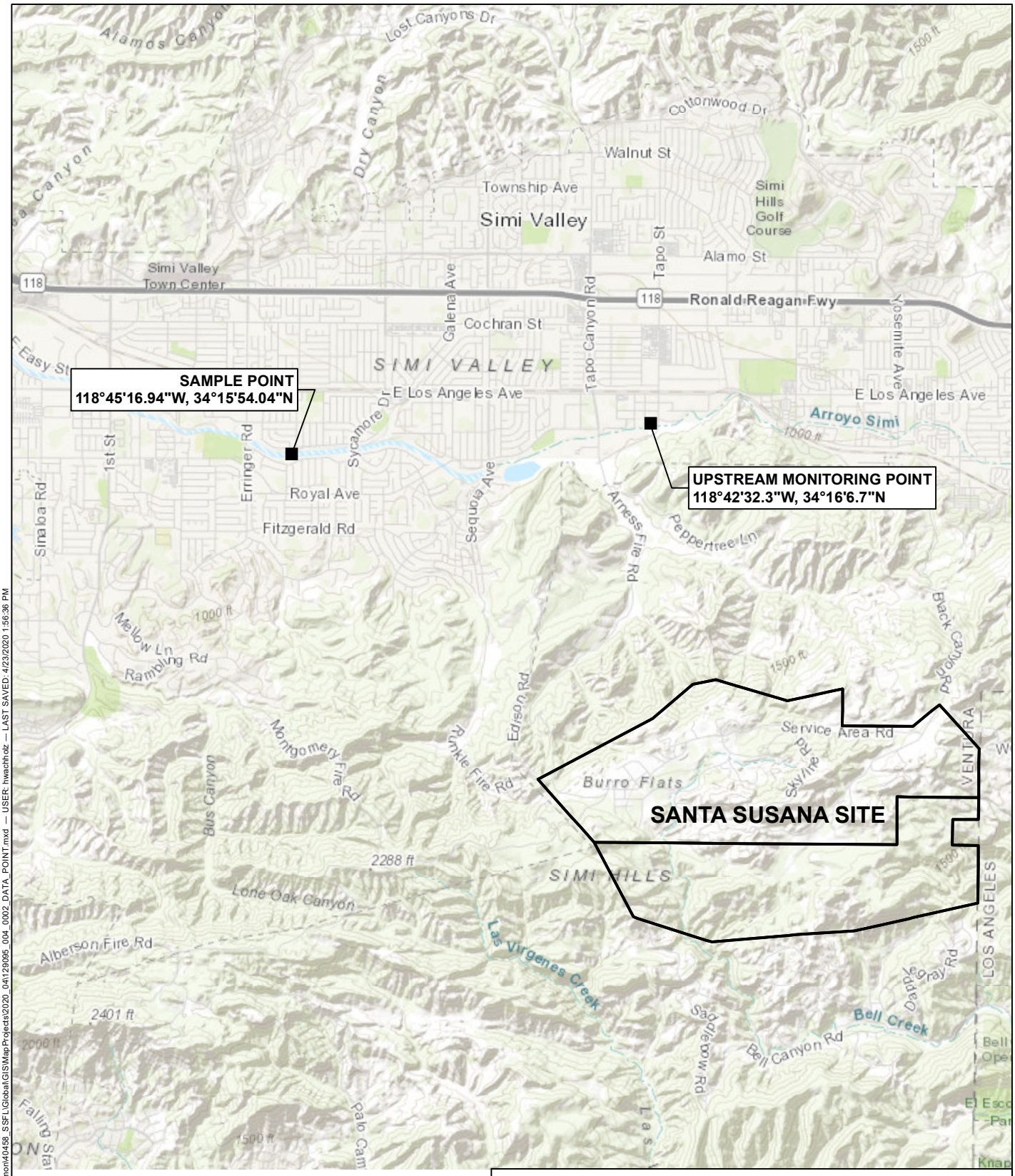
NPDES PERMIT COMPLIANCE FIRST QUARTER 2020
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

SITE MAP WITH STORMWATER COLLECTION AND CONVEYANCE SYSTEM AND SITE FEATURES

MAY 2020

FIGURE 1

\\haleyaldrich.com\share\sdg_common\40458_SSFL\Global\GIS\MapProjects\2020_04\29095_004_0001_SITE_MAP_WITH_STORMWATER_COLLECTION.mxd



NOTES

1. THE SAMPLE POINT IS FOR QUARTERLY WATER QUALITY AND ANNUAL SEDIMENT SAMPLING.

2. THE UPSTREAM SAMPLE POINT LOCATION WAS CHOSEN BASED ON IT BEING UPSTREAM OF ALL POSSIBLE DISCHARGE FROM THE SANTA SUSANA SITE.

N

0 0.5 1

SCALE IN MILES

HALEY ALDRICH

NPDES PERMIT COMPLIANCE FIRST QUARTER 2020
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

ARROYO SIMI RECEIVING WATER (RSW-002, FRONTIER PARK) SAMPLING LOCATION AND UPSTREAM MONITORING POINT

MAY 2020

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\sdg_common\40458_SSFL\Global\GIS\MapProjects\2020_04\129095_004_0002_DATA_POINT.mxd — USER: hwachh.otz — LAST SAVED: 4/23/2020 1:56:36 PM

APPENDIX A

First Quarter 2020 Rainfall Data Summary

APPENDIX A

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Table A – Daily Rainfall Summary

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: January 2020

HOUR OF THE DAY, PACIFIC STANDARD TIME

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	DAY																									Total
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Y	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.16	0.07	0.31	0.10	0.68
E	17	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: February 2020

HOUR OF THE DAY, PACIFIC STANDARD TIME

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	DAY																									Total
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.09
Y	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
H	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: March 2020

HOUR OF THE DAY, PACIFIC STANDARD TIME

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	DAY																									Total
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Y	10	0.02	0.00	0.01	0.03	0.01	0.09	0.07	0.03	0.00	0.02	0.04	0.00	0.09	0.13	0.25	0.01	0.00	0.00	0.00	0.11	0.00	0.03	0.00	0.01	0.95
	11	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
O	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.25	0.21	0.19	0.23	0.18	0.07	0.08	0.10	0.09	0.11	0.06	0.05	1.83
F	13	0.11	0.10	0.21	0.13	0.06	0.06	0.04	0.03	0.02	0.04	0.02	0.01	0.04	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.94
	14	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.01	0.04	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
T	15	0.07	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
H	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.10	0.08	0.20	0.40	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.93
E	17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
O	20	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
N	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.24	0.31	0.17	0.34	0.34	0.04	0.13	0.06	1.72
H	23	0.01	0.00	0.00	0.01	0.06	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX B

First Quarter 2020 Waste Shipment Summary Tables

APPENDIX B

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Table B – Waste Shipment Summary Table

TABLE B
WASTE SHIPMENT SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

TYPE OF WASTE	MATRIX	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	DESTINATION
Hazardous Waste	Liquid	2,687	G	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Hazardous Waste	Liquid	8	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Tri-State Motor Transit Co. 17235 N 75th Ave., Suite D175 Glendale, AZ 85308	Clean Harbors Deer Park, LLC 2027 Independence Parkway South La Porte, TX 77571
Hazardous Waste	Liquid	3,020	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Buttonwillow LLC 2500 West Lockern Road Buttonwillow, CA 93206
Hazardous Waste	Liquid	701	G	Patriot Environmental Services 508 East E Street Wilmington, CA 90744	n/a	US Ecology Nevada HWY 95 11 Mi South of Beatty Beatty, NV 89003
Hazardous Waste	Liquid	150	P	Patriot Environmental Services 508 East E Street Wilmington, CA 90744	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Hazardous Waste	Liquid	1,395	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Hazardous Waste	Solid	470	P	Patriot Environmental Services 508 East E Street Wilmington, CA 90744	n/a	US Ecology Nevada HWY 95 11 Mi South of Beatty Beatty, NV 89003
Hazardous Waste	Solid	126	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Basin	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Hazardous Waste	Solid	44	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Basin + CH	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Hazardous Waste	Solid	292	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Hazardous Waste	Solid	142	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Non D.O.T. Regulated Universal Waste - Lamps	Solid	23	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Non Hazardous Waste	Liquid	21,300	G	American Integrated Services, Inc. 1502 East Opp Street Wilmington, CA 90744	n/a	Crosby & Overton 1610 W 17th St Long Beach, CA 90813

TABLE B
WASTE SHIPMENT SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

TYPE OF WASTE	MATRIX	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	DESTINATION
Non Hazardous Waste, Non D.O.T. Regulated	Solid	372	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Buttonwillow LLC 2500 West Lockern Road Buttonwillow, CA 93206
Non Hazardous Waste, Non D.O.T. Regulated	Solid	225	Y	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Waste Management - Antelope Valley LF 1200 W. City Ranch Road Palmdale, CA 93551
Non Hazardous Waste, Non D.O.T. Regulated	Solid	3,299	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Non Hazardous, Non D.O.T Regulated	Liquid	48,800	G	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Southwest Processors 4120 Bandini Blvd. Los Angeles, CA 90058
Non RCRA Hazardous Waste	Liquid	75	G	Patriot Environmental Services 508 East E Street Wilmington, CA 90744	n/a	US Ecology Nevada HWY 95 11 Mi South of Beatty Beatty, NV 89003
Non RCRA Hazardous Waste	Liquid	15	P	Patriot Environmental Services 508 East E Street Wilmington, CA 90744	n/a	US Ecology Nevada HWY 95 11 Mi South of Beatty Beatty, NV 89003
Non RCRA Hazardous Waste	Liquid	7	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Non RCRA Hazardous Waste	Liquid	36	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Buttonwillow LLC 2500 West Lockern Road Buttonwillow, CA 93206
Non RCRA Hazardous Waste	Solid	170	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
Non RCRA Hazardous Waste	Solid	52	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Universal Waste - Batteries	Solid	14	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744

Notes:
n/a = Not Applicable
G = Gallons
P = Pounds
Y = Yards

APPENDIX C

First Quarter 2020 Discharge Monitoring Data Summary Tables

APPENDIX C

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Reporting Summary Notes

Outfall 001 - Discharge Monitoring Data Summary Table
Outfall 001 - Discharge Monitoring Mass Summary Table

Outfall 002 - Discharge Monitoring Data Summary Table
Outfall 002 - Discharge Monitoring Mass Summary Table

Outfall 008 - Discharge Monitoring Data Summary Table
Outfall 008 - Discharge Monitoring Mass Summary Table

Outfall 009 - Discharge Monitoring Data Summary Table
Outfall 009 - Discharge Monitoring Mass Summary Table

Outfall 018 - Discharge Monitoring Data Summary Table
Outfall 018 - Discharge Monitoring Mass Summary Table

Arroyo Simi - Discharge Monitoring Data Summary Table

REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Not all of the following notes, abbreviations, symbols, or acronyms occur on every table:

1. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxic equivalents (TEQs) for the purpose of determining permit compliance are the sum of the products of the detected dioxin congener concentration multiplied by that congener's toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF). The resulting compliance TCDD TEQ does not include those congener concentrations that are reported as detected but not quantified (DNQ), as specified on page 26 of the NPDES permit (Water Board, 2015).

2. Temperature, total residual chlorine (TRC), dissolved oxygen (DO), and pH are measured in the field and are not validated.

3. pH and temperature are identified on the table as daily maximum discharge limits. The NPDES permit limit has an instantaneous minimum (6.5) and maximum (8.5) for pH and an instantaneous maximum of 86°F for temperature.

4. Exceedances are defined on page 6 of the NPDES permit as constituents in excess of daily maximum benchmark limits, daily maximum permit limits, or receiving water limits. Analytical concentrations or calculations to determine compliance to the NPDES permit are compared to the same number of significant figures as the daily maximum benchmark limits, daily maximum permit limits, or receiving water limits.

5. Priority pollutants, sampled once every five years, at Arroyo Simi Receiving Water sampling location (RSW-002, Frontier Park) were analyzed during the First Quarter 2018.

6. Dissolved metals are filtered by the laboratory and reported as "Metal, dissolved". Total metals are not filtered by the laboratory and reported as "Metal".

7. Abbreviations, symbols, and acronyms:

-92.9 +/-200	A negative radiochemical analytical result indicates the count rate of the sample was less than the background condition. Radiological results are presented as activity plus or minus total uncertainty.
%	Percent.
$	Reported result or other information was incorrectly reported by the laboratory; result was corrected by the data validator.
--	Based on validation of the data, a qualifier was not required.
-	No NPDES permit limit established for daily maximum or receiving water limit.
<(value)	Analyte not detected at a concentration greater than or equal to the detection limit (DL), method detection limit (MDL), or laboratory reporting limit (RL); see laboratory report for specific detail.
>(value)	Greater than most probable number.
*	Result not validated.
**	Flow for each outfall is calculated over the 24-hour period when the outfall autosampler is operating to collect the composite sample. See definition of "Daily Discharge" on page A-2 of attachment A of the NPDES permit.
*1	Improper preservation of sample.

REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

*2	The inductively coupled plasma (ICP)/matrix spike (MS) parts per billion (ppb) check standard was recovered above the control limit; therefore, the constituent detected was qualified as estimated (J).
*3	Initial and or continuing calibration recoveries were outside acceptable control limits.
*5	Blank spike/blank spike duplicate relative percent difference was outside the control limit.
*10	Value was estimated detect or estimated non-detect (J, UJ) due to deficiencies in quantitation of the constituent including constituents reported by the laboratory as estimated maximum possible concentration (EMPC) values.
*11	No calibration was performed for this compound; result is reported as a tentatively identified compound (TIC).
*II *III	Unusual problems found with the data that have been described in Section II, “sample management”, or Section III, “method analysis”. The number following the asterisk (*) will indicated the validation report section where a description of the problem can be found.
ANR	Analysis not required; e.g., constituent or outfall was not required by the NPDES permit to be sampled and analyzed over the reporting period (annual, semi-annual, etc.).
Avg	Average.
B	Laboratory method blank contamination.
BA	Relative percent difference out of control.
BEF	Bioaccumulation equivalency factor.
BU	Analyzed out of holding time.
BV	Sample received after holding time expired.
C	Calibration percent relative standard deviation (%RSD) or percent difference (%D) were noncompliant.
CaCO3	Calcium carbonate
Chromium VI	Hexavalent chromium
Comp	Composite sample type.
C5	Calibration verification percent recovery (%R) was outside method control limits.
CEs/100 ml	Cell equivalents per 100 milliliters.
D	The analysis with this flag should not be used because another more technically sound analysis is available.
%D	Percent difference between the initial and continuing calibration relative response factors.
Deg C	Degrees Celsius.
Deg F	Degrees Fahrenheit.
DL	Detection limit.
DNQ	Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
E	E in validation qualifier indicates that duplicates show poor agreement.

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EB	Equipment blank.
EMPC	Estimated maximum possible concentration.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
FB	Field blank.
F1	Matrix spike (MS) and/or matrix spike duplicate (MSD) recovery is outside acceptance limits.
ft/sec	Feet per second.
G	Gallons.
gpd	Gallons per day.
H	Holding time was exceeded.
Hardness	Equivalent of calcium carbonate (CaCO3).
Hp	Hepta.
Hx	Hexa.
ICP	Interference check solution results were unsatisfactory.
J	Estimated value.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
J, DX	Estimated value, value < lowest standard method quantitation limit (MQL), but > than method detection limit (MDL).
K	The sample dilution's set-up did not meet the oxygen depletion criteria of at least 2 milligrams per liter (mg/L); therefore, the reported result is an estimated value only.
L	Laboratory control sample percent recovery (%R) was outside control limits.
L1	Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
L2	The laboratory control sample percent recovery (%R) was below the method control limits.
LBS/DAY	Pounds per day.
LCS	Laboratory control standard.
LCSD	Laboratory control standard duplicate.
LQ	Laboratory control standard (LCS)/ laboratory control standard duplicate (LCSD) recovery above method control limits.
M1	Matrix spike (MS) and/or matrix spike duplicate (MSD) were above the acceptance limits due to sample matrix interference.
M2	The matrix spike (MS) and/or matrix spike duplicate (MSD) were below the acceptance limits due to sample matrix interference.
Max	Maximum.
MB	Analyte present in the method blank.
MDA/MDC	Minimum detectable activity/minimum detectable concentration.

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MDL	Method detection limit.
Meas	Measure sample type.
MFL	Million fibers per liter.
MGD	Million gallons per day.
MHA	Due to high level of analyte in the sample, the matrix spike (MS)/matrix spike duplicate (MSD) calculation does not provide useful spike recovery information.
mg/L	Milligrams per liter.
mg/kg	Milligrams per kilogram.
ml/L	Milliliters per liter
ml/L/hr	Milliliters per liter per hour.
MPN/100 mL	Most probable number per 100 milliliters.
MQL	Method quantitation limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
mS/cm	MilliSiemens per centimeter
NA	Not applicable; no NPDES permit limit established for the constituent and/or outfall or analyte not required per receiving water monitoring requirements.
ND	Analyte not detected.
NM	Not measured or determined or minimum detectable activities (MDAs) are not calculated as there is no statistical method for combining MDAs.
NPDES	National Pollutant Discharge Elimination System.
NR	Not reported by laboratory by the deadline of this report.
NTU	Nephelometric turbidity unit.
OCDD	Octa CDD.
OCDF	Octa CDF.
P	Pounds.
ppb	Parts per billion.
pCi/L	PicoCuries per liter.
Pe	Penta.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
Q	Matrix spike (MS) recovery outside of control limits.
Q1	Matrix spike (MS)/matrix spike duplicate (MSD) relative percent difference (RPD) was outside the control limit.
R	As a validation qualifier, results are rejected; the presence or absence of analyte cannot be verified.
(R)	Percent recovery (%R) for calibration not within control limits.
RL	Laboratory reporting limit.

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RL-1	Reporting limit raised due to sample matrix effects.
RPD	Relative percent difference.
%R	Percent recovery.
%RSD	Percent relative standard deviation.
% Normal/Alive	Percent normal and alive.
% Survival	Percent survival.
S	Surrogate recovery was outside control limits.
s.u.	Standard unit.
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin.
TCDF	2,3,7,8-tetrachlorodibenzo-p-furan.
TEQ	Toxic equivalent.
TIC	Tentatively identified compound
TIE	Toxicity identification evaluation
TOC	Total organic carbon
T	Presumed contamination, as indicated by a detect in the trip blank.
U	Result not detected.
µg/L	Micrograms per liter.
µg/g	Micrograms per gram.
µg/kg	Micrograms per kilogram.
µmhos/cm	Micromhos per centimeter.
UJ	Result not detected at the estimated reporting limit.
WHO TEF	World Health Organization toxic equivalency factor.
w/out	Without.
^	Analysis not completed due to hold time exceedance or insufficient sample volume.
#	Per Order No. R4-2015-0033, page 16, Footnote 1. The effluent limitations for total suspended solids and settleable solids are not applicable for discharges during wet weather. During wet weather flow, a discharge event is greater than 0.1 inch of rainfall in a 24-hour period. No more than one sample per week need be obtained during extended periods of rainfall or the discharge of collected stormwater. A storm event must be preceded by at least 72 hours of dry weather.
(1)	Based on the NPDES permit, table E-3a footnote 2, receiving water samples for pH, hardness, and priority pollutants must be collected on the same day as effluent samples.
(2)	Additional sample, not required by the NPDES permit.
(4.0)3.1/-	Represents (dry weather limit) wet weather limit / monthly average limit.
(3)	Secondary maximum contaminant level.

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(4)	The drinking water maximum contaminant level of 3.00E-05 µg/L is for the dioxin congener 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). TCDD Toxic Equivalent (TEQ) without detected but not quantified (DNQ) values is the sum of the products of the detected dioxin congener concentration multiplied by that congener's toxic Equivalency factor (TEF) and bioaccumulation equivalency factor (BEF). There are 17 dioxin congeners.
(a)	Based on Order No. R4-2015-0033, page 17, footnote 7, sampling event is a dry discharge and the NPDES Permit Limit for cadmium is 4.0 ug/L and 3.93 lbs/day at OF001,002,011,018 and 0.24 lbs/day at OF008.
(b)	Based on Order No. R4-2015-0033, page 17, footnote 7, sampling event is a wet discharge and the NPDES Permit Limit for cadmium is 3.1 ug/L and 4.91 lbs/day at OF001,002,011,018 and 3.05 lbs/day at OF008.
(c)	Based on Order No. R4-2015-0033, page 16, footnote 1, sampled during wet weather flow. The effluent limitations for total suspended solids and/or settleable solids are not applicable for discharges during wet weather.
(d)	Based on Order No. R4-2015-0033, page 16, footnote 1, sampled during dry weather flow. The effluent limitations for total suspended solids and/or settleable solids are applicable for discharges during dry weather.
(e)	Based on Order No. R4-2015-0033, page 17, footnote 8, sampling event is a dry discharge and the NPDES Permit Limit for selenium is 5 ug/L and 4.91 lbs/day.
(f)	Based on Order No. R4-2015-0033, page 17, footnote 8, sampling event is a wet discharge and the NPDES Permit Limit for selenium is 8.2 ug/L and 8.06 lbs/day.
(g)	The sampling frequency of this constituent is increased from once per year to once per discharge until four consecutive sample results demonstrate compliance per the NPDES permit. The corresponding dissolved metal also increased in sampling frequency to once per discharge. During the First Quarter 2020, various metals reverted back to annual sampling but may have continued to be analyzed due to laboratory or field error.
(h)	Total Ammonia is reported in wet weight units milligrams per kilogram (mg/kg).
(i)	Total organic carbon (TOC) is reported in dry weight units. Permit asks for TOC units in % dry weight, but data is provided in dry unit milligrams per kilogram (mg/kg).
(j)	Analyte does not have a receiving water limit for Bell Creek Receiving Water (RSW-001, OF002).
(k)	Reserved.
(l)	When field staff arrived onsite to collect the composite sample they discovered that the autosampler had malfunctioned and had not collected "sips." Field staff repaired the autosampler, reset it, determined it was functioning properly, then returned the next day to collect the composite sample.
(m)	The composite sample was collected as a grab sample from the sample box due to insufficient flow.
(n)	The grab sample was collected at the first opportunity given the short duration and low-flow at this Outfall.
(o)	Unsafe conditions all day prevented access to the Outfall.
(p)	Various annual constituents were analyzed by laboratory due to field and laboratory error.
(q)	Minimum level not met due to laboratory error.

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	0.197385	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	Composite	ND < 2.0	U*
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.4	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	Grab	8.24	*
Total Suspended Solids#	mg/L	45	1/Discharge	Composite	43 (c)	*
PRIORITY POLLUTANTS						
1,1-Dichloroethene	µg/L	6.0	1/Discharge	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	Composite	ND < 0.10	U*
2,4-Dinitrotoluene	µg/L	18	1/Discharge	Composite	ND < 2.1	U*
alpha-BHC	µg/L	0.03	1/Discharge	Composite	ND < 0.0025	U*
Antimony	µg/L	6.0	1/Year	Composite	ND < 0.50	UJ (M)
Arsenic	µg/L	10.0	1/Year	Composite	ND < 8.9	U
Beryllium	µg/L	4.0	1/Year	Composite	ND < 1.0	U
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	Composite	ND < 2.1	U*
Cadmium	µg/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 (b)	UJ (M)
Chromium VI (Hexavalent)	µg/L	16	1/Year	Composite	ND < 0.25	U*
Copper	µg/L	14	1/Discharge	Composite	4.9	J (M)
Cyanide	µg/L	8.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	2.6	J (M)
Mercury	µg/L	0.1	1/Discharge	Composite	ND < 0.10	U*
Nickel	µg/L	94	1/Year	Composite	5.8	J (DNQ)
N-Nitrosodimethylamine	µg/L	16	1/Discharge	Composite	ND < 0.31	U*
Pentachlorophenol	µg/L	16.5	1/Discharge	Composite	ND < 1.0	U*
Selenium	µg/L	(5) 8.2	1/Discharge	Composite	ND < 0.50 (f)	UJ (M)
Silver	µg/L	4.1	1/Year	Composite	ND < 0.50	UJ (M)
Thallium	µg/L	2.0	1/Year	Composite	ND < 0.20	UJ (M)
Trichloroethene	µg/L	5.0	1/Discharge	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	Composite	30	--
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	ND < 0.100	U*
Barium	mg/L	1.0	1/Year	Composite	0.042	--
Chloride	mg/L	150	1/Discharge	Composite	3.0	*
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	Grab	0.01	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, 2.87	*
Detergents (as MBAS)	mg/L	0.5	1/Discharge	Composite	0.052	J (DNQ*)
Fluoride	mg/L	1.6	1/Year	Composite	ND < 0.25	U*
Iron	mg/L	0.3	1/Discharge(g)	Composite	5.4	--
Manganese	µg/L	50	1/Discharge(g)	Composite	90	--
Nitrate - N	mg/L	8	1/Discharge	Composite	0.29	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.29	*
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U*
Perchlorate	µg/L	6.0	1/Discharge	Composite	ND < 0.95	U*
Settleable Solids#	ml/L	0.3	1/Discharge	Grab	ND < 0.10 (c)	U
Sulfate	mg/L	300	1/Discharge	Composite	5.3	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	48.9	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	93	*
REMAINING PRIORITY POLLUTANTS(p)						
1,1,1-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2,4-Trichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichloropropane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
1,3-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,3-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,4-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,4-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
2,4-Dichlorophenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
2,4-Dimethylphenol	µg/L	-	1/Year	Composite	ND < 0.52	U*
2,4-Dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.0	U*
2,6-Dinitrotoluene	µg/L	-	1/Year	Composite	ND < 2.1	U*
2-Chloroethyl vinyl ether	µg/L	-	1/Year	Grab	ND < 1.0	U
2-Chloronaphthalene	µg/L	-	1/Year	Composite	ND < 0.10	U*
2-Chlorophenol	µg/L	-	1/Year	Composite	ND < 0.10	U*
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.0	U*
2-Nitrophenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
3,3'-Dichlorobenzidine	µg/L	-	1/Year	Composite	ND < 1.0	U*
4,4'-DDD	µg/L	-	1/Year	Composite	ND < 0.0041	U*
4,4'-DDE	µg/L	-	1/Year	Composite	ND < 0.0030	U*
4,4'-DDT	µg/L	-	1/Year	Composite	ND < 0.0041	U*
4-Bromophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.10	U*
4-Chloro-3-methylphenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.10	U*
4-Nitrophenol	µg/L	-	1/Year	Composite	ND < 2.1	U*
Acenaphthene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Acenaphthylene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Acrolein	µg/L	-	1/Year	Grab	ND < 2.5	UJ (Q1)
Acrylonitrile	µg/L	-	1/Year	Grab	ND < 1.0	U
Aldrin	µg/L	-	1/Year	Composite	ND < 0.0015	U*
alpha-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0030	U*
Anthracene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Aroclor 1016	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1221	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1232	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1242	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1248	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1254	µg/L	-	1/Year	Composite	ND < 0.25	U*
Aroclor 1260	µg/L	-	1/Year	Composite	ND < 0.25	U*
Benzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Benzidine	µg/L	-	1/Year	Composite	ND < 5.2	U*
Benzo(a)anthracene	µg/L	-	1/Year	Composite	ND < 1.0	U*
Benzo(a)pyrene	µg/L	-	1/Year	Composite	ND < 0.21	U*
Benzo(b)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.31	U*
Benzo(g,h,i)perylene	µg/L	-	1/Year	Composite	ND < 1.0	U*
Benzo(k)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.10	U*
beta-BHC	µg/L	-	1/Year	Composite	ND < 0.0041	U*
beta-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	Composite	ND < 0.21	U*
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	Composite	ND < 0.052	U*
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	Composite	ND < 0.10	U*
Bromoform	µg/L	-	1/Year	Grab	ND < 0.40	U
Bromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Butyl benzylphthalate	µg/L	-	1/Year	Composite	ND < 2.1	U*
Carbon tetrachloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlordane	µg/L	-	1/Year	Composite	ND < 0.081	U*
Chlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlorodibromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloroethane	µg/L	-	1/Year	Grab	ND < 0.40	U
Chloroform	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	Grab	ND < 0.25	U
Chromium	µg/L	-	1/Year	Composite	5.3	--

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				3/23/2020 7:45 - 3/24/2020 8:25		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Chrysene	µg/L	-	1/Year	Composite	ND < 0.10	U*
cis-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
delta-BHC	µg/L	-	1/Year	Composite	ND < 0.0036	U*
Dibenz(a,h)anthracene	µg/L	-	1/Year	Composite	ND < 0.21	U*
Dichlorobromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Dieldrin	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Diethyl phthalate	µg/L	-	1/Year	Composite	ND < 0.21	U*
Dimethyl phthalate	µg/L	-	1/Year	Composite	ND < 0.10	U*
Di-n-butyl phthalate	µg/L	-	1/Year	Composite	ND < 0.52	U*
Di-n-octyl phthalate	µg/L	-	1/Year	Composite	ND < 1.0	U*
Endosulfan sulfate	µg/L	-	1/Year	Composite	ND < 0.0030	U*
Endrin	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Endrin aldehyde	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Ethylbenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Fluoranthene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Fluorene	µg/L	-	1/Year	Composite	ND < 0.10	U*
gamma-BHC (Lindane)	µg/L	-	1/Year	Composite	ND < 0.0030	U*
Heptachlor	µg/L	-	1/Year	Composite	ND < 0.0030	U*
Heptachlor epoxide	µg/L	-	1/Year	Composite	ND < 0.0025	U*
Hexachlorobenzene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Hexachlorobutadiene	µg/L	-	1/Year	Composite	ND < 0.52	U*
Hexachlorocyclopentadiene	µg/L	-	1/Year	Composite	ND < 2.1	U*
Hexachloroethane	µg/L	-	1/Year	Composite	ND < 0.52	U*
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	Composite	ND < 0.42	U*
Isophorone	µg/L	-	1/Year	Composite	ND < 0.21	U*
m,p-Xylenes	µg/L	-	1/Year	Grab	ND < 0.50	U
Methylene chloride	µg/L	-	1/Year	Grab	ND < 0.88	U
Naphthalene	µg/L	-	1/Year	Composite	ND < 0.052	U*
Naphthalene	µg/L	-	1/Year	Grab	ND < 0.40	U
Nitrobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitrosodiphenylamine	µg/L	-	1/Year	Composite	ND < 0.21	U*
o-Xylene	µg/L	-	1/Year	Grab	ND < 0.25	U
Phenanthrene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Phenol	µg/L	-	1/Year	Composite	ND < 0.10	U*
Pyrene	µg/L	-	1/Year	Composite	ND < 0.10	U*
Tetrachloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toluene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toxaphene	µg/L	-	1/Year	Composite	ND < 0.24	U*
trans-1,2-Dichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
trans-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
Trichlorofluoromethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Vinyl chloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Xylenes (Total)	µg/L	-	1/Year	Grab	ND < 0.50	U
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	Grab	ND < 0.50	U
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	Grab	ND < 1.0	U
1,4-Dioxane	µg/L	-	1/Year	Composite	ND < 0.50	U*
Boron	mg/L	-	1/Year	Composite	0.056	--
cis-1,2-Dichloroethene[(p)]	µg/L	-	1/Year	Grab	ND < 0.25	U
Cobalt	µg/L	-	1/Year	Composite	ND < 5.0	U
Conductivity	µmhos/cm	-	1/Discharge	Grab	130	--
Cyclohexane	µg/L	-	1/Year	Grab	ND < 1.0	U
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	Grab	ND < 0.10	U
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	Grab	10.27	*
E. Coli	mpn/100mL	-	1/Year	Grab	490	--
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	Grab	ND < 0.025	U
Hardness (as CaCO3)	mg/L	-	1/Year	Composite	48	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:45 - 3/24/2020 8:25		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Monomethyl hydrazine	µg/L	-	1/Year	Composite	ND < 1.0	U*
Total Organic Carbon	mg/L	-	1/Year	Composite	13	*
Turbidity	NTU	-	1/Discharge	Composite	110	*
Vanadium	µg/L	-	1/Year	Composite	11	--
ADDITIONAL POLLUTANTS[2]						
Antimony, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.50	UJ (M)
Arsenic, dissolved	µg/L	-	Additional/Year	Composite	18	--
Barium, dissolved	mg/L	-	Additional/Year	Composite	0.014	--
Beryllium, dissolved	µg/L	-	Additional/Year	Composite	ND < 1.0	U
Boron, dissolved	mg/L	-	Additional/Year	Composite	0.052	--
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	UJ (M)
Chromium, dissolved	µg/L	-	Additional/Year	Composite	ND < 2.5	U
Cobalt, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	U
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	2.6	J (M)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	Composite	38	*
Human Bacteroides	CEs/100mL	-	Additional/Year	Grab	3220	*
Iron, dissolved	mg/L	-	Additional/Discharge[g]	Composite	0.29	--
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	UJ (M)
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	Composite	ND < 15	U
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	U
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	0.88	J (M, DNQ)
Silver, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.50	UJ (M)
Thallium, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.20	UJ (M)
Vanadium, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	U
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	U

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OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

					3/24/2020 8:25 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	1.4E-06	6.5E-05	--	3.25E-08
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	7.2E-07	1.9E-05	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	1.0E-06	1.1E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	7.5E-07	1.9E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	1.3E-06	ND	U	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	8.2E-07	3.1E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	1.3E-06	ND	U	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	7.2E-07	1.2E-06	UJ (*III)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	8.7E-07	ND	U	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	8.9E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	6.7E-07	ND	U	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	7.9E-07	ND	U	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	7.1E-07	ND	U	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	5.3E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	4.1E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	2.7E-06	4.3E-04	--	4.3E-10
OCDF	1/Discharge	0.0001	0.02	µg/L	1.2E-06	3.5E-05	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**3.3E-08**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

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OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/24/2020 8:25 (Composite)		
ANALYTE	**UNITS**	**DAILY MAXIMUM BENCHMARK**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	2.96+/-1.40	1.71	*
Gross Beta	pCi/L	50	1/Discharge	2.86+/-0.812	0.885	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.738+/-0.442	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	-0.321+/-0.389	0.746	U*
Tritium	pCi/L	20,000	1/Discharge	-101+/-171	327	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-6.77+/-12.9	15.5	U*
Uranium	pCi/L	20	1/Discharge	0.365+/-0.288	0.315	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-68.8+/-137	197	U*

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OUTFALL 001
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:45 - 3/24/2020 8:25		
ANALYTE	**UNITS**	**DAILY MAXIMUM BENCHMARK**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	0.197385	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U*
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	71 [(c)]	*
PRIORITY POLLUTANTS						
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U*
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U*
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U*
Antimony	LBS/DAY	5.9	1/Year	Composite	ND	UJ (M)
Arsenic	LBS/DAY	9.83	1/Year	Composite	ND	U
Beryllium	LBS/DAY	3.93	1/Year	Composite	ND	U
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U*
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(b)]	UJ (M)
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	Composite	ND	U*
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.0081	J (M)
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	5.11	1/Discharge	Composite	0.0043	J (M)
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	92.4	1/Year	Composite	0.0095	J (DNQ)
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U*
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	ND	U*
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(f)]	UJ (M)
Silver	LBS/DAY	4.03	1/Year	Composite	ND	UJ (M)
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	5.4E-11	*
Thallium	LBS/DAY	1.97	1/Year	Composite	ND	UJ (M)
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U
Zinc	LBS/DAY	117	1/Discharge	Composite	0.049	--
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	ND	U*
Barium	LBS/DAY	983	1/Year	Composite	0.069	--
Chloride	LBS/DAY	147,405	1/Discharge	Composite	4.9	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	Grab	0.02	*
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.086	J (DNQ*)
Fluoride	LBS/DAY	1,572.3	1/Year	Composite	ND	U*
Iron	LBS/DAY	295	1/Discharge[(g)]	Composite	8.9	--
Manganese	LBS/DAY	49.1	1/Discharge[(g)]	Composite	0.15	--
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	0.48	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	0.48	*
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U*
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	8.7	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	153	*

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						01/07/2020 11:05 - 01/08/2020 10:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	1.06847	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	ND < 2.0	U
Oil & Grease	mg/L	15	1/Discharge	NA	-	Grab	ND < 1.4	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	Grab	7.4	*
Total Suspended Solids#	mg/L	45	1/Discharge	1/Year	-	Composite	6.8 (d)	--
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	Composite	ND < 0.11	U
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	Composite	ND < 0.0026	U
Antimony	µg/L	6.0	1/Year	1/5 Years	-	Composite	ND < 0.50	U
Arsenic	µg/L	10.0	1/Discharge(g)	1/5 Years	-	Composite	ND < 8.9	U
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	Composite	ND < 1.0	U
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	Composite	ND < 0.25 (a)	U
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	Composite	ND < 0.25	U
Copper	µg/L	14	1/Discharge	1/5 Years	-	Composite	1.7	J (DNQ)
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	Composite	ND < 2.5	U
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50	U
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U
Nickel	µg/L	94	1/Year	1/5 Years	-	Composite	ND < 5.0	U
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	Composite	ND < 0.32	U
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	Composite	1.3	J (DNQ)
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50 (e)	U
Silver	µg/L	4.1	1/Year	1/5 Years	-	Composite	ND < 0.50	U
Thallium	µg/L	2.0	1/Year	1/5 Years	-	Composite	ND < 0.20	U
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	1/5 Years	-	Composite	ND < 12	U
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	Composite	0.134	J (DNQ)
Barium	mg/L	1.0	1/Year	NA	-	Composite	0.024	--
Chloride	mg/L	150	1/Discharge	NA	-	Composite	9.6	--
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	Grab	0.05	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	Composite	-80	--
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	Composite	0.073	J (DNQ)
Fluoride	mg/L	1.6	1/Year	NA	-	Composite	ND < 0.25	U
Iron	mg/L	0.3	1/Discharge(g)	NA	-	Composite	0.082	J (DNQ)

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						01/07/2020 11:05 - 01/08/2020 10:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	Composite	15	J (DNQ)
Nitrate - N	mg/L	8	1/Discharge	NA	-	Composite	1.3	--
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	Composite	1.3	--
Nitrite - N	mg/L	1	1/Discharge	NA	-	Composite	0.035	J (DNQ)
Perchlorate	µg/L	6.0	1/Discharge	NA	-	Composite	ND < 0.95	U
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	Grab	ND < 0.10 [d]	U
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	160	--
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	52.1	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	340	--
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	0.25	J (DNQ)
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.53	U
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	U
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 2.1	U
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 1.0	U
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	U
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	R (Q)
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	Composite	ND < 0.0042	U
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	Composite	ND < 0.0031	U
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	Composite	ND < 0.0042	U
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						01/07/2020 11:05 - 01/08/2020 10:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 2.1	U
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Acrolein	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 2.5	U
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 1.0	U
Aldrin	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0016	U
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0031	U
Anthracene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.26	U
Benzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Benzidine	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 5.3	R (L, Q)
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	U
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.32	U
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	U
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
beta-BHC	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0042	U
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0021	U
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.053	U
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Bromoform	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.40	U
Bromomethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 2.1	U
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	Composite	ND < 0.084	U
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	0.61	--
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Chloroethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.40	U
Chloroform	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Chromium	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 2.5	U
Chrysene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						01/07/2020 11:05 - 01/08/2020 10:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
delta-BHC	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0037	U
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	Composite	ND < 0.0021	U
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.53	U
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 1.1	U
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0031	U
Endrin	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0021	U
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0021	U
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Fluorene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0031	U
Heptachlor	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0031	U
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.0026	U
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.53	U
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 2.1	UJ (L, Q)
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.53	U
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.43	U
Isophorone	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.50	U
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.88	U
Naphthalene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.053	U
Naphthalene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.40	U
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.21	U
o-Xylene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Phenol	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Pyrene	µg/L	-	1/Year	1/5 Years	-	Composite	ND < 0.11	U
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Toluene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	Composite	ND < 0.25	U
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U

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NPDES PERMIT CA0001309

January 1 through March 31, 2020

						01/07/2020 11:05 - 01/08/2020 10:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.50	R (D)
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	Grab	ND < 0.50	U
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	Grab	ND < 1.0	U
1,4-Dioxane	µg/L	-	1/Year	NA	-	Composite	ND < 0.50	U
Boron	mg/L	-	1/Year	NA	-	Composite	0.056	--
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	Grab	ND < 0.25	U
Cobalt	µg/L	-	1/Year	NA	-	Composite	ND < 5.0	U
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	700	--
Cyclohexane	µg/L	-	1/Year	NA	-	Grab	ND < 1.0	U
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	Grab	ND < 0.11	U
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	Grab	7.84	*
E. Coli	mpn/100mL	-	1/Year	1/Year	235	Grab	1,100	--
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	Grab	ND < 0.025	U
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	Composite	140	--
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	Composite	ND < 2.0	R (H)
Total Organic Carbon	mg/L	-	1/Year	NA	-	Composite	5.2	--
Turbidity	NTU	-	1/Discharge	NA	-	Composite	3.1	--
Vanadium	µg/L	-	1/Year	NA	-	Composite	ND < 5.0	U
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 0.50	UJ (H)
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 8.9	UJ (H)
Barium, dissolved	mg/L	-	Additional/Year	NA	-	Composite	0.028	J (H)
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 1.0	UJ (H)
Boron, dissolved	mg/L	-	Additional/Year	NA	-	Composite	0.051	J (H)
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 2.5	UJ (H)
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 5.0	UJ (H)
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	1.3	J (H, DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	Composite	140	J (H)
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	Grab	ND	U*
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 0.050	UJ (H)
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 15	UJ (H)

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NPDES PERMIT CA0001309

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	UJ (H)
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 5.0	UJ (H)
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Silver, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 0.50	UJ (H)
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 0.20	UJ (H)
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	Composite	ND < 5.0	UJ (H)
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 12	UJ (H)
Diazinon	µg/L	-	Additional[(p)]	NA	-	Composite	ND < 0.0052	UJ (H)
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	Composite	ND < 0.0069	U

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						1/11/2020 8:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	ANR	ANR	ANR
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	ANR	ANR	ANR
Oil & Grease	mg/L	15	1/Discharge	NA	-	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	ANR	ANR	ANR
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	ANR	ANR	ANR
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	ANR	ANR	ANR
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Zinc	µg/L	119	1/Discharge	1/5 Years	-	ANR	ANR	ANR
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	ANR	ANR	ANR
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	ANR	ANR	ANR
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	ANR	ANR	ANR

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NPDES PERMIT CA0001309

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						1/11/2020 8:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrite - N	mg/L	1	1/Discharge	NA	-	ANR	ANR	ANR
Perchlorate	µg/L	6.0	1/Discharge	NA	-	ANR	ANR	ANR
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	ANR	ANR	ANR
Sulfate	mg/L	300	1/Discharge	NA	-	ANR	ANR	ANR
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	ANR	ANR	ANR
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	ANR	ANR	ANR
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/11/2020 8:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/11/2020 8:55		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	ANR	ANR	ANR
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	1/Year	235	Grab	46	--
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	ANR	ANR	ANR
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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SANTA SUSANA FIELD LABORATORY
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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	ANR	ANR	ANR
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	ANR	ANR	ANR
Oil & Grease	mg/L	15	1/Discharge	NA	-	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	ANR	ANR	ANR
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	ANR	ANR	ANR
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	ANR	ANR	ANR
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Zinc	µg/L	119	1/Discharge	1/5 Years	-	ANR	ANR	ANR
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	ANR	ANR	ANR
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	ANR	ANR	ANR
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	ANR	ANR	ANR

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THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrite - N	mg/L	1	1/Discharge	NA	-	ANR	ANR	ANR
Perchlorate	µg/L	6.0	1/Discharge	NA	-	ANR	ANR	ANR
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	ANR	ANR	ANR
Sulfate	mg/L	300	1/Discharge	NA	-	ANR	ANR	ANR
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	ANR	ANR	ANR
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	ANR	ANR	ANR
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/12/2020 7:30		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/12/2020 7:30		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	ANR	ANR	ANR
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	1/Year	235	Grab	26	--
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	ANR	ANR	ANR
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	ANR	ANR	ANR
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	ANR	ANR	ANR
Oil & Grease	mg/L	15	1/Discharge	NA	-	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	ANR	ANR	ANR
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	ANR	ANR	ANR
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	ANR	ANR	ANR
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Zinc	µg/L	119	1/Discharge	1/5 Years	-	ANR	ANR	ANR
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	ANR	ANR	ANR
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	ANR	ANR	ANR
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	ANR	ANR	ANR

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NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrite - N	mg/L	1	1/Discharge	NA	-	ANR	ANR	ANR
Perchlorate	µg/L	6.0	1/Discharge	NA	-	ANR	ANR	ANR
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	ANR	ANR	ANR
Sulfate	mg/L	300	1/Discharge	NA	-	ANR	ANR	ANR
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	ANR	ANR	ANR
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	ANR	ANR	ANR
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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NPDES PERMIT CA0001309

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/13/2020 7:10		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/13/2020 7:10		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	ANR	ANR	ANR
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	1/Year	235	Grab	17	J (H)
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	ANR	ANR	ANR
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	ANR	ANR	ANR
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	ANR	ANR	ANR
Oil & Grease	mg/L	15	1/Discharge	NA	-	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	ANR	ANR	ANR
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	ANR	ANR	ANR
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	ANR	ANR	ANR
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	ANR	ANR	ANR
Zinc	µg/L	119	1/Discharge	1/5 Years	-	ANR	ANR	ANR
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	ANR	ANR	ANR
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	ANR	ANR	ANR
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	ANR	ANR	ANR

OUTFALL 002
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FIRST QUARTER 2020
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NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	ANR	ANR	ANR
Nitrite - N	mg/L	1	1/Discharge	NA	-	ANR	ANR	ANR
Perchlorate	µg/L	6.0	1/Discharge	NA	-	ANR	ANR	ANR
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	ANR	ANR	ANR
Sulfate	mg/L	300	1/Discharge	NA	-	ANR	ANR	ANR
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	ANR	ANR	ANR
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	ANR	ANR	ANR
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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NPDES PERMIT CA0001309

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/14/2020 7:15		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/14/2020 7:15		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	ANR	ANR	ANR
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	1/Year	235	Grab	12	--
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	ANR	ANR	ANR
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/14/2020 7:15		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	ANR	ANR	ANR
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	0.019995	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	2.0	--
Oil & Grease	mg/L	15	1/Discharge	NA	-	Grab	ND < 1.5	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	Grab	6.90	*
Total Suspended Solids#	mg/L	45	1/Discharge	1/Year	-	Composite	2.6 (d)	--
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	Composite	ND < 2.0	U
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	Composite	ND < 0.021	U
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge(g)	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	Composite	ND < 2.0	U
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	Composite	ND < 0.25 (b)	U
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	Composite	0.86	J (DNQ)
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	Composite	ND < 2.5	U
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50	U
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	Composite	ND < 0.10	UJ (B)
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	Composite	ND < 0.30	U
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	Composite	ND < 1.0	U
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50 (f)	U
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	1/5 Years	-	Composite	ND < 12	U
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	Composite	ND < 0.100	U
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	Composite	31	--
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	Composite	Pass, -60.49	--
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	Composite	0.085	J (DNQ)
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge(g)	NA	-	Composite	0.060	J (DNQ)

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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	Composite	0.13	--
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	Composite	0.13	J (DNQ)
Nitrite - N	mg/L	1	1/Discharge	NA	-	Composite	ND < 0.025	U
Perchlorate	µg/L	6.0	1/Discharge	NA	-	Composite	ND < 0.95	U
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	Grab	ND < 0.10 [d]	U
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	190	--
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	44.2	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	560	--
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	750	--
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	Grab	9.23	*
E. Coli	mpn/100mL	-	1/Year	1/Year	235	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	Composite	2.1	--
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	0.76	J (H, DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 0.050	UJ (H)
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.141	UJ (H, B)
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 12	UJ (H)
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/13/2020 7:40 - 3/14/2020 8:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	0.096679	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	2.0	*
Oil & Grease	mg/L	15	1/Discharge	NA	-	Grab	ND < 1.5	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	Grab	7.91	*
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	Composite	14 [(c)]	*
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	Composite	ND < 0.11	U*
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U*
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	Composite	ND < 0.020	U*
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	Composite	ND < 8.9	U
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U*
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	Composite	ND < 0.25 [(b)]	U
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	Composite	2.1	--
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	Composite	0.63	J (DNQ)
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U*
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	Composite	ND < 0.32	U*
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	Composite	ND < 1.1	U*
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50 [(f)]	U
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	1/5 Years	-	Composite	ND < 12	U
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	Composite	0.108	J (DNQ*)
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	Composite	22	*
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	Composite	Pass, 0.00	*
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	Composite	0.098	J (DNQ*)
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	Composite	1.3	J- (Q, Q1)

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/13/2020 7:40 - 3/14/2020 8:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	Composite	27	--
Nitrate - N	mg/L	8	1/Discharge	NA	-	Composite	0.083	J (DNQ*)
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	Composite	0.083	J (DNQ*)
Nitrite - N	mg/L	1	1/Discharge	NA	-	Composite	ND < 0.025	U*
Perchlorate	µg/L	6.0	1/Discharge	NA	-	Composite	ND < 0.95	U*
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	Grab	ND < 0.10 [c]	U
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	150	*
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	51.46	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	410	*
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/13/2020 7:40 - 3/14/2020 8:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	550	--
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	Grab	9.24	*
E. Coli	mpn/100mL	-	1/Year	1/Year	235	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	Composite	49	*
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	Composite	1,000	J+ (Q, Q1)
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	Composite	ND < 50	UJ (H)
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 8.9	UJ (H)
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	1.3	J (H, DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 0.050	UJ (H)
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 15	UJ (H)

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SANTA SUSANA FIELD LABORATORY
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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 12	UJ (H)
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	0.017445	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	ND < 2.0	U
Oil & Grease	mg/L	15	1/Discharge	NA	-	Grab	ND < 1.4	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	Grab	8.35	*
Total Suspended Solids[#]	mg/L	45	1/Discharge	1/Year	-	Composite	0.60 [(d)]	J (DNQ)
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	Composite	ND < 0.021	U
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge[(g)]	1/5 Years	-	Composite	ND < 8.9	U
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	Composite	ND < 2.1	U
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	Composite	ND < 0.25 [(a)]	U
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	Composite	0.8	J (DNQ)
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	Composite	ND < 2.5	U
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50	U
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	Composite	ND < 0.31	U
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	Composite	ND < 1.0	U
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50 [(e)]	U
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	1/5 Years	-	Composite	ND < 12	U
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	Composite	ND < 0.100	U
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	Composite	35	--
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	Composite	0.14	--
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge[(g)]	NA	-	Composite	ND < 0.050	U

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NPDES PERMIT CA0001309

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ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	Composite	ND < 15	U
Nitrate - N	mg/L	8	1/Discharge	NA	-	Composite	ND < 0.055	U
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	Composite	ND < 0.055	U
Nitrite - N	mg/L	1	1/Discharge	NA	-	Composite	ND < 0.025	U
Perchlorate	µg/L	6.0	1/Discharge	NA	-	Composite	ND < 0.95	U
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	Grab	ND < 0.10 [d]	U
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	220	--
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	49.1	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	690	--
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/20/2020 9:40 - 3/21/2020 8:20		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/20/2020 9:40 - 3/21/2020 8:20		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	940	--
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	Grab	12.33	*
E. Coli	mpn/100mL	-	1/Year	1/Year	235	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	Composite	0.32	--
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 8.9	UJ (H)
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 0.050	U
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 15	UJ (H)

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FIRST QUARTER 2020
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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/20/2020 9:40 - 3/21/2020 8:20		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	UJ (H)
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	UJ (H)
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 12	UJ (H)
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

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DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	1.17623	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	ND < 2.0	U*
Oil & Grease	mg/L	15	1/Discharge	NA	-	Grab	ND < 1.5	U*
pH (Field)	s.u.	6.5-8.5	1/Discharge	1/Quarter	6.5-8.5	Grab	6.77	*
Total Suspended Solids#	mg/L	45	1/Discharge	1/Year	-	Composite	ND < 0.50 (d)	U*
PRIORITY POLLUTANTS								
1,1-Dichloroethene	µg/L	6.0	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U*
1,2-Dichloroethane	µg/L	0.5	1/Discharge	1/5 Years	-	Grab	ND < 0.25	U*
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	1/5 Years	-	Composite	ND < 0.11	U*
2,4-Dinitrotoluene	µg/L	18	1/Discharge	1/5 Years	-	Composite	ND < 2.2	U*
alpha-BHC	µg/L	0.03	1/Discharge	1/5 Years	-	Composite	ND < 0.021	U*
Antimony	µg/L	6.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Discharge(g)	1/5 Years	-	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	1/5 Years	-	Composite	ND < 2.2	U*
Cadmium	µg/L	(4.0) 3.1	1/Discharge	1/5 Years	-	Composite	ND < 0.25 (a)	U*
Chromium VI (Hexavalent)	µg/L	16	1/Year	1/5 Years	-	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	1/5 Years	-	Composite	2.1	*
Cyanide	µg/L	8.5	1/Discharge	1/5 Years	-	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50	U*
Mercury	µg/L	0.1	1/Discharge	1/5 Years	-	Composite	ND < 0.10	U*
Nickel	µg/L	94	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	1/5 Years	-	Composite	ND < 0.33	U*
Pentachlorophenol	µg/L	16.5	1/Discharge	1/5 Years	-	Composite	ND < 1.1	U*
Selenium	µg/L	(5) 8.2	1/Discharge	1/5 Years	-	Composite	ND < 0.50 (e)	U*
Silver	µg/L	4.1	1/Year	1/5 Years	-	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	1/5 Years	-	Grab	0.69	*
Zinc	µg/L	119	1/Discharge	1/5 Years	-	Composite	ND < 12	U*
NON-CONVENTIONAL POLLUTANTS								
Ammonia - N	mg/L	10.1	1/Discharge	NA	-	Composite	ND < 0.100	U*
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	Composite	7.4	*
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	NA	-	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	NA	-	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	NA	-	Composite	0.10	*
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge(g)	NA	-	Composite	ND < 0.050	U*

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THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Manganese	µg/L	50	1/Discharge[g]	NA	-	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	NA	-	Composite	0.15	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	NA	-	Composite	0.15	*
Nitrite - N	mg/L	1	1/Discharge	NA	-	Composite	ND < 0.025	U*
Perchlorate	µg/L	6.0	1/Discharge	NA	-	Composite	ND < 0.95	U*
Settleable Solids#	ml/L	0.3	1/Discharge	NA	-	Grab	ND < 0.10 [d]	U*
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	98	*
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	49.9	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	250	*
REMAINING PRIORITY POLLUTANTS								
1,1,1-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	1/Quarter	0.0014	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

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4-Nitrophenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	1/Quarter	0.001	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
cis-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	1/Quarter	0.0002	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	1/Quarter	0.0003	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
trans-1,3-Dichloropropene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS								
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	NA	-	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Boron	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	390	*
Cyclohexane	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	NA	-	Grab	11.97	*
E. Coli	mpn/100mL	-	1/Year	1/Year	235	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Monomethyl hydrazine	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	NA	-	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	NA	-	Composite	0.74	*
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]								
Aluminum	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Aluminum, dissolved	µg/L	-	Additional[p]	NA	-	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.25	U*
Chromium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	1.8	J (DNQ*)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge[g]	NA	-	Composite	ND < 0.050	U*
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	U*
Manganese, dissolved	µg/L	-	Additional/Discharge[g]	NA	-	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	U*
Silver, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 12	U*
Diazinon	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional[(p)]	NA	-	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

						1/8/2020 10:55 (Composite)			
ANALYTE	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	1/Year	0.01	0.05	µg/L	4.10E-07	6.30E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	6.20E-07	1.30E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	6.00E-07	ND	U	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	5.80E-07	1.30E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	4.10E-07	ND	U	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	6.10E-07	ND	U	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	4.40E-07	ND	U	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	5.40E-07	ND	U	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	4.10E-07	1.20E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	1.20E-06	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	6.90E-07	1.10E-06	UJ (*III)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	4.10E-07	ND	U	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	7.20E-07	ND	U	**ND**
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	1.80E-06	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	6.10E-07	ND	U	**ND**
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	7.70E-07	4.30E-05	U (B)	**ND**
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	1.10E-06	3.80E-06	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

						1/17/2020 11:00 (Composite)			
ANALYTE	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	1/Year	0.01	0.05	µg/L	4.80E-07	2.80E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	1.30E-06	1.90E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	1.60E-06	2.00E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	6.70E-07	3.50E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	4.60E-07	1.60E-06	U (B)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	6.50E-07	1.60E-06	U (B)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	4.40E-07	1.30E-06	U (B)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	6.20E-07	2.20E-06	U (B)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	3.40E-07	2.10E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	1.00E-06	2.50E-06	U (B)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	8.50E-07	2.10E-06	U (B)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	3.60E-07	1.70E-06	U (B)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	8.40E-07	2.00E-06	U (B)	**ND**
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	4.80E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	5.80E-07	ND	U	**ND**
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	9.40E-07	1.20E-05	U (B)	**ND**
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	1.00E-06	6.20E-06	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

						3/14/2020 8:00 (Composite)			
ANALYTE	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	1/Year	0.01	0.05	µg/L	5.20E-07	2.40E-05	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	8.40E-07	8.10E-06	J (DNQ)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	9.60E-07	2.30E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	1.10E-06	3.30E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	6.30E-07	1.50E-06	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	1.20E-06	1.90E-06	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	6.50E-07	2.00E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	1.00E-06	2.60E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	6.50E-07	2.00E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	9.50E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	7.90E-07	1.20E-06	J (DNQ)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	6.00E-07	1.50E-06	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	7.50E-07	8.90E-07	UJ (*III)	**ND**
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	8.70E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	1.90E-07	ND	U	**ND**
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	1.20E-06	2.60E-04	--	2.60E-10
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	9.50E-07	2.40E-05	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**2.6E-10**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

						3/21/2020 8:20 (Composite)			
ANALYTE	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	1/Year	0.01	0.05	µg/L	7.80E-07	0.0000058	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	6.40E-07	0.0000036	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	8.80E-07	0.0000028	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	1.10E-06	0.0000049	J (DNQ)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	2.30E-06	ND	U	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	1.10E-06	0.0000035	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	2.00E-06	0.0000033	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	1.00E-06	0.0000045	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	1.30E-06	0.0000037	UJ (*III)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	9.30E-07	0.0000025	UJ (*III)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	8.60E-07	0.0000028	J (DNQ)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	1.30E-06	0.0000028	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	8.70E-07	0.0000018	UJ (*III)	**ND**
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	7.50E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	4.90E-07	ND	U	**ND**
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	1.90E-06	0.000025	U (B)	**ND**
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	2.20E-06	0.000012	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

						3/27/2020 8:45 (Composite)			
ANALYTE	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	1/Year	0.01	0.05	µg/L	3.90E-07	0.0000041	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	6.60E-07	0.0000032	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	7.10E-07	0.0000024	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	8.60E-07	0.0000038	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	5.10E-07	0.0000026	U (B)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	9.20E-07	0.0000039	U (B)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	5.10E-07	0.0000032	U (B)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	8.10E-07	0.0000034	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	5.60E-07	0.0000042	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	1.20E-06	0.0000030	J (DNQ)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	7.20E-07	0.0000030	J (DNQ)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	5.50E-07	0.0000030	U (B)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	7.80E-07	0.0000027	J (DNQ)	**ND**
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	1.80E-06	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	6.80E-07	ND	U	**ND**
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	9.10E-07	0.000018	U (B)	**ND**
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	1.10E-06	0.0000090	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT[j] = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						1/8/2020 10:55 (Composite)[n]			1/17/2020 11:00 (Composite)[n]		
ANALYTE	**UNITS**	**DAILY MAXIMUM BENCHMARK**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS											
Gross Alpha	pCi/L	15	1/Discharge	NA	-/-	0.439+/-1.18	2.16	UJ (*III)	1.57+/-2.44	4.19	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	NA	-/-	2.44+/-0.787	0.972	J+ (B)	3.87+/-1.46	1.97	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	NA	-/-	0.522+/-0.288	NM	U	0.666+/-0.348	NM	U
Strontium-90	pCi/L	8.0	1/Discharge	NA	-/-	-0.0868+/-0.140	0.270	U	0.0485+/-0.200	0.350	U
Tritium	pCi/L	20,000	1/Discharge	NA	-/-	-60.8+/-183	343	U	39.6+/-171	303	U
ADDITIONAL POLLUTANTS											
Cesium-137	pCi/L	200	1/Discharge	NA	-/-	-2.76+/-9.54	11.9	U	0.604+/-5.46	9.56	U
Uranium	pCi/L	20	1/Discharge	NA	-/-	0.291+/-0.163	0.138	U (B)	2.78+/-0.484	0.128	J (E)
ADDITIONAL POLLUTANTS WITHOUT LIMITS											
Potassium-40	pCi/L	-	1/Discharge	NA	-/-	-57.7+/-110	176	U	-3.96+/-103	135	U

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						3/14/2020 8:00 (Composite)[n]			3/21/2020 8:20 (Composite)		
ANALYTE	**UNITS**	**DAILY MAXIMUM BENCHMARK**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS											
Gross Alpha	pCi/L	15	1/Discharge	NA	-/-	1.95+/-2.56	4.27	U*	2.83+/-3.59	5.94	U*
Gross Beta	pCi/L	50	1/Discharge	NA	-/-	5.19+/-1.51	1.74	*	4.60+/-1.88	2.52	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	NA	-/-	0.971+/-0.634	NM	U*	0.221+/-0.429	NM	*
Strontium-90	pCi/L	8.0	1/Discharge	NA	-/-	0.289+/-0.541	0.921	U*	0.224+/-0.313	0.521	U*
Tritium	pCi/L	20,000	1/Discharge	NA	-/-	-23.0+/-180	329	U*	110+/-222	396	U*
ADDITIONAL POLLUTANTS											
Cesium-137	pCi/L	200	1/Discharge	NA	-/-	2.37+/-8.56	15.2	U*	-2.48+/-8.49	14.7	U*
Uranium	pCi/L	20	1/Discharge	NA	-/-	1.57+/-0.507	0.298	*	2.76+/-0.484	0.148	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS											
Potassium-40	pCi/L	-	1/Discharge	NA	-/-	-27.7+/-127	189	U*	62.0+/-96.7	155	U*

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OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

						03/27/2020 8:45 (Composite)		
ANALYTE	**UNITS**	**DAILY MAXIMUM BENCHMARK**	**OUTFALL SAMPLE FREQUENCY**	**RECEIVING WATER SAMPLE FREQUENCY**	**RECEIVING WATER LIMIT**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS								
Gross Alpha	pCi/L	15	1/Discharge	NA	-/-	1.99+/-1.49	2.12	U*
Gross Beta	pCi/L	50	1/Discharge	NA	-/-	3.46+/-1.01	1.16	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	NA	-/-	0.707+/-0.326	NM	*
Strontium-90	pCi/L	8.0	1/Discharge	NA	-/-	0.289+/-0.181	0.273	*
Tritium	pCi/L	20,000	1/Discharge	NA	-/-	32.4+/-162	289	U*
ADDITIONAL POLLUTANTS								
Cesium-137	pCi/L	200	1/Discharge	NA	-/-	-1.39+/-10.3	13.2	U*
Uranium	pCi/L	20	1/Discharge	NA	-/-	0.237+/-0.155	0.150	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS								
Potassium-40	pCi/L	-	1/Discharge	NA	-/-	-13.8+/-129	188	U*

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OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				01/07/2020 11:05 - 01/08/2020 10:55			1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.06847	*	Meas	0.019995	*
CONVENTIONAL POLLUTANTS									
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U	Composite	0.3	--
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U	Grab	ND	U
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	61 [(d)]	--	Composite	0.43 [(d)]	--
PRIORITY POLLUTANTS									
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U	Grab	ND	U
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U	Grab	ND	U
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U	Composite	ND	U
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U	Composite	ND	U
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U	Composite	ND	U
Antimony	LBS/DAY	5.9	1/Year	Composite	ND	U	ANR	ANR	ANR
Arsenic	LBS/DAY	9.83	1/Discharge[(g)]	Composite	ND	U	ANR	ANR	ANR
Beryllium	LBS/DAY	3.93	1/Year	Composite	ND	U	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U	Composite	ND	U
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(a)]	U	Composite	ND [(b)]	U
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	Composite	ND	U	ANR	ANR	ANR
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.015	J (DNQ)	Composite	0.00014	J (DNQ)
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U	Composite	ND	U
Lead	LBS/DAY	5.11	1/Discharge	Composite	ND	U	Composite	ND	U
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U	Composite	ND	UJ (B)
Nickel	LBS/DAY	92.4	1/Year	Composite	ND	U	ANR	ANR	ANR
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U	Composite	ND	U
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	0.012	J (DNQ)	Composite	ND	U
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(e)]	U	Composite	ND [(f)]	U
Silver	LBS/DAY	4.03	1/Year	Composite	ND	U	ANR	ANR	ANR
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	ND	U*	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	Composite	ND	U	ANR	ANR	ANR
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U	Grab	ND	U
Zinc	LBS/DAY	117	1/Discharge	Composite	ND	U	Composite	ND	U
NON-CONVENTIONAL POLLUTANTS									
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	1.19	J (DNQ)	Composite	ND	U
Barium	LBS/DAY	983	1/Year	Composite	0.21	--	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	86	--	Composite	5.2	--
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	Grab	0.4	*	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.65	J (DNQ)	Composite	0.014	J (DNQ)
Fluoride	LBS/DAY	1,572.3	1/Year	Composite	ND	U	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Discharge[(g)]	Composite	0.73	J (DNQ)	Composite	0.01	J (DNQ)
Manganese	LBS/DAY	49.1	1/Discharge[(g)]	Composite	0.13	J (DNQ)	ANR	ANR	ANR

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OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				01/07/2020 11:05 - 01/08/2020 10:55			1/17/2020 8:30 - 1/17/2020 11:00		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	12	--	Composite	0.022	--
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	12	--	Composite	0.022	J (DNQ)
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	0.31	J (DNQ)	Composite	ND	U
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U	Composite	ND	U
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	1,426	--	Composite	32	--
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	3,030	--	Composite	93	--

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OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 7:40 - 3/14/2020 8:00			3/20/2020 9:40 - 3/21/2020 8:20		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	0.096679	*	Meas	0.017445	*
CONVENTIONAL POLLUTANTS									
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	1.6	*	Composite	ND	U
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U	Grab	ND	U
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	11 [(c)]	*	Composite	0.09 [(d)]	J (DNQ)
PRIORITY POLLUTANTS									
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U	Grab	ND	U
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U	Grab	ND	U
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U*	Composite	ND	U
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U*	Composite	ND	U
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U*	Composite	ND	U
Antimony	LBS/DAY	5.9	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Arsenic	LBS/DAY	9.83	1/Discharge[(g)]	Composite	ND	U	Composite	ND	U
Beryllium	LBS/DAY	3.93	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U*	Composite	ND	U
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(b)]	U	Composite	ND [(a)]	U
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.0017	--	Composite	0.0001	J (DNQ)
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*	Composite	ND	U
Lead	LBS/DAY	5.11	1/Discharge	Composite	0.00051	J (DNQ)	Composite	ND	U
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U*	Composite	ND	U
Nickel	LBS/DAY	92.4	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U*	Composite	ND	U
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	ND	U*	Composite	ND	U
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(f)]	U	Composite	ND [(e)]	U
Silver	LBS/DAY	4.03	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	2.1E-13	*	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U	Grab	ND	U
Zinc	LBS/DAY	117	1/Discharge	Composite	ND	U	Composite	ND	U
NON-CONVENTIONAL POLLUTANTS									
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	0.0871	J (DNQ*)	Composite	ND	U
Barium	LBS/DAY	983	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	18	*	Composite	5.1	--
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.079	J (DNQ*)	Composite	0.02	--
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Discharge[(g)]	Composite	1.0	J- (Q, Q1)	Composite	ND	U
Manganese	LBS/DAY	49.1	1/Discharge[(g)]	Composite	0.022	--	Composite	ND	U

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 7:40 - 3/14/2020 8:00			3/20/2020 9:40 - 3/21/2020 8:20		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	0.067	J (DNQ*)	Composite	ND	U
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	0.067	J (DNQ*)	Composite	ND	U
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U*	Composite	ND	U
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U*	Composite	ND	U
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	121	*	Composite	32	--
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	331	*	Composite	100	--

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.17623	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U*
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U*
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	ND [(d)]	U*
PRIORITY POLLUTANTS						
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U*
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U*
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U*
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U*
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U*
Antimony	LBS/DAY	5.9	1/Year	ANR	ANR	ANR
Arsenic	LBS/DAY	9.83	1/Discharge[(g)]	ANR	ANR	ANR
Beryllium	LBS/DAY	3.93	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U*
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(a)]	U*
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	ANR	ANR	ANR
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.021	*
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	5.11	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	92.4	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U*
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	ND	U*
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(e)]	U*
Silver	LBS/DAY	4.03	1/Year	ANR	ANR	ANR
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	ANR	ANR	ANR
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	0.0068	*
Zinc	LBS/DAY	117	1/Discharge	Composite	ND	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	ND	U*
Barium	LBS/DAY	983	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	73	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.98	*
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Discharge[(g)]	Composite	ND	U*
Manganese	LBS/DAY	49.1	1/Discharge[(g)]	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/26/2020 8:00 - 3/27/2020 8:45		
ANALYTE	**UNITS**	**BENCHMARK DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	1.5	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	1.5	*
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U*
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	961	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	2,452	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 8:30 - 3/14/2020 9:20		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	7.21	1/Discharge	Meas	0.013200	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.5	U
pH (Field)	s.u	6.5-8.5	1/Discharge	Grab	8.24	*
PRIORITY POLLUTANTS						
Antimony	ug/L	6	1/Discharge	Composite	0.85	J (DNQ*)
Cadmium	ug/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 [(b)]	U*
Copper	ug/L	14	1/Discharge	Composite	2.2	*
Cyanide	ug/L	9.5	1/Discharge	Composite	2.6	J (DNQ*)
Lead	ug/L	5.2	1/Discharge	Composite	ND < 0.50	U*
Mercury	ug/L	0.13	1/Discharge	Composite	ND < 0.10	U*
Nickel	ug/L	86	1/Discharge	Composite	ND < 5.0	U*
Selenium	ug/L	5	1/Discharge	Composite	ND < 0.50	U*
Thallium	ug/L	2.0	1/Discharge	Composite	ND < 0.20	U*
Zinc	ug/L	120	1/Discharge	Composite	ND < 12	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	0.119	J (DNQ*)
Boron	mg/L	1.0	1/Year	Composite	0.074	*
Chloride	mg/L	150	1/Discharge	Composite	1.6	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Fail, 25.52	*
Fluoride	mg/L	1.6	1/Year	Composite	ND < 0.25	U*
Nitrate - N	mg/L	8	1/Discharge	Composite	0.86	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.86	*
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U*
Perchlorate	ug/L	6.0	1/Discharge	Composite	ND < 0.95	U*
Sulfate	mg/L	300	1/Discharge	Composite	1.3	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	52.77	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	100	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,1,2,2-Tetrachloroethane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,1,2-Trichloroethane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethene	ug/L	-	1/Year	Grab	ND < 0.25	U
1,2,4-Trichlorobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichlorobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichlorobenzene	ug/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichloroethane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichloropropane	ug/L	-	1/Year	Grab	ND < 0.25	U
1,2-Diphenylhydrazine/Azobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
1,3-Dichlorobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
1,3-Dichlorobenzene	ug/L	-	1/Year	Grab	ND < 0.25	U
1,4-Dichlorobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
1,4-Dichlorobenzene	ug/L	-	1/Year	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	ug/L	-	1/Year	Composite	ND < 0.11	U*
2,4-Dichlorophenol	ug/L	-	1/Year	Composite	ND < 0.21	U*
2,4-Dimethylphenol	ug/L	-	1/Year	Composite	ND < 0.53	U*
2,4-Dinitrophenol	ug/L	-	1/Year	Composite	ND < 1.1	U*
2,4-Dinitrotoluene	ug/L	-	1/Year	Composite	ND < 2.1	U*
2,6-Dinitrotoluene	ug/L	-	1/Year	Composite	ND < 2.1	U*
2-Chloroethyl vinyl ether	ug/L	-	1/Year	Grab	ND < 1.0	U
2-Chloronaphthalene	ug/L	-	1/Year	Composite	ND < 0.11	U*
2-Chlorophenol	ug/L	-	1/Year	Composite	ND < 0.11	U*
2-Methyl-4,6-dinitrophenol	ug/L	-	1/Year	Composite	ND < 1.1	U*
2-Nitrophenol	ug/L	-	1/Year	Composite	ND < 0.21	U*
3,3'-Dichlorobenzidine	ug/L	-	1/Year	Composite	ND < 1.1	U*
4,4'-DDD	ug/L	-	1/Year	Composite	ND < 0.0041	U*
4,4'-DDE	ug/L	-	1/Year	Composite	ND < 0.0031	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 8:30 - 3/14/2020 9:20		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4,4'-DDT	ug/L	-	1/Year	Composite	ND < 0.0041	U*
4-Bromophenyl phenyl ether	ug/L	-	1/Year	Composite	ND < 0.11	U*
4-Chloro-3-methylphenol	ug/L	-	1/Year	Composite	ND < 0.21	U*
4-Chlorophenyl phenyl ether	ug/L	-	1/Year	Composite	ND < 0.11	U*
4-Nitrophenol	ug/L	-	1/Year	Composite	ND < 2.1	U*
Acenaphthene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Acenaphthylene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Acrolein	ug/L	-	1/Year	Grab	ND < 2.5	U
Acrylonitrile	ug/L	-	1/Year	Grab	ND < 1.0	U
Aldrin	ug/L	-	1/Year	Composite	ND < 0.0015	U*
alpha-BHC	ug/L	-	1/Year	Composite	ND < 0.0026	U*
alpha-Endosulfan	ug/L	-	1/Year	Composite	ND < 0.0031	U*
Anthracene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Aroclor 1016	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1221	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1232	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1242	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1248	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1254	ug/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1260	ug/L	-	1/Year	Composite	ND < 0.26	U*
Arsenic	ug/L	-	1/Year	Composite	ND < 8.9	U*
Asbestos	MFL	-	1/Year	Composite	ND < 0.98	U*
Benzene	ug/L	-	1/Year	Grab	ND < 0.25	U
Benzidine	ug/L	-	1/Year	Composite	ND < 5.3	U*
Benzo(a)anthracene	ug/L	-	1/Year	Composite	ND < 1.1	U*
Benzo(a)pyrene	ug/L	-	1/Year	Composite	ND < 0.21	U*
Benzo(b)fluoranthene	ug/L	-	1/Year	Composite	ND < 0.32	U*
Benzo(g,h,i)perylene	ug/L	-	1/Year	Composite	ND < 1.1	U*
Benzo(k)fluoranthene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Beryllium	ug/L	-	1/Year	Composite	ND < 1.0	U*
beta-BHC	ug/L	-	1/Year	Composite	ND < 0.0041	U*
beta-Endosulfan	ug/L	-	1/Year	Composite	ND < 0.0021	U*
Bis (2-Chloroethoxy) Methane	ug/L	-	1/Year	Composite	ND < 0.21	U*
Bis (2-Chloroethyl) Ether	ug/L	-	1/Year	Composite	ND < 0.053	U*
Bis (2-Chloroisopropyl) Ether	ug/L	-	1/Year	Composite	ND < 0.11	U*
Bis (2-Ethylhexyl) Phthalate	ug/L	-	1/Year	Composite	ND < 2.1	U*
Bromoform	ug/L	-	1/Year	Grab	ND < 0.40	U
Bromomethane	ug/L	-	1/Year	Grab	ND < 0.25	U
Butyl benzylphthalate	ug/L	-	1/Year	Composite	ND < 2.1	U*
Carbon tetrachloride	ug/L	-	1/Year	Grab	ND < 0.25	U
Chlordane	ug/L	-	1/Year	Composite	ND < 0.082	U*
Chlorobenzene	ug/L	-	1/Year	Grab	ND < 0.25	U
Chlorodibromomethane	ug/L	-	1/Year	Grab	ND < 0.25	U
Chloroethane	ug/L	-	1/Year	Grab	ND < 0.40	U
Chloroform	ug/L	-	1/Year	Grab	ND < 0.25	U
Chloromethane (Methyl Chloride)	ug/L	-	1/Year	Grab	ND < 0.25	U
Chromium	ug/L	-	1/Year	Composite	ND < 2.5	U*
Chromium VI (Hexavalent)	ug/L	-	1/Year	Composite	ND < 0.25	U*
Chrysene	ug/L	-	1/Year	Composite	ND < 0.11	U*
cis-1,3-Dichloropropene	ug/L	-	1/Year	Grab	ND < 0.25	U
delta-BHC	ug/L	-	1/Year	Composite	ND < 0.0036	U*
Dibenz(a,h)anthracene	ug/L	-	1/Year	Composite	ND < 0.21	U*
Dichlorobromomethane	ug/L	-	1/Year	Grab	ND < 0.25	U
Dieldrin	ug/L	-	1/Year	Composite	ND < 0.0021	U*
Diethyl phthalate	ug/L	-	1/Year	Composite	ND < 0.21	U*
Dimethyl phthalate	ug/L	-	1/Year	Composite	ND < 0.11	U*
Di-n-butyl phthalate	ug/L	-	1/Year	Composite	ND < 0.53	U*
Di-n-octyl phthalate	ug/L	-	1/Year	Composite	ND < 1.1	U*

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 8:30 - 3/14/2020 9:20		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Endosulfan sulfate	ug/L	-	1/Year	Composite	ND < 0.0031	U*
Endrin	ug/L	-	1/Year	Composite	ND < 0.0021	U*
Endrin aldehyde	ug/L	-	1/Year	Composite	ND < 0.0021	U*
Ethylbenzene	ug/L	-	1/Year	Grab	ND < 0.25	U
Fluoranthene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Fluorene	ug/L	-	1/Year	Composite	ND < 0.11	U*
gamma-BHC (Lindane)	ug/L	-	1/Year	Composite	ND < 0.0031	U*
Heptachlor	ug/L	-	1/Year	Composite	ND < 0.0031	U*
Heptachlor epoxide	ug/L	-	1/Year	Composite	ND < 0.0026	U*
Hexachlorobenzene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Hexachlorobutadiene	ug/L	-	1/Year	Composite	ND < 0.53	U*
Hexachlorocyclopentadiene	ug/L	-	1/Year	Composite	ND < 2.1	U*
Hexachloroethane	ug/L	-	1/Year	Composite	ND < 0.53	U*
Indeno(1,2,3-cd)pyrene	ug/L	-	1/Year	Composite	ND < 0.42	U*
Isophorone	ug/L	-	1/Year	Composite	ND < 0.21	U*
m,p-Xylenes	ug/L	-	1/Year	Grab	ND < 0.50	U
Methylene chloride	ug/L	-	1/Year	Grab	ND < 0.88	U
Naphthalene	ug/L	-	1/Year	Composite	ND < 0.053	U*
Naphthalene	ug/L	-	1/Year	Grab	ND < 0.40	U
Nitrobenzene	ug/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitrosodimethylamine	ug/L	-	1/Year	Composite	ND < 0.32	U*
N-Nitroso-di-n-propylamine	ug/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitrosodiphenylamine	ug/L	-	1/Year	Composite	ND < 0.21	U*
o-Xylene	ug/L	-	1/Year	Grab	ND < 0.25	U
Pentachlorophenol	ug/L	-	1/Year	Composite	ND < 1.1	U*
Phenanthrene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Phenol	ug/L	-	1/Year	Composite	ND < 0.11	U*
Pyrene	ug/L	-	1/Year	Composite	ND < 0.11	U*
Tetrachloroethene	ug/L	-	1/Year	Grab	ND < 0.25	U
Toluene	ug/L	-	1/Year	Grab	ND < 0.25	U
Toxaphene	ug/L	-	1/Year	Composite	ND < 0.25	U*
trans-1,2-Dichloroethene	ug/L	-	1/Year	Grab	ND < 0.25	U
trans-1,3-Dichloropropene	ug/L	-	1/Year	Grab	ND < 0.25	U
Trichloroethene	ug/L	-	1/Year	Grab	ND < 0.25	U
Trichlorofluoromethane	ug/L	-	1/Year	Grab	ND < 0.25	U
Vinyl chloride	ug/L	-	1/Year	Grab	ND < 0.25	U
Xylenes (Total)	ug/L	-	1/Year	Grab	ND < 0.50	U
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
Aluminum	ug/L	-	1/Year	Composite	200	*
Chlorpyrifos	ug/L	-	1/Year	Composite	ND < 0.0069	U*
Diazinon	ug/L	-	1/Year	Composite	ND < 0.0052	U*
E. Coli	mpn/100mL	-	1/Year	Grab	490	--
Hardness (as CaCO3)	mg/L	-	1/Year	Composite	37	*
Iron	mg/L	-	1/Year	Composite	0.21	*
Silver	ug/L	-	1/Discharge	Composite	ND < 0.50	U*
Total Suspended Solids	mg/L	-	1/Year	Composite	2.6	*
Vanadium	ug/L	-	1/Year	Composite	ND < 5.0	U*
ADDITIONAL POLLUTANTS[(2)]						
Aluminum, dissolved	ug/L	-	Additional/Year	Composite	100	*
Antimony, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Arsenic, dissolved	ug/L	-	Additional/Year	Composite	ND < 8.9	U*
Beryllium, dissolved	ug/L	-	Additional/Year	Composite	ND < 1.0	U*
Boron, dissolved	mg/L	-	Additional/Year	Composite	0.072	*
Cadmium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.25	U*
Chromium, dissolved	ug/L	-	Additional/Year	Composite	ND < 2.5	U*
cis-1,2-Dichloroethene	ug/L	-	Additional/Year	Grab	ND < 0.25	U
Copper, dissolved	ug/L	-	Additional/Discharge	Composite	2.6	*
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	Composite	37	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 8:30 - 3/14/2020 9:20		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Human Bacteriodes	CEs/100mL	-	Additional/Year	Grab	ND	U*
Iron, dissolved	mg/L	-	Additional/Year	Composite	0.093	J (DNQ*)
Lead, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Mercury, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 5.0	U*
Selenium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Silver, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Thallium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.20	U*
Vanadium, dissolved	ug/L	-	Additional/Year	Composite	ND < 5.0	U*
Zinc, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 12	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:15 - 3/24/2020 7:45		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	7.21	1/Discharge	Meas	0.108793	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.5	U
pH (Field)	s.u	6.5-8.5	1/Discharge	Grab	8.21	*
PRIORITY POLLUTANTS						
Antimony	ug/L	6	1/Discharge	Composite	ND < 0.50	U*
Cadmium	ug/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 [(b)]	U*
Copper	ug/L	14	1/Discharge	Composite	2.5	*
Cyanide	ug/L	9.5	1/Discharge	Composite	ND < 2.5	U*
Lead	ug/L	5.2	1/Discharge	Composite	ND < 0.50	U*
Mercury	ug/L	0.13	1/Discharge	Composite	ND < 0.10	U*
Nickel	ug/L	86	1/Discharge	Composite	ND < 5.0	U*
Selenium	ug/L	5	1/Discharge	Composite	ND < 0.50	U*
Thallium	ug/L	2.0	1/Discharge	Composite	ND < 0.20	U*
Zinc	ug/L	120	1/Discharge	Composite	12	J (DNQ*)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	ND < 0.100	U*
Boron	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	3.8	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, -21.43	*
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	Composite	0.17	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.17	*
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U*
Perchlorate	ug/L	6.0	1/Discharge	Composite	1.1	J (DNQ*)
Sulfate	mg/L	300	1/Discharge	Composite	4.0	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	49.2	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	130	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	ug/L	-	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	ug/L	-	1/Year	ANR	ANR	ANR
1,1,2-Trichloroethane	ug/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	ug/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethene	ug/L	-	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloroethane	ug/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	ug/L	-	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
2,4,6-Trichlorophenol	ug/L	-	1/Year	ANR	ANR	ANR
2,4-Dichlorophenol	ug/L	-	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	ug/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	ug/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrotoluene	ug/L	-	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene	ug/L	-	1/Year	ANR	ANR	ANR
2-Chloroethyl vinyl ether	ug/L	-	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	ug/L	-	1/Year	ANR	ANR	ANR
2-Chlorophenol	ug/L	-	1/Year	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	ug/L	-	1/Year	ANR	ANR	ANR
2-Nitrophenol	ug/L	-	1/Year	ANR	ANR	ANR
3,3'-Dichlorobenzidine	ug/L	-	1/Year	ANR	ANR	ANR
4,4'-DDD	ug/L	-	1/Year	ANR	ANR	ANR
4,4'-DDE	ug/L	-	1/Year	ANR	ANR	ANR

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OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:15 - 3/24/2020 7:45		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4,4'-DDT	ug/L	-	1/Year	ANR	ANR	ANR
4-Bromophenyl phenyl ether	ug/L	-	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	ug/L	-	1/Year	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	ug/L	-	1/Year	ANR	ANR	ANR
4-Nitrophenol	ug/L	-	1/Year	ANR	ANR	ANR
Acenaphthene	ug/L	-	1/Year	ANR	ANR	ANR
Acenaphthylene	ug/L	-	1/Year	ANR	ANR	ANR
Acrolein	ug/L	-	1/Year	ANR	ANR	ANR
Acrylonitrile	ug/L	-	1/Year	ANR	ANR	ANR
Aldrin	ug/L	-	1/Year	ANR	ANR	ANR
alpha-BHC	ug/L	-	1/Year	ANR	ANR	ANR
alpha-Endosulfan	ug/L	-	1/Year	ANR	ANR	ANR
Anthracene	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1016	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1221	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1232	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1242	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1248	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1254	ug/L	-	1/Year	ANR	ANR	ANR
Aroclor 1260	ug/L	-	1/Year	ANR	ANR	ANR
Arsenic	ug/L	-	1/Year	ANR	ANR	ANR
Asbestos	MFL	-	1/Year	ANR	ANR	ANR
Benzene	ug/L	-	1/Year	ANR	ANR	ANR
Benzidine	ug/L	-	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	ug/L	-	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	ug/L	-	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	ug/L	-	1/Year	ANR	ANR	ANR
Benzo(g,h,i)perylene	ug/L	-	1/Year	ANR	ANR	ANR
Benzo(k)fluoranthene	ug/L	-	1/Year	ANR	ANR	ANR
Beryllium	ug/L	-	1/Year	ANR	ANR	ANR
beta-BHC	ug/L	-	1/Year	ANR	ANR	ANR
beta-Endosulfan	ug/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	ug/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	ug/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	ug/L	-	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	ug/L	-	1/Year	ANR	ANR	ANR
Bromoform	ug/L	-	1/Year	ANR	ANR	ANR
Bromomethane	ug/L	-	1/Year	ANR	ANR	ANR
Butyl benzylphthalate	ug/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	ug/L	-	1/Year	ANR	ANR	ANR
Chlordane	ug/L	-	1/Year	ANR	ANR	ANR
Chlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
Chlorodibromomethane	ug/L	-	1/Year	ANR	ANR	ANR
Chloroethane	ug/L	-	1/Year	ANR	ANR	ANR
Chloroform	ug/L	-	1/Year	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	ug/L	-	1/Year	ANR	ANR	ANR
Chromium	ug/L	-	1/Year	ANR	ANR	ANR
Chromium VI (Hexavalent)	ug/L	-	1/Year	ANR	ANR	ANR
Chrysene	ug/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	ug/L	-	1/Year	ANR	ANR	ANR
delta-BHC	ug/L	-	1/Year	ANR	ANR	ANR
Dibenz(a,h)anthracene	ug/L	-	1/Year	ANR	ANR	ANR
Dichlorobromomethane	ug/L	-	1/Year	ANR	ANR	ANR
Dieldrin	ug/L	-	1/Year	ANR	ANR	ANR
Diethyl phthalate	ug/L	-	1/Year	ANR	ANR	ANR
Dimethyl phthalate	ug/L	-	1/Year	ANR	ANR	ANR
Di-n-butyl phthalate	ug/L	-	1/Year	ANR	ANR	ANR
Di-n-octyl phthalate	ug/L	-	1/Year	ANR	ANR	ANR

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THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:15 - 3/24/2020 7:45		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Endosulfan sulfate	ug/L	-	1/Year	ANR	ANR	ANR
Endrin	ug/L	-	1/Year	ANR	ANR	ANR
Endrin aldehyde	ug/L	-	1/Year	ANR	ANR	ANR
Ethylbenzene	ug/L	-	1/Year	ANR	ANR	ANR
Fluoranthene	ug/L	-	1/Year	ANR	ANR	ANR
Fluorene	ug/L	-	1/Year	ANR	ANR	ANR
gamma-BHC (Lindane)	ug/L	-	1/Year	ANR	ANR	ANR
Heptachlor	ug/L	-	1/Year	ANR	ANR	ANR
Heptachlor epoxide	ug/L	-	1/Year	ANR	ANR	ANR
Hexachlorobenzene	ug/L	-	1/Year	ANR	ANR	ANR
Hexachlorobutadiene	ug/L	-	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	ug/L	-	1/Year	ANR	ANR	ANR
Hexachloroethane	ug/L	-	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	ug/L	-	1/Year	ANR	ANR	ANR
Isophorone	ug/L	-	1/Year	ANR	ANR	ANR
m,p-Xylenes	ug/L	-	1/Year	ANR	ANR	ANR
Methylene chloride	ug/L	-	1/Year	ANR	ANR	ANR
Naphthalene	ug/L	-	1/Year	ANR	ANR	ANR
Naphthalene	ug/L	-	1/Year	ANR	ANR	ANR
Nitrobenzene	ug/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	ug/L	-	1/Year	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	ug/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	ug/L	-	1/Year	ANR	ANR	ANR
o-Xylene	ug/L	-	1/Year	ANR	ANR	ANR
Pentachlorophenol	ug/L	-	1/Year	ANR	ANR	ANR
Phenanthrene	ug/L	-	1/Year	ANR	ANR	ANR
Phenol	ug/L	-	1/Year	ANR	ANR	ANR
Pyrene	ug/L	-	1/Year	ANR	ANR	ANR
Tetrachloroethene	ug/L	-	1/Year	ANR	ANR	ANR
Toluene	ug/L	-	1/Year	ANR	ANR	ANR
Toxaphene	ug/L	-	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	ug/L	-	1/Year	ANR	ANR	ANR
trans-1,3-Dichloropropene	ug/L	-	1/Year	ANR	ANR	ANR
Trichloroethene	ug/L	-	1/Year	ANR	ANR	ANR
Trichlorofluoromethane	ug/L	-	1/Year	ANR	ANR	ANR
Vinyl chloride	ug/L	-	1/Year	ANR	ANR	ANR
Xylenes (Total)	ug/L	-	1/Year	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
Aluminum	ug/L	-	1/Year	ANR	ANR	ANR
Chlorpyrifos	ug/L	-	1/Year	ANR	ANR	ANR
Diazinon	ug/L	-	1/Year	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	ANR	ANR	ANR
Iron	mg/L	-	1/Year	ANR	ANR	ANR
Silver	ug/L	-	1/Discharge	Composite	ND < 0.50	U*
Total Suspended Solids	mg/L	-	1/Year	Composite	4.1	*
Vanadium	ug/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[(2)]						
Aluminum, dissolved	ug/L	-	Additional/Year	ANR	ANR	ANR
Antimony, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Arsenic, dissolved	ug/L	-	Additional/Year	ANR	ANR	ANR
Beryllium, dissolved	ug/L	-	Additional/Year	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Cadmium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.25	U*
Chromium, dissolved	ug/L	-	Additional/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	ug/L	-	Additional/Year	ANR	ANR	ANR
Copper, dissolved	ug/L	-	Additional/Discharge	Composite	2.1	*
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:15 - 3/24/2020 7:45		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Human Bacteriodes	CEs/100mL	-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Lead, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Mercury, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 5.0	U*
Selenium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Silver, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Thallium, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 0.20	U*
Vanadium, dissolved	ug/L	-	Additional/Year	ANR	ANR	ANR
Zinc, dissolved	ug/L	-	Additional/Discharge	Composite	ND < 12	U*

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

					03/14/2020 09:20 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	3.0E-07	4.30E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	7.0E-07	3.2E-06	J (DNQ)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	8.2E-07	2.8E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	9.6E-07	4.6E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	4.7E-07	2.1E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	1.0E-06	3.1E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	5.2E-07	2.5E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	9.1E-07	2.5E-06	UJ (*III)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	5.2E-07	3.1E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	8.2E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	6.3E-07	1.8E-06	UJ (*III)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	4.7E-07	2.4E-06	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	6.8E-07	1.9E-06	J (DNQ)	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	8.9E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	3.2E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	1.1E-06	2.40E-05	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	8.5E-07	8.20E-06	U (B)	**ND**
					TCDD TEQ w/out DNQ Values[(4)]			**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

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January 1 through March 31, 2020

					03/24/2020 07:45 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	5.1E-07	2.20E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	5.7E-07	1.50E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	7.7E-07	ND	U	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	8.5E-07	2.5E-06	J (DNQ)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	1.5E-06	ND	U	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	9.4E-07	ND	U	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	1.4E-06	ND	U	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	8.1E-07	ND	U	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	9.1E-07	ND	U	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	7.4E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	7.5E-07	ND	U	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	8.6E-07	ND	U	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	7.8E-07	ND	U	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	5.5E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	4.5E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	1.1E-06	9.70E-06	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	1.0E-06	3.70E-06	U (B)	**ND**
					TCDD TEQ w/out DNQ Values[(4)]			**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/14/2020 09:20 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	1.45+/-0.860	1.07	*
Gross Beta	pCi/L	50	1/Discharge	1.87+/-0.764	1.03	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.653+/-0.392	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	-0.237+/-0.588	1.09	U*
Tritium	pCi/L	20,000	1/Discharge	-109+/-175	339	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-3.91+/-10.3	17.9	U*
Uranium	pCi/L	20	1/Discharge	0.279+/-0.304	0.354	U*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-109+/-130	219	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/24/2020 07:45 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	0.332+/-0.840	1.54	U*
Gross Beta	pCi/L	50	1/Discharge	2.98+/-0.783	0.830	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.499+/-0.314	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	0.277+/-0.201	0.308	U*
Tritium	pCi/L	20,000	1/Discharge	-105+/-175	338	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-4.76+/-12.3	14.3	U*
Uranium	pCi/L	20	1/Discharge	0.414+/-0.280	0.253	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-59.1+/-136	192	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 8:30 - 3/14/2020 9:20		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	7.21	1/Discharge	Meas	0.013200	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	902	1/Discharge	Grab	ND	U
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	0.36	1/Discharge	Composite	0.000094	J (DNQ*)
Cadmium	LBS/DAY	(0.24)0.19	1/Discharge	Composite	ND [(b)]	U*
Copper	LBS/DAY	0.84	1/Discharge	Composite	0.00024	*
Cyanide	LBS/DAY	0.57	1/Discharge	Composite	0.00029	J (DNQ*)
Lead	LBS/DAY	0.31	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.008	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	5.2	1/Discharge	Composite	ND	U*
Selenium	LBS/DAY	0.3	1/Discharge	Composite	ND	U*
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	1.70E-09	1/Discharge	Composite	ND	U'*
Thallium	LBS/DAY	0.12	1/Discharge	Composite	ND	U*
Zinc	LBS/DAY	7.22	1/Discharge	Composite	ND	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	607.3	1/Discharge	Composite	0.0131	J (DNQ*)
Boron	LBS/DAY	60	1/Year	Composite	0.0081	*
Chloride	LBS/DAY	9,020	1/Discharge	Composite	0.18	*
Fluoride	LBS/DAY	96.2	1/Year	Composite	ND	U*
Nitrate - N	LBS/DAY	481	1/Discharge	Composite	0.095	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	481	1/Discharge	Composite	0.095	*
Nitrite - N	LBS/DAY	60	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	0.36	1/Discharge	Composite	ND	U*
Sulfate	LBS/DAY	18,039	1/Discharge	Composite	0.14	*
Total Dissolved Solids	LBS/DAY	57,124	1/Discharge	Composite	11	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 008
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/23/2020 7:15 - 3/24/2020 7:45		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	7.21	1/Discharge	Meas	0.108793	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	902	1/Discharge	Grab	ND	U
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	0.36	1/Discharge	Composite	ND	U*
Cadmium	LBS/DAY	(0.24)0.19	1/Discharge	Composite	ND [(b)]	U*
Copper	LBS/DAY	0.84	1/Discharge	Composite	0.0023	*
Cyanide	LBS/DAY	0.57	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	0.31	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.008	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	5.2	1/Discharge	Composite	ND	U*
Selenium	LBS/DAY	0.3	1/Discharge	Composite	ND	U*
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	1.70E-09	1/Discharge	Composite	ND	U'*
Thallium	LBS/DAY	0.12	1/Discharge	Composite	ND	U*
Zinc	LBS/DAY	7.22	1/Discharge	Composite	0.011	J (DNQ*)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	607.3	1/Discharge	Composite	ND	U*
Boron	LBS/DAY	60	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	9,020	1/Discharge	Composite	3.4	*
Fluoride	LBS/DAY	96.2	1/Year	ANR	ANR	ANR
Nitrate - N	LBS/DAY	481	1/Discharge	Composite	0.15	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	481	1/Discharge	Composite	0.15	*
Nitrite - N	LBS/DAY	60	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	0.36	1/Discharge	Composite	0.001	J (DNQ*)
Sulfate	LBS/DAY	18,039	1/Discharge	Composite	3.6	*
Total Dissolved Solids	LBS/DAY	57,124	1/Discharge	Composite	118	*

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OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 09:50 - 3/14/2020 10:15		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	64.33	1/Discharge	Meas	0.871641	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.5	U
pH (Field)	s.u	6.5-8.5	1/Discharge	Grab	8.12	*
PRIORITY POLLUTANTS						
Antimony	µg/L	6.0	1/Discharge	Composite	0.50	J (DNQ)
Cadmium	µg/L	4.0	1/Discharge	Composite	ND < 0.25	U
Copper	µg/L	13	1/Discharge	Composite	3.6	--
Cyanide	µg/L	9.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	1.2	--
Mercury	µg/L	0.13	1/Discharge	Composite	ND < 0.10	U*
Nickel	µg/L	86	1/Discharge	Composite	ND < 5.0	U
Thallium	µg/L	2.0	1/Discharge	Composite	ND < 0.20	U
Zinc	µg/L	120	1/Discharge	Composite	ND < 12	U
NON-CONVENTIONAL POLLUTANTS						
Boron	mg/L	1.0	1/Year	Composite	0.038	J (DNQ)
Chloride	mg/L	150	1/Discharge	Composite	1.8	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, 35.8	*
Fluoride	mg/L	1.6	1/Year	Composite	ND < 0.25	U*
Nitrate + Nitrite as Nitrogen (N)	mg/L	10	1/Discharge	Composite	0.39	*
Perchlorate	µg/L	6.0	1/Semiannual	Composite	ND < 0.95	U*
Sulfate	mg/L	250	1/Discharge	Composite	2.1	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	51.46	*
Total Dissolved Solids	mg/L	850	1/Discharge	Composite	66	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2,4-Trichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,2-Dichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichloropropane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,3-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,3-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,4-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
1,4-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	-	1/Year	Composite	ND < 0.11	U*
2,4-Dichlorophenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
2,4-Dimethylphenol	µg/L	-	1/Year	Composite	ND < 0.53	U*
2,4-Dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.1	U*
2,4-Dinitrotoluene	µg/L	-	1/Year	Composite	ND < 2.1	U*
2,6-Dinitrotoluene	µg/L	-	1/Year	Composite	ND < 2.1	U*
2-Chloroethyl vinyl ether	µg/L	-	1/Year	Grab	ND < 1.0	U
2-Chloronaphthalene	µg/L	-	1/Year	Composite	ND < 0.11	U*
2-Chlorophenol	µg/L	-	1/Year	Composite	ND < 0.11	U*
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.1	U*
2-Nitrophenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
3,3'-Dichlorobenzidine	µg/L	-	1/Year	Composite	ND < 1.1	U*
4,4'-DDD	µg/L	-	1/Year	Composite	ND < 0.0041	U*
4,4'-DDE	µg/L	-	1/Year	Composite	ND < 0.0031	U*
4,4'-DDT	µg/L	-	1/Year	Composite	ND < 0.0041	U*
4-Bromophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.11	U*
4-Chloro-3-methylphenol	µg/L	-	1/Year	Composite	ND < 0.21	U*
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.11	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 09:50 - 3/14/2020 10:15		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	Composite	ND < 2.1	U*
Acenaphthene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Acenaphthylene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Acrolein	µg/L	-	1/Year	Grab	ND < 2.5	U
Acrylonitrile	µg/L	-	1/Year	Grab	ND < 1.0	U
Aldrin	µg/L	-	1/Year	Composite	ND < 0.0015	U*
alpha-BHC	µg/L	-	1/Year	Composite	ND < 0.0026	U*
alpha-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0031	U*
Anthracene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Aroclor 1016	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1221	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1232	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1242	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1248	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1254	µg/L	-	1/Year	Composite	ND < 0.26	U*
Aroclor 1260	µg/L	-	1/Year	Composite	ND < 0.26	U*
Arsenic	µg/L	-	1/Year	Composite	ND < 8.9	U*
Asbestos	MFL	-	1/Year	Composite	ND < 0.98	U*
Benzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Benzidine	µg/L	-	1/Year	Composite	ND < 5.3	U*
Benzo(a)anthracene	µg/L	-	1/Year	Composite	ND < 1.1	U*
Benzo(a)pyrene	µg/L	-	1/Year	Composite	ND < 0.21	U*
Benzo(b)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.32	U*
Benzo(g,h,i)perylene	µg/L	-	1/Year	Composite	ND < 1.1	U*
Benzo(k)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Beryllium	µg/L	-	1/Year	Composite	ND < 1.0	U*
beta-BHC	µg/L	-	1/Year	Composite	ND < 0.0041	U*
beta-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	Composite	ND < 0.21	U*
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	Composite	ND < 0.053	U*
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	Composite	ND < 0.11	U*
Bis (2-Ethylhexyl) Phthalate	µg/L	-	1/Year	Composite	ND < 2.1	U*
Bromoform	µg/L	-	1/Year	Grab	ND < 0.40	U
Bromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Butyl benzylphthalate	µg/L	-	1/Year	Composite	ND < 2.1	U*
Carbon tetrachloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlordane	µg/L	-	1/Year	Composite	ND < 0.082	U*
Chlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlorodibromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloroethane	µg/L	-	1/Year	Grab	ND < 0.40	U
Chloroform	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	Grab	ND < 0.25	U
Chromium	µg/L	-	1/Year	Composite	ND < 2.5	U*
Chromium VI (Hexavalent)	µg/L	-	1/Year	Composite	ND < 0.25	U*
Chrysene	µg/L	-	1/Year	Composite	ND < 0.11	U*
cis-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
delta-BHC	µg/L	-	1/Year	Composite	ND < 0.0036	U*
Dibenz(a,h)anthracene	µg/L	-	1/Year	Composite	ND < 0.21	U*
Dichlorobromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Dieldrin	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Diethyl phthalate	µg/L	-	1/Year	Composite	ND < 0.21	U*
Dimethyl phthalate	µg/L	-	1/Year	Composite	ND < 0.11	U*
Di-n-butyl phthalate	µg/L	-	1/Year	Composite	ND < 0.53	U*
Di-n-octyl phthalate	µg/L	-	1/Year	Composite	ND < 1.1	U*
Endosulfan sulfate	µg/L	-	1/Year	Composite	ND < 0.0031	U*
Endrin	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Endrin aldehyde	µg/L	-	1/Year	Composite	ND < 0.0020	U*
Ethylbenzene	µg/L	-	1/Year	Grab	ND < 0.25	U

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 09:50 - 3/14/2020 10:15		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Fluoranthene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Fluorene	µg/L	-	1/Year	Composite	ND < 0.11	U*
gamma-BHC (Lindane)	µg/L	-	1/Year	Composite	ND < 0.0031	U*
Heptachlor	µg/L	-	1/Year	Composite	ND < 0.0031	U*
Heptachlor epoxide	µg/L	-	1/Year	Composite	ND < 0.0026	U*
Hexachlorobenzene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Hexachlorobutadiene	µg/L	-	1/Year	Composite	ND < 0.53	U*
Hexachlorocyclopentadiene	µg/L	-	1/Year	Composite	ND < 2.1	U*
Hexachloroethane	µg/L	-	1/Year	Composite	ND < 0.53	U*
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	Composite	ND < 0.43	U*
Isophorone	µg/L	-	1/Year	Composite	ND < 0.21	U*
m,p-Xylenes	ug/L	-	1/Year	Grab	ND < 0.50	U
Methylene chloride	µg/L	-	1/Year	Grab	ND < 0.88	U
Naphthalene	µg/L	-	1/Year	Composite	ND < 0.053	U*
Naphthalene	µg/L	-	1/Year	Grab	ND < 0.40	U
Nitrobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitrosodimethylamine	µg/L	-	1/Year	Composite	ND < 0.32	U*
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	Composite	ND < 0.21	U*
N-Nitrosodiphenylamine	µg/L	-	1/Year	Composite	ND < 0.21	U*
o-Xylene	ug/L	-	1/Year	Grab	ND < 0.25	U
Pentachlorophenol	µg/L	-	1/Year	Composite	ND < 1.1	U*
Phenanthrene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Phenol	µg/L	-	1/Year	Composite	ND < 0.11	U*
Pyrene	µg/L	-	1/Year	Composite	ND < 0.11	U*
Tetrachloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toluene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toxaphene	µg/L	-	1/Year	Composite	ND < 0.24	U*
trans-1,2-Dichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
trans-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
Trichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
Trichlorofluoromethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Vinyl chloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Xylenes (Total)	µg/L	-	1/Year	Grab	ND < 0.50	U
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
Aluminum	µg/L	-	1/Year	Composite	400	--
Chlorpyrifos	µg/L	-	1/Year	Composite	ND < 0.0069	U*
Diazinon	µg/L	-	1/Year	Composite	ND < 0.0052	U*
E. Coli	mpn/100mL	-	1/Year	Grab	490	--
Hardness (as CaCO3)	mg/L	-	1/Year	Composite	20	*
Iron	mg/L	-	1/Year	Composite	0.51	--
Selenium	µg/L	-	1/Discharge	Composite	ND < 0.50	U
Silver	µg/L	-	1/Discharge	Composite	ND < 0.50	U
Total Suspended Solids	mg/L	-	1/Year	Composite	3.9	*
Vanadium	µg/L	-	1/Year	Composite	ND < 5.0	U
ADDITIONAL POLLUTANTS[(2)]						
Aluminum, dissolved	µg/L	-	Additional/Year	Composite	210	J (H)
Antimony, dissolved	µg/L	-	Additional/Discharge	Composite	0.64	J (H, DNQ)
Arsenic, dissolved	µg/L	-	Additional/Year	Composite	ND < 8.9	U*
Beryllium, dissolved	µg/L	-	Additional/Year	Composite	ND < 1.0	U*
Boron, dissolved	mg/L	-	Additional/Year	Composite	0.034	J (H, DNQ)
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	Composite	ND < 2.5	U*
cis-1,2-Dichloroethene	µg/L	-	Additional/Year	Grab	ND < 0.25	U
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	3.2	J (H)
Hardness, dissolved (as CaCO3)	mg/L	-	Additional/Year	Composite	18	*
Human Bacteriodes	CEs/100mL	-	Additional/Year	Grab	DNQ	*
Iron, dissolved	mg/L	-	Additional/Year	Composite	0.23	J (H)
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	0.66	J (H, DNQ)

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OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 09:50 - 3/14/2020 10:15		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 5.0	UJ (H)
Nitrate - N	mg/L	-	Additional/Discharge	Composite	0.39	*
Nitrite - N	mg/L	-	Additional/Discharge	Composite	ND < 0.025	U*
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.69	UJ (H, B)
Silver, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	UJ (H)
Thallium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.20	UJ (H)
Vanadium, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	UJ (H)
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	UJ (H)

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DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 10:15 - 3/21/2020 7:40		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	64.33	1/Discharge	Meas	0.004264	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.5	U
pH (Field)	s.u	6.5-8.5	1/Discharge	Grab	8.07	*
PRIORITY POLLUTANTS						
Antimony	µg/L	6.0	1/Discharge	Composite	0.84	J (DNQ*)
Cadmium	µg/L	4.0	1/Discharge	Composite	ND < 0.25	U*
Copper	µg/L	13	1/Discharge	Composite	4.3	*
Cyanide	µg/L	9.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	ND < 0.50	U*
Mercury	µg/L	0.13	1/Discharge	Composite	ND < 0.10	U*
Nickel	µg/L	86	1/Discharge	Composite	8.3	J (DNQ*)
Thallium	µg/L	2.0	1/Discharge	Composite	ND < 0.20	U*
Zinc	µg/L	120	1/Discharge	Composite	ND < 12	U*
NON-CONVENTIONAL POLLUTANTS						
Boron	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	4.1	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, -4.19	*
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	10	1/Discharge	Composite	0.062	J (DNQ*)
Perchlorate	µg/L	6.0	1/Semiannual	ANR	ANR	ANR
Sulfate	mg/L	250	1/Discharge	Composite	5.3	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	49.6	*
Total Dissolved Solids	mg/L	850	1/Discharge	Composite	90	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
2,4,6-Trichlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrotoluene	µg/L	-	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 10:15 - 3/21/2020 7:40		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
4-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	ANR	ANR	ANR
alpha-BHC	µg/L	-	1/Year	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	ANR	ANR	ANR
Arsenic	µg/L	-	1/Year	ANR	ANR	ANR
Asbestos	MFL	-	1/Year	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Beryllium	µg/L	-	1/Year	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	ANR	ANR	ANR
Chromium VI (Hexavalent)	µg/L	-	1/Year	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	ANR	ANR	ANR

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FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 10:15 - 3/21/2020 7:40		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	ANR	ANR	ANR
m,p-Xylenes	ug/L	-	1/Year	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	ANR	ANR	ANR
o-Xylene	ug/L	-	1/Year	ANR	ANR	ANR
Pentachlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
Trichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
Aluminum	µg/L	-	1/Year	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	1/Year	ANR	ANR	ANR
Diazinon	µg/L	-	1/Year	ANR	ANR	ANR
E. Coli	mpn/100mL	-	1/Year	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	ANR	ANR	ANR
Iron	mg/L	-	1/Year	ANR	ANR	ANR
Selenium	µg/L	-	1/Discharge	Composite	ND < 0.50	U*
Silver	µg/L	-	1/Discharge	Composite	ND < 0.50	U*
Total Suspended Solids	mg/L	-	1/Year	Composite	ND < 0.50	U*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[(2)]						
Aluminum, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Discharge	Composite	0.71	J (DNQ*)
Arsenic, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	U*
Chromium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	Additional/Year	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	4.3	*
Hardness, dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR
Human Bacteriodes	CEs/100mL	-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*

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NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 10:15 - 3/21/2020 7:40		
ANALYTE	**UNITS**	**DAILY MAXIMUM PERMIT LIMIT**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 5.0	U*
Nitrate - N	mg/L	-	Additional/Discharge	Composite	0.062	J (DNQ*)
Nitrite - N	mg/L	-	Additional/Discharge	Composite	ND < 0.025	U*
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Silver, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Thallium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.20	U*
Vanadium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	U*

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FIRST QUARTER 2020
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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

					03/14/2020 10:15 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	3.5E-07	1.8E-05	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	1.1E-06	1.2E-05	J (DNQ)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	1.1E-06	7.0E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	1.1E-06	7.5E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	6.0E-07	5.6E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	1.2E-06	6.6E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	6.5E-07	6.2E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	1.1E-06	7.2E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	6.2E-07	7.2E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	1.1E-06	4.3E-06	J (DNQ)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	6.1E-07	4.0E-06	J (DNQ)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	6.0E-07	6.5E-06	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	5.9E-07	3.6E-06	UJ (*III)	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	9.0E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	1.7E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	1.3E-06	1.4E-04	--	1.4E-10
OCDF	1/Discharge	0.0001	0.02	µg/L	1.0E-06	3.3E-05	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**1.4E-10**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

					03/21/2020 7:40 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	4.6E-07	2.1E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	3.3E-07	1.6E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	4.3E-07	1.4E-06	J (DNQ)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	7.2E-07	1.6E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	1.1E-06	ND	U	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	7.5E-07	ND	U	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	1.0E-06	ND	U	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	6.7E-07	ND	U	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	6.6E-07	9.9E-07	UJ (*III)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	7.0E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	5.9E-07	ND	U	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	6.3E-07	7.1E-07	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	6.2E-07	ND	U	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	5.6E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	3.5E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	7.7E-07	1.4E-05	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	7.9E-07	2.8E-06	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/14/2020 10:15 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	1.83+/-0.975	1.20	*
Gross Beta	pCi/L	50	1/Discharge	1.71+/-0.713	0.943	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.654+/-0.428	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	0.225+/-0.564	0.972	U*
Tritium	pCi/L	20,000	1/Discharge	-55.9+/-175	326	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	3.88+/-7.23	12.3	U*
Uranium	pCi/L	20	1/Discharge	0.0507+/-0.436	0.613	U*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-104+/-157	216	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/21/2020 7:40 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	-0.0978+/-0.841	1.66	U*
Gross Beta	pCi/L	50	1/Discharge	0.603+/-0.532	0.844	U*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.764+/-0.464	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	0.216+/-0.229	0.374	U*
Tritium	pCi/L	20,000	1/Discharge	40.1+/-156	274	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-4.19+/-9.48	16.2	U*
Uranium	pCi/L	20	1/Discharge	0.0276+/-0.199	0.312	U*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	47.2+/-124	177	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 09:50 - 3/14/2020 10:15		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	64.33	1/Discharge	Meas	0.871641	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	8,048	1/Discharge	Grab	ND	U
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	3.22	1/Discharge	Composite	0.004	J (DNQ)
Cadmium	LBS/DAY	2.15	1/Discharge	Composite	ND	U
Copper	LBS/DAY	7	1/Discharge	Composite	0.026	--
Cyanide	LBS/DAY	5.1	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	2.8	1/Discharge	Composite	0.0087	--
Mercury	LBS/DAY	0.07	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	46.14	1/Discharge	Composite	ND	U
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	1.5E-08	1/Discharge	Composite	1.0E-12	*
Thallium	LBS/DAY	1.1	1/Discharge	Composite	ND	U
Zinc	LBS/DAY	64.4	1/Discharge	Composite	ND	U
NON-CONVENTIONAL POLLUTANTS						
Boron	LBS/DAY	537	1/Year	Composite	0.28	J (DNQ)
Chloride	LBS/DAY	80,477	1/Discharge	Composite	13	*
Fluoride	LBS/DAY	858	1/Year	Composite	ND	U*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	5,365	1/Discharge	Composite	2.8	*
Perchlorate	LBS/DAY	3.22	1/Semiannual	Composite	ND	U*
Sulfate	LBS/DAY	134,128	1/Discharge	Composite	15	*
Total Dissolved Solids	LBS/DAY	456,034	1/Discharge	Composite	480	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 10:15 - 3/21/2020 7:40		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	64.33	1/Discharge	Meas	0.004264	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	8,048	1/Discharge	Grab	ND	U
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	3.22	1/Discharge	Composite	0.000030	J (DNQ*)
Cadmium	LBS/DAY	2.15	1/Discharge	Composite	ND	U*
Copper	LBS/DAY	7	1/Discharge	Composite	0.00015	*
Cyanide	LBS/DAY	5.1	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	2.8	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.07	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	46.14	1/Discharge	Composite	0.00030	J (DNQ*)
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	1.5E-08	1/Discharge	Composite	ND	U*
Thallium	LBS/DAY	1.1	1/Discharge	Composite	ND	U*
Zinc	LBS/DAY	64.4	1/Discharge	Composite	ND	U*
NON-CONVENTIONAL POLLUTANTS						
Boron	LBS/DAY	537	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	80,477	1/Discharge	Composite	0.15	*
Fluoride	LBS/DAY	858	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	5,365	1/Discharge	Composite	0.0022	J (DNQ*)
Perchlorate	LBS/DAY	3.22	1/Semiannual	ANR	ANR	ANR
Sulfate	LBS/DAY	134,128	1/Discharge	Composite	0.19	*
Total Dissolved Solids	LBS/DAY	456,034	1/Discharge	Composite	3.2	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				1/7/2020 9:15:00 - 1/8/2020 9:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.31257	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	Composite	ND < 2.0	U
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.3	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	Grab	6.53	*
Total Suspended Solids#	mg/L	45	1/Discharge	Composite	ND < 0.50 (d)	U
PRIORITY POLLUTANTS						
1,1-Dichloroethene	µg/L	6.0	1/Discharge	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	Composite	ND < 0.11	U
2,4-Dinitrotoluene	µg/L	18	1/Discharge	Composite	ND < 2.1	U
alpha-BHC	µg/L	0.03	1/Discharge	Composite	ND < 0.0026	U
Antimony	µg/L	6.0	1/Year	Composite	ND < 0.50	U
Arsenic	µg/L	10.0	1/Year	Composite	ND < 8.9	U
Beryllium	µg/L	4.0	1/Year	Composite	ND < 1.0	U
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	Composite	ND < 2.1	U
Cadmium	µg/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 (a)	U
Chromium VI (Hexavalent)	µg/L	16	1/Year	Composite	ND < 0.25	U
Copper	µg/L	14	1/Discharge	Composite	1.5	J (DNQ)
Cyanide	µg/L	8.5	1/Discharge	Composite	ND < 2.5	U
Lead	µg/L	5.2	1/Discharge	Composite	ND < 0.50	U
Mercury	µg/L	0.1	1/Discharge	Composite	ND < 0.10	UJ (B)
Nickel	µg/L	94	1/Year	Composite	ND < 5.0	U
N-Nitrosodimethylamine	µg/L	16	1/Discharge	Composite	ND < 0.32	U
Pentachlorophenol	µg/L	16.5	1/Discharge	Composite	1.3	J (DNQ)
Selenium	µg/L	(5) 8.2	1/Discharge	Composite	ND < 0.50 (e)	U
Silver	µg/L	4.1	1/Year	Composite	ND < 0.50	U
Thallium	µg/L	2.0	1/Year	Composite	ND < 0.20	U
Trichloroethene	µg/L	5.0	1/Discharge	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	Composite	13	J (DNQ)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	0.131	J- (B, DNQ)
Barium	mg/L	1.0	1/Year	Composite	0.019	--
Chloride	mg/L	150	1/Discharge	Composite	8.0	--
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	Grab	0.0	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, -75.62	--
Detergents (as MBAS)	mg/L	0.5	1/Discharge	Composite	0.11	--
Fluoride	mg/L	1.6	1/Year	Composite	ND < 0.25	U
Iron	mg/L	0.3	1/Year	Composite	ND < 0.050	U
Manganese	µg/L	50	1/Year	Composite	18	J (DNQ)
Nitrate - N	mg/L	8	1/Discharge	Composite	1.4	--
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	1.4	--
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U
Perchlorate	µg/L	6.0	1/Discharge	Composite	ND < 0.95	U
Settleable Solids#	mL/L	0.3	1/Discharge	Grab	ND < 0.10 (d)	U
Sulfate	mg/L	300	1/Discharge	Composite	150	--
Temperature (Field)	Deg F	86	1/Discharge	Grab	52.1	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	310	--
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1,2-Trichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,1-Dichloroethane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2,4-Trichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U
1,2-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U
1,2-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Dichloropropane	µg/L	-	1/Year	Grab	ND < 0.25	U
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				1/7/2020 9:15:00 - 1/8/2020 9:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
1,3-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U
1,3-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,4-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
1,4-Dichlorobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U
2,4-Dichlorophenol	µg/L	-	1/Year	Composite	ND < 0.21	U
2,4-Dimethylphenol	µg/L	-	1/Year	Composite	ND < 0.53	U
2,4-Dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.1	U
2,6-Dinitrotoluene	µg/L	-	1/Year	Composite	ND < 2.1	U
2-Chloroethyl vinyl ether	µg/L	-	1/Year	Grab	ND < 1.0	U
2-Chloronaphthalene	µg/L	-	1/Year	Composite	ND < 0.11	U
2-Chlorophenol	µg/L	-	1/Year	Composite	ND < 0.11	U
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	Composite	ND < 1.1	U
2-Nitrophenol	µg/L	-	1/Year	Composite	ND < 0.21	U
3,3'-Dichlorobenzidine	µg/L	-	1/Year	Composite	ND < 1.1	U
4,4'-DDD	µg/L	-	1/Year	Composite	ND < 0.0041	U
4,4'-DDE	µg/L	-	1/Year	Composite	ND < 0.0031	U
4,4'-DDT	µg/L	-	1/Year	Composite	ND < 0.0041	U
4-Bromophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.11	U
4-Chloro-3-methylphenol	µg/L	-	1/Year	Composite	ND < 0.21	U
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	Composite	ND < 0.11	U
4-Nitrophenol	µg/L	-	1/Year	Composite	ND < 2.1	U
Acenaphthene	µg/L	-	1/Year	Composite	ND < 0.11	U
Acenaphthylene	µg/L	-	1/Year	Composite	ND < 0.11	U
Acrolein	µg/L	-	1/Year	Grab	ND < 2.5	U
Acrylonitrile	µg/L	-	1/Year	Grab	ND < 1.0	U
Aldrin	µg/L	-	1/Year	Composite	ND < 0.0015	U
alpha-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0031	U
Anthracene	µg/L	-	1/Year	Composite	ND < 0.11	U
Aroclor 1016	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1221	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1232	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1242	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1248	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1254	µg/L	-	1/Year	Composite	ND < 0.26	U
Aroclor 1260	µg/L	-	1/Year	Composite	ND < 0.26	U
Benzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Benzidine	µg/L	-	1/Year	Composite	ND < 5.3	R (L)
Benzo(a)anthracene	µg/L	-	1/Year	Composite	ND < 1.1	U
Benzo(a)pyrene	µg/L	-	1/Year	Composite	ND < 0.21	U
Benzo(b)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.32	U
Benzo(g,h,i)perylene	µg/L	-	1/Year	Composite	ND < 1.1	U
Benzo(k)fluoranthene	µg/L	-	1/Year	Composite	ND < 0.11	U
beta-BHC	µg/L	-	1/Year	Composite	ND < 0.0041	U
beta-Endosulfan	µg/L	-	1/Year	Composite	ND < 0.0021	U
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	Composite	ND < 0.21	U
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	Composite	ND < 0.053	U
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	Composite	ND < 0.11	U
Bromoform	µg/L	-	1/Year	Grab	ND < 0.40	U
Bromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Butyl benzylphthalate	µg/L	-	1/Year	Composite	3	J (DNQ)
Carbon tetrachloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlordane	µg/L	-	1/Year	Composite	ND < 0.082	U
Chlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Chlorodibromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloroethane	µg/L	-	1/Year	Grab	ND < 0.40	U
Chloroform	µg/L	-	1/Year	Grab	ND < 0.25	U
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	Grab	ND < 0.25	U
Chromium	µg/L	-	1/Year	Composite	ND < 2.5	U

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				1/7/2020 9:15:00 - 1/8/2020 9:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Chrysene	µg/L	-	1/Year	Composite	ND < 0.11	U
cis-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
delta-BHC	µg/L	-	1/Year	Composite	ND < 0.0036	U
Dibenz(a,h)anthracene	µg/L	-	1/Year	Composite	ND < 0.21	U
Dichlorobromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Dieldrin	µg/L	-	1/Year	Composite	ND < 0.0021	U
Diethyl phthalate	µg/L	-	1/Year	Composite	0.99	J (DNQ)
Dimethyl phthalate	µg/L	-	1/Year	Composite	ND < 0.11	U
Di-n-butyl phthalate	µg/L	-	1/Year	Composite	ND < 0.53	U
Di-n-octyl phthalate	µg/L	-	1/Year	Composite	ND < 1.1	U
Endosulfan sulfate	µg/L	-	1/Year	Composite	ND < 0.0031	U
Endrin	µg/L	-	1/Year	Composite	ND < 0.0021	U
Endrin aldehyde	µg/L	-	1/Year	Composite	ND < 0.0021	U
Ethylbenzene	µg/L	-	1/Year	Grab	ND < 0.25	U
Fluoranthene	µg/L	-	1/Year	Composite	ND < 0.11	U
Fluorene	µg/L	-	1/Year	Composite	ND < 0.11	U
gamma-BHC (Lindane)	µg/L	-	1/Year	Composite	ND < 0.0031	U
Heptachlor	µg/L	-	1/Year	Composite	ND < 0.0031	U
Heptachlor epoxide	µg/L	-	1/Year	Composite	ND < 0.0026	U
Hexachlorobenzene	µg/L	-	1/Year	Composite	ND < 0.11	U
Hexachlorobutadiene	µg/L	-	1/Year	Composite	ND < 0.53	U
Hexachlorocyclopentadiene	µg/L	-	1/Year	Composite	ND < 2.1	UJ (L)
Hexachloroethane	µg/L	-	1/Year	Composite	ND < 0.53	U
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	Composite	ND < 0.43	U
Isophorone	µg/L	-	1/Year	Composite	ND < 0.21	U
m,p-Xylenes	µg/L	-	1/Year	Grab	ND < 0.50	U
Methylene chloride	µg/L	-	1/Year	Grab	ND < 0.88	U
Naphthalene	µg/L	-	1/Year	Composite	ND < 0.053	U
Naphthalene	µg/L	-	1/Year	Grab	ND < 0.40	U
Nitrobenzene	µg/L	-	1/Year	Composite	ND < 0.21	U
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	Composite	ND < 0.21	U
N-Nitrosodiphenylamine	µg/L	-	1/Year	Composite	ND < 0.21	U
o-Xylene	µg/L	-	1/Year	Grab	ND < 0.25	U
Phenanthrene	µg/L	-	1/Year	Composite	ND < 0.11	U
Phenol	µg/L	-	1/Year	Composite	ND < 0.11	U
Pyrene	µg/L	-	1/Year	Composite	ND < 0.11	U
Tetrachloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toluene	µg/L	-	1/Year	Grab	ND < 0.25	U
Toxaphene	µg/L	-	1/Year	Composite	ND < 0.25	U
trans-1,2-Dichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
trans-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U
Trichlorofluoromethane	µg/L	-	1/Year	Grab	ND < 0.25	U
Vinyl chloride	µg/L	-	1/Year	Grab	ND < 0.25	U
Xylenes (Total)	µg/L	-	1/Year	Grab	ND < 0.50	R (D)
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	Grab	ND < 0.50	U
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	Grab	ND < 1.0	U
1,4-Dioxane	µg/L	-	1/Year	Composite	ND < 0.50	U
Boron	mg/L	-	1/Year	Composite	0.050	--
cis-1,2-Dichloroethene	µg/L	-	1/Year	Grab	ND < 0.25	U
Cobalt	µg/L	-	1/Year	Composite	ND < 5.0	U
Conductivity	µmhos/cm	-	1/Discharge	Grab	430	--
Cyclohexane	µg/L	-	1/Year	Grab	ND < 1.0	U
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	Grab	ND < 0.11	U
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	Grab	8.49	*
E. Coli	mpn/100mL	-	1/Year	Grab	ND < 1.8	UJ (H)
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	Grab	0.025	J (DNQ)
Hardness (as CaCO3)	mg/L	-	1/Year	Composite	120	--

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				1/7/2020 9:15:00 - 1/8/2020 9:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Monomethyl hydrazine	µg/L	-	1/Year	Composite	ND < 2.0	U*
Total Organic Carbon	mg/L	-	1/Year	Composite	4.8	--
Turbidity	NTU	-	1/Discharge	Composite	0.37	--
Vanadium	µg/L	-	1/Year	Composite	ND < 5.0	U
ADDITIONAL POLLUTANTS[2]						
Aluminum	µg/L	-	Additional[p]	Composite	120	--
Aluminum, dissolved	µg/L	-	Additional[p]	Composite	83	J (H, DNQ)
Antimony, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.51	UJ (H,B)
Arsenic, dissolved	µg/L	-	Additional/Year	Composite	ND < 8.9	UJ (H)
Barium, dissolved	mg/L	-	Additional/Year	Composite	0.019	J (H)
Beryllium, dissolved	µg/L	-	Additional/Year	Composite	ND < 1.0	UJ (H)
Boron, dissolved	mg/L	-	Additional/Year	Composite	0.043	J (H, DNQ)
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	UJ (H)
Chromium, dissolved	µg/L	-	Additional/Year	Composite	ND < 2.5	UJ (H)
Cobalt, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	UJ (H)
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	1.4	J (H, DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	Composite	120	J (H)
Human Bacteroides	CEs/100mL	-	Additional/Year	Grab	ND	U*
Iron, dissolved	mg/L	-	Additional/Year	Composite	ND < 0.050	UJ (H)
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	UJ (H)
Manganese, dissolved	µg/L	-	Additional/Year	Composite	17	J (H, DNQ)
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	UJ (H,B)
Nickel, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	UJ (H)
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	UJ (H)
Silver, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.50	UJ (H)
Thallium, dissolved	µg/L	-	Additional/Year	Composite	ND < 0.20	UJ (H)
Vanadium, dissolved	µg/L	-	Additional/Year	Composite	ND < 5.0	UJ (H)
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	UJ (H)

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 14:20 - 3/14/2020 14:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.24137	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	Composite	ND < 2.0	U*
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.4	U
pH (Field)	s.u.	6.5-8.5	1/Discharge	Grab	8.33	*
Total Suspended Solids#	mg/L	45	1/Discharge	Composite	0.50 (c)	J (DNQ*)
PRIORITY POLLUTANTS						
1,1-Dichloroethene	µg/L	6.0	1/Discharge	Grab	ND < 0.25	U
1,2-Dichloroethane	µg/L	0.5	1/Discharge	Grab	ND < 0.25	U
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	Composite	ND < 0.11	U*
2,4-Dinitrotoluene	µg/L	18	1/Discharge	Composite	ND < 2.1	U*
alpha-BHC	µg/L	0.03	1/Discharge	Composite	ND < 0.021	U*
Antimony	µg/L	6.0	1/Year	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Year	Composite	ND < 8.9	U*
Beryllium	µg/L	4.0	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	Composite	ND < 2.1	U*
Cadmium	µg/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 (b)	U*
Chromium VI (Hexavalent)	µg/L	16	1/Year	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	Composite	1.7	J (DNQ*)
Cyanide	µg/L	8.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	ND < 0.50	U*
Mercury	µg/L	0.1	1/Discharge	Composite	ND < 0.10	U*
Nickel	µg/L	94	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	Composite	ND < 0.32	U*
Pentachlorophenol	µg/L	16.5	1/Discharge	Composite	1.2	J (DNQ*)
Selenium	µg/L	(5) 8.2	1/Discharge	Composite	0.53 (f)	J (DNQ*)
Silver	µg/L	4.1	1/Year	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	Grab	ND < 0.25	U
Zinc	µg/L	119	1/Discharge	Composite	ND < 12	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	ND < 0.100	U*
Barium	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	13	*
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	Composite	Pass, 21.28	*
Detergents (as MBAS)	mg/L	0.5	1/Discharge	Composite	0.097	J (DNQ*)
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Iron	mg/L	0.3	1/Year	Composite	ND < 0.050	U*
Manganese	µg/L	50	1/Year	Composite	ND < 15	U*
Nitrate - N	mg/L	8	1/Discharge	Composite	0.27	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.27	*
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U*
Perchlorate	µg/L	6.0	1/Discharge	Composite	ND < 0.95	U*
Settleable Solids#	mL/L	0.3	1/Discharge	Grab	ND < 0.10 (c)	U
Sulfate	mg/L	300	1/Discharge	Composite	240	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	53.78	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	490	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 14:20 - 3/14/2020 14:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR
4-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 14:20 - 3/14/2020 14:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Chrysene	µg/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	ANR	ANR	ANR
Boron	mg/L	-	1/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	Grab	660	--
Cyclohexane	µg/L	-	1/Year	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	Grab	10.18	*
E. Coli	mpn/100mL	-	1/Year	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 14:20 - 3/14/2020 14:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Monomethyl hydrazine	µg/L	-	1/Year	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	Composite	0.39	*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]						
Aluminum	µg/L	-	Additional[p]	Composite	210	*
Aluminum, dissolved	µg/L	-	Additional[p]	Composite	140	*
Antimony, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Year	Composite	ND < 8.9	U*
Barium, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	U*
Chromium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	1.6	J (DNQ*)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Year	Composite	ND < 0.050	U*
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Manganese, dissolved	µg/L	-	Additional/Year	Composite	ND < 15	U*
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Silver, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/25/2020 13:30 - 03/26/2020 14:00		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.30293	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	Composite	ND < 2.0	U*
Oil & Grease	mg/L	15	1/Discharge	Grab	ND < 1.5	U*
pH (Field)	s.u.	6.5-8.5	1/Discharge	Grab	7.39	*
Total Suspended Solids#	mg/L	45	1/Discharge	Composite	1.1 (c)	*
PRIORITY POLLUTANTS						
1,1-Dichloroethene	µg/L	6.0	1/Discharge	Grab	ND < 0.25	U*
1,2-Dichloroethane	µg/L	0.5	1/Discharge	Grab	ND < 0.25	U*
2,4,6-Trichlorophenol	µg/L	13	1/Discharge	Composite	ND < 0.11	U*
2,4-Dinitrotoluene	µg/L	18	1/Discharge	Composite	ND < 2.2	U*
alpha-BHC	µg/L	0.03	1/Discharge	Composite	ND < 0.021	U*
Antimony	µg/L	6.0	1/Year	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Year	ANR	ANR	ANR
Beryllium	µg/L	4.0	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	µg/L	4.0	1/Discharge	Composite	ND < 2.2	U*
Cadmium	µg/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 (b)	U*
Chromium VI (Hexavalent)	µg/L	16	1/Year	ANR	ANR	ANR
Copper	µg/L	14	1/Discharge	Composite	2.2	*
Cyanide	µg/L	8.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	ND < 0.50	U*
Mercury	µg/L	0.1	1/Discharge	Composite	ND < 0.10	U*
Nickel	µg/L	94	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	µg/L	16	1/Discharge	Composite	ND < 0.33	U*
Pentachlorophenol	µg/L	16.5	1/Discharge	Composite	ND < 1.1	U*
Selenium	µg/L	(5) 8.2	1/Discharge	Composite	ND < 0.50 (f)	U*
Silver	µg/L	4.1	1/Year	ANR	ANR	ANR
Thallium	µg/L	2.0	1/Year	ANR	ANR	ANR
Trichloroethene	µg/L	5.0	1/Discharge	Grab	ND < 0.25	U*
Zinc	µg/L	119	1/Discharge	Composite	ND < 12	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	ND < 0.100	U*
Barium	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	5.7	*
Chlorine, Total Residual (Field)	mg/L	0.1	1/Year	ANR	ANR	ANR
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Detergents (as MBAS)	mg/L	0.5	1/Discharge	Composite	0.074	J (DNQ*)
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Iron	mg/L	0.3	1/Year	ANR	ANR	ANR
Manganese	µg/L	50	1/Year	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	Composite	0.23	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.23	*
Nitrite - N	mg/L	1	1/Discharge	Composite	ND < 0.025	U*
Perchlorate	µg/L	6.0	1/Discharge	Composite	ND < 0.95	U*
Settleable Solids#	mL/L	0.3	1/Discharge	Grab	ND < 0.10 (c)	U*
Sulfate	mg/L	300	1/Discharge	Composite	94	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	57.7	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	230	*
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1,2-Trichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	ANR	ANR	ANR

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OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/25/2020 13:30 - 03/26/2020 14:00		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dichlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	µg/L	-	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloroethyl vinyl ether	µg/L	-	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	µg/L	-	1/Year	ANR	ANR	ANR
2-Chlorophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
2-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
3,3'-Dichlorobenzidine	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDD	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	ANR	ANR	ANR
4-Bromophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	µg/L	-	1/Year	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	µg/L	-	1/Year	ANR	ANR	ANR
4-Nitrophenol	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthene	µg/L	-	1/Year	ANR	ANR	ANR
Acenaphthylene	µg/L	-	1/Year	ANR	ANR	ANR
Acrolein	µg/L	-	1/Year	ANR	ANR	ANR
Acrylonitrile	µg/L	-	1/Year	ANR	ANR	ANR
Aldrin	µg/L	-	1/Year	ANR	ANR	ANR
alpha-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	ANR	ANR	ANR
Benzene	µg/L	-	1/Year	ANR	ANR	ANR
Benzidine	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(g,h,i)perylene	µg/L	-	1/Year	ANR	ANR	ANR
Benzo(k)fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
beta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
beta-Endosulfan	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	µg/L	-	1/Year	ANR	ANR	ANR
Bromoform	µg/L	-	1/Year	ANR	ANR	ANR
Bromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Butyl benzylphthalate	µg/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	ANR	ANR	ANR
Chlordane	µg/L	-	1/Year	ANR	ANR	ANR
Chlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Chlorodibromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Chloroform	µg/L	-	1/Year	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	µg/L	-	1/Year	ANR	ANR	ANR
Chromium	µg/L	-	1/Year	ANR	ANR	ANR

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OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/25/2020 13:30 - 03/26/2020 14:00		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Chrysene	µg/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
delta-BHC	µg/L	-	1/Year	ANR	ANR	ANR
Dibenz(a,h)anthracene	µg/L	-	1/Year	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	ANR	ANR	ANR
Dieldrin	µg/L	-	1/Year	ANR	ANR	ANR
Diethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Dimethyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-butyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Di-n-octyl phthalate	µg/L	-	1/Year	ANR	ANR	ANR
Endosulfan sulfate	µg/L	-	1/Year	ANR	ANR	ANR
Endrin	µg/L	-	1/Year	ANR	ANR	ANR
Endrin aldehyde	µg/L	-	1/Year	ANR	ANR	ANR
Ethylbenzene	µg/L	-	1/Year	ANR	ANR	ANR
Fluoranthene	µg/L	-	1/Year	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	ANR	ANR	ANR
gamma-BHC (Lindane)	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor	µg/L	-	1/Year	ANR	ANR	ANR
Heptachlor epoxide	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorobutadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	µg/L	-	1/Year	ANR	ANR	ANR
Hexachloroethane	µg/L	-	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Isophorone	µg/L	-	1/Year	ANR	ANR	ANR
m,p-Xylenes	µg/L	-	1/Year	ANR	ANR	ANR
Methylene chloride	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Nitrobenzene	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	µg/L	-	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	µg/L	-	1/Year	ANR	ANR	ANR
o-Xylene	µg/L	-	1/Year	ANR	ANR	ANR
Phenanthrene	µg/L	-	1/Year	ANR	ANR	ANR
Phenol	µg/L	-	1/Year	ANR	ANR	ANR
Pyrene	µg/L	-	1/Year	ANR	ANR	ANR
Tetrachloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Toluene	µg/L	-	1/Year	ANR	ANR	ANR
Toxaphene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
trans-1,3-Dichloropropene	µg/L	-	1/Year	ANR	ANR	ANR
Trichlorofluoromethane	µg/L	-	1/Year	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	ANR	ANR	ANR
Xylenes (Total)	µg/L	-	1/Year	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	-	1/Quarter	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dioxane	µg/L	-	1/Year	ANR	ANR	ANR
Boron	mg/L	-	1/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	µg/L	-	1/Year	ANR	ANR	ANR
Cobalt	µg/L	-	1/Year	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	Grab	380	*
Cyclohexane	µg/L	-	1/Year	ANR	ANR	ANR
Diesel Range Organics (DRO C13-C28)	mg/L	-	1/Year	ANR	ANR	ANR
Dissolved Oxygen (Field)	mg/L	-	1/Discharge	Grab	9.5	*
E. Coli	mpn/100mL	-	1/Year	ANR	ANR	ANR
Gasoline Range Organics (GRO C4-C12)	mg/L	-	1/Year	ANR	ANR	ANR
Hardness (as CaCO3)	mg/L	-	1/Year	ANR	ANR	ANR

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OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/25/2020 13:30 - 03/26/2020 14:00		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Monomethyl hydrazine	µg/L	-	1/Year	ANR	ANR	ANR
Total Organic Carbon	mg/L	-	1/Year	ANR	ANR	ANR
Turbidity	NTU	-	1/Discharge	Composite	0.55	*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS[2]						
Aluminum	µg/L	-	Additional[p]	Composite	330	*
Aluminum, dissolved	µg/L	-	Additional[p]	Composite	160	*
Antimony, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Barium, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Beryllium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Boron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Cadmium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.25	U*
Chromium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Cobalt, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Copper, dissolved	µg/L	-	Additional/Discharge	Composite	2.0	*
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Year	ANR	ANR	ANR
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Manganese, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Mercury, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U*
Silver, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Thallium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Vanadium, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Zinc, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 12	U*

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

					1/8/2020 9:10 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD Equivalent (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	3.20E-07	5.8E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	4.30E-07	1.7E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	4.50E-07	1.9E-06	J (DNQ)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	4.60E-07	3.8E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	3.00E-07	1.9E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	5.10E-07	2.4E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	3.10E-07	2.1E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	4.40E-07	1.7E-06	UJ (*III)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	3.00E-07	2.8E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	1.10E-06	1.9E-06	UJ (*III)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	6.20E-07	2.8E-06	J (DNQ)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	2.90E-07	1.6E-06	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	6.20E-07	1.7E-06	J (DNQ)	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	1.50E-06	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	6.10E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	3.60E-07	1.6E-05	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	7.50E-07	3.7E-06	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

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OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

					3/14/2020 14:30 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD Equivalent (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	3.50E-07	9.1E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	8.20E-07	8.0E-06	J (DNQ)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	9.80E-07	1.4E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	9.10E-07	3.2E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	5.90E-07	2.9E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	1.00E-06	1.9E-06	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	6.20E-07	1.6E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	8.80E-07	ND	U	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	6.50E-07	ND	U	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	9.00E-07	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	7.20E-07	9.0E-07	UJ (*III)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	5.90E-07	1.5E-06	UJ (*III)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	6.80E-07	1.6E-06	J (DNQ)	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	9.20E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	6.30E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	1.10E-06	6.4E-05	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	9.20E-07	1.2E-05	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

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OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

					03/26/2020 14:00 (Composite)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD Equivalent (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Discharge	0.01	0.05	µg/L	4.10E-07	4.3E-06	U (B)	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	3.40E-07	2.4E-06	U (B)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	4.70E-07	2.1E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	4.60E-07	2.2E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	7.00E-07	1.5E-06	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	4.80E-07	2.0E-06	U (B)	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	6.30E-07	1.3E-06	UJ (*III)	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	4.30E-07	2.0E-06	U (B)	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	4.30E-07	2.8E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	5.30E-07	1.5E-06	U (B)	**ND**
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	4.50E-07	1.7E-06	U (B)	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	4.30E-07	1.1E-06	U (B)	**ND**
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	4.50E-07	9.4E-07	U (B)	**ND**
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	4.10E-07	1.1E-06	UJ (*III)	**ND**
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	3.20E-07	ND	U	**ND**
OCDD	1/Discharge	0.0001	0.01	µg/L	7.00E-07	2.0E-05	U (B)	**ND**
OCDF	1/Discharge	0.0001	0.02	µg/L	8.30E-07	5.4E-06	U (B)	**ND**

TCDD TEQ w/out DNQ Values[4]	**ND**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				01/08/2020 09:10 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	-0.0488+/-0.928	1.91	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	2.53+/-0.823	1.04	J+ (B, R)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.477+/-0.277	NM	UJ (*III)
Strontium-90	pCi/L	8.0	1/Discharge	0.376+/-0.279	0.436	UJ (R)
Tritium	pCi/L	20,000	1/Discharge	-149+/-173	341	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	0.394+/-10.6	12.8	U
Uranium	pCi/L	20	1/Discharge	0.120+/-0.131	0.164	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-51.6+/-175	220	U

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/14/20 09:20 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	2.52+/-2.34	3.62	U*
Gross Beta	pCi/L	50	1/Discharge	4.24+/-1.10	1.14	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.429+/-0.283	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	0.0114+/-0.292	0.520	U*
Tritium	pCi/L	20,000	1/Discharge	-4.05+/-183	332	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	2.18+/-10.7	18.5	U*
Uranium	pCi/L	20	1/Discharge	0.877+/-0.261	0.148	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	15.5+/-143	192	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				03/26/20 14:00 (Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**LABORATORY/ VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	-0.190+/-1.23	2.44	U*
Gross Beta	pCi/L	50	1/Discharge	1.79+/-0.681	0.886	*
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.430+/-0.311	NM	U*
Strontium-90	pCi/L	8.0	1/Discharge	0.376+/-0.191	0.277	*
Tritium	pCi/L	20,000	1/Discharge	81.1+/-167	288	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	2.79+/-5.70	7.42	U*
Uranium	pCi/L	20	1/Discharge	0.164+/-0.1190	0.133	*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	6.71+/-80.4	151	U*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				1/7/2020 9:15:00 - 1/8/2020 9:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.31257	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	ND [(d)]	U
PRIORITY POLLUTANTS						
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U
Antimony	LBS/DAY	5.9	1/Year	Composite	ND	U
Arsenic	LBS/DAY	9.83	1/Year	Composite	ND	U
Beryllium	LBS/DAY	3.93	1/Year	Composite	ND	U
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(a)]	U
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	Composite	ND	U
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.016	J (DNQ)
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U
Lead	LBS/DAY	5.11	1/Discharge	Composite	ND	U
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	UJ (B)
Nickel	LBS/DAY	92.4	1/Year	Composite	ND	U
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	0.014	J (DNQ)
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(e)]	U
Silver	LBS/DAY	4.03	1/Year	Composite	ND	U
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	Composite	ND	U
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U
Zinc	LBS/DAY	117	1/Discharge	Composite	0.14	J (DNQ)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	1.43	J- (B, DNQ)
Barium	LBS/DAY	983	1/Year	Composite	0.21	--
Chloride	LBS/DAY	147,405	1/Discharge	Composite	88	--
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	Grab	0.0	*
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	1.2	--
Fluoride	LBS/DAY	1,572.3	1/Year	Composite	ND	U
Iron	LBS/DAY	295	1/Year	Composite	ND	U
Manganese	LBS/DAY	49.1	1/Year	Composite	0.20	J (DNQ)
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	15	--
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	15	--
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	1,642	--
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	3,394	--

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 14:20 - 3/14/2020 14:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.24137	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U*
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	5.2 [(c)]	J (DNQ*)
PRIORITY POLLUTANTS						
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U*
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U*
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U*
Antimony	LBS/DAY	5.9	1/Year	ANR	ANR	ANR
Arsenic	LBS/DAY	9.83	1/Year	Composite	ND	U*
Beryllium	LBS/DAY	3.93	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U*
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(b)]	U*
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	ANR	ANR	ANR
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.018	J (DNQ*)
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	5.11	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	92.4	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U*
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	0.012	J (DNQ*)
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	0.0055 [(f)]	J (DNQ*)
Silver	LBS/DAY	4.03	1/Year	ANR	ANR	ANR
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	ANR	ANR	ANR
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U
Zinc	LBS/DAY	117	1/Discharge	Composite	ND	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	ND	U*
Barium	LBS/DAY	983	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	135	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	1.0	J (DNQ*)
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Year	Composite	ND	U*
Manganese	LBS/DAY	49.1	1/Year	Composite	ND	U*
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	2.8	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	2.8	*
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U*
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	2,485	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	5,073	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 018
DISCHARGE MONITORING MASS SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/25/2020 13:30 - 03/26/2020 14:00		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
Flow**	MGD	117.83	1/Discharge	Meas	1.30293	*
CONVENTIONAL POLLUTANTS						
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	ND	U*
Oil & Grease	LBS/DAY	14,741	1/Discharge	Grab	ND	U*
Total Suspended Solids[#]	LBS/DAY	44,222	1/Discharge	Composite	12.0 [(c)]	*
PRIORITY POLLUTANTS						
1,1-Dichloroethene	LBS/DAY	5.9	1/Discharge	Grab	ND	U*
1,2-Dichloroethane	LBS/DAY	0.49	1/Discharge	Grab	ND	U*
2,4,6-Trichlorophenol	LBS/DAY	12.8	1/Discharge	Composite	ND	U*
2,4-Dinitrotoluene	LBS/DAY	17.7	1/Discharge	Composite	ND	U*
alpha-BHC	LBS/DAY	0.03	1/Discharge	Composite	ND	U*
Antimony	LBS/DAY	5.9	1/Year	ANR	ANR	ANR
Arsenic	LBS/DAY	9.83	1/Year	ANR	ANR	ANR
Beryllium	LBS/DAY	3.93	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	LBS/DAY	3.93	1/Discharge	Composite	ND	U*
Cadmium	LBS/DAY	(3.93) 3.05	1/Discharge	Composite	ND [(b)]	U*
Chromium VI (Hexavalent)	LBS/DAY	15.72	1/Year	ANR	ANR	ANR
Copper	LBS/DAY	13.76	1/Discharge	Composite	0.024	*
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	5.11	1/Discharge	Composite	ND	U*
Mercury	LBS/DAY	0.1	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	92.4	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	LBS/DAY	15.72	1/Discharge	Composite	ND	U*
Pentachlorophenol	LBS/DAY	16.22	1/Discharge	Composite	ND	U*
Selenium	LBS/DAY	(4.91) 8.06	1/Discharge	Composite	ND [(f)]	U*
Silver	LBS/DAY	4.03	1/Year	ANR	ANR	ANR
TCDD TEQ_NoDNQ[(4)]	LBS/DAY	2.75E-08	1/Discharge	Composite	ND	U*
Thallium	LBS/DAY	1.97	1/Year	ANR	ANR	ANR
Trichloroethene	LBS/DAY	4.91	1/Discharge	Grab	ND	U*
Zinc	LBS/DAY	117	1/Discharge	Composite	ND	U*
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	9,925.3	1/Discharge	Composite	ND	U*
Barium	LBS/DAY	983	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	62	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.8	J (DNQ*)
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Year	ANR	ANR	ANR
Manganese	LBS/DAY	49.1	1/Year	ANR	ANR	ANR
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	2.5	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	2.5	*
Nitrite - N	LBS/DAY	983	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	5.9	1/Discharge	Composite	ND	U*
Sulfate	LBS/DAY	294,810	1/Discharge	Composite	1,021	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	2,499	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/13/2020 10:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/L	0.0014	1/Quarter	Grab	ND <0.0041	U*
4,4'-DDE	µg/L	0.001	1/Quarter	Grab	ND <0.0031	U*
4,4'-DDT	µg/L	0.001	1/Quarter	Grab	ND <0.0041	U*
Aroclor 1016	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1221	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1232	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1242	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1248	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1254	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Aroclor 1260	µg/L	0.0003	1/Quarter	Grab	ND <0.100	U*
Chlordane	µg/L	0.001	1/Quarter	Grab	ND <0.083	U*
Chlorpyrifos	µg/L	0.02	1/Quarter	Grab	ND <0.0069	U*
Diazinon	µg/L	0.16	1/Quarter	Grab	ND <0.0052	U*
Dieldrin	µg/L	0.0002	1/Quarter	Grab	ND <0.0021	U*
E. coli	mpn/100mL	235	1/Year	Grab	4,900	*
pH (Field)	s.u.	6.5-8.5	1/Quarter	Grab	7.95	*
Toxaphene	µg/L	0.0003	1/Quarter	Grab	ND <0.25	U*
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	Grab	87	*
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	Grab	52.48	*
Total Suspended Solids	mg/l	-	1/Year	Grab	17	*
Water Velocity	ft/sec	-	1/Quarter	Meas	0.3	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/20/2020 8:15		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/L	0.0014	1/Quarter	ANR	ANR	ANR
4,4'-DDE	µg/L	0.001	1/Quarter	ANR	ANR	ANR
4,4'-DDT	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Aroclor 1016	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1221	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1232	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1242	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1248	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1254	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1260	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Chlordane	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Chlorpyrifos	µg/L	0.02	1/Quarter	ANR	ANR	ANR
Diazinon	µg/L	0.16	1/Quarter	ANR	ANR	ANR
Dieldrin	µg/L	0.0002	1/Quarter	ANR	ANR	ANR
E. coli	mpn/100mL	235	1/Year	Grab	260	*
pH (Field)	s.u.	6.5-8.5	1/Quarter	ANR	ANR	ANR
Toxaphene	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	ANR	ANR	ANR
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	ANR	ANR	ANR
Total Suspended Solids	mg/l	-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-	1/Quarter	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				3/27/2020 7:30		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/L	0.0014	1/Quarter	ANR	ANR	ANR
4,4'-DDE	µg/L	0.001	1/Quarter	ANR	ANR	ANR
4,4'-DDT	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Aroclor 1016	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1221	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1232	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1242	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1248	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1254	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1260	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Chlordane	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Chlorpyrifos	µg/L	0.02	1/Quarter	ANR	ANR	ANR
Diazinon	µg/L	0.16	1/Quarter	ANR	ANR	ANR
Dieldrin	µg/L	0.0002	1/Quarter	ANR	ANR	ANR
E. coli	mpn/100mL	235	1/Year	Grab	110	*
pH (Field)	s.u.	6.5-8.5	1/Quarter	ANR	ANR	ANR
Toxaphene	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	ANR	ANR	ANR
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	ANR	ANR	ANR
Total Suspended Solids	mg/l	-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-	1/Quarter	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				4/3/2020 7:10		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/L	0.0014	1/Quarter	ANR	ANR	ANR
4,4'-DDE	µg/L	0.001	1/Quarter	ANR	ANR	ANR
4,4'-DDT	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Aroclor 1016	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1221	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1232	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1242	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1248	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1254	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1260	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Chlordane	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Chlorpyrifos	µg/L	0.02	1/Quarter	ANR	ANR	ANR
Diazinon	µg/L	0.16	1/Quarter	ANR	ANR	ANR
Dieldrin	µg/L	0.0002	1/Quarter	ANR	ANR	ANR
E. coli	mpn/100mL	235	1/Year	Grab	49	*
pH (Field)	s.u.	6.5-8.5	1/Quarter	ANR	ANR	ANR
Toxaphene	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	ANR	ANR	ANR
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	ANR	ANR	ANR
Total Suspended Solids	mg/l	-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-	1/Quarter	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

				4/13/2020 7:35		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**LABORATORY/ VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/L	0.0014	1/Quarter	ANR	ANR	ANR
4,4'-DDE	µg/L	0.001	1/Quarter	ANR	ANR	ANR
4,4'-DDT	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Aroclor 1016	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1221	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1232	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1242	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1248	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1254	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Aroclor 1260	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
Chlordane	µg/L	0.001	1/Quarter	ANR	ANR	ANR
Chlorpyrifos	µg/L	0.02	1/Quarter	ANR	ANR	ANR
Diazinon	µg/L	0.16	1/Quarter	ANR	ANR	ANR
Dieldrin	µg/L	0.0002	1/Quarter	ANR	ANR	ANR
E. coli	mpn/100mL	235	1/Year	Grab	1,400	*
pH (Field)	s.u.	6.5-8.5	1/Quarter	ANR	ANR	ANR
Toxaphene	µg/L	0.0003	1/Quarter	ANR	ANR	ANR
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	ANR	ANR	ANR
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	ANR	ANR	ANR
Total Suspended Solids	mg/l	-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-	1/Quarter	ANR	ANR	ANR

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

					3/13/2020 10:30[1] (Grab)			
ANALYTE	**SAMPLE FREQUENCY**	**1998 WHO TEF**	**BEF GREAT LAKES WATER QUALITY INITIATIVE**	**UNITS**	**LAB MDL**	**LAB RESULT**	**LABORATORY/ VALIDATION QUALIFIER**	**TCDD EQUIVALENT (w/out DNQ Values)**
1,2,3,4,6,7,8-HpCDD	1/Year	0.01	0.05	µg/L	6.9E-07	6.7E-05	--	3.4E-08
1,2,3,4,6,7,8-HpCDF	1/Year	0.01	0.01	µg/L	1.6E-06	4.0E-05	J (DNQ)	**ND**
1,2,3,4,7,8,9-HpCDF	1/Year	0.01	0.4	µg/L	1.7E-06	2.7E-06	UJ (*III)	**ND**
1,2,3,4,7,8-HxCDD	1/Year	0.1	0.3	µg/L	1.3E-06	3.6E-06	U (B)	**ND**
1,2,3,4,7,8-HxCDF	1/Year	0.1	0.08	µg/L	6.9E-07	2.0E-06	UJ (*III)	**ND**
1,2,3,6,7,8-HxCDD	1/Year	0.1	0.1	µg/L	1.5E-06	3.5E-06	J (DNQ)	**ND**
1,2,3,6,7,8-HxCDF	1/Year	0.1	0.2	µg/L	7.5E-07	2.3E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDD	1/Year	0.1	0.1	µg/L	1.3E-06	3.9E-06	J (DNQ)	**ND**
1,2,3,7,8,9-HxCDF	1/Year	0.1	0.6	µg/L	7.3E-07	1.9E-06	U (B)	**ND**
1,2,3,7,8-PeCDD	1/Year	1.0	0.9	µg/L	1.2E-06	ND	U	**ND**
1,2,3,7,8-PeCDF	1/Year	0.05	0.2	µg/L	9.3E-07	ND	U	**ND**
2,3,4,6,7,8-HxCDF	1/Year	0.1	0.7	µg/L	7.2E-07	1.7E-06	J (DNQ)	**ND**
2,3,4,7,8-PeCDF	1/Year	0.5	1.6	µg/L	9.9E-07	ND	U	**ND**
2,3,7,8-TCDD	1/Year	1.0	1.0	µg/L	9.9E-07	ND	U	**ND**
2,3,7,8-TCDF	1/Year	0.1	0.8	µg/L	2.3E-07	ND	U	**ND**
OCDD	1/Year	0.0001	0.01	µg/L	1.6E-06	5.0E-04	--	5.0E-10
OCDF	1/Year	0.0001	0.02	µg/L	1.2E-06	1.2E-04	--	2.4E-10

TCDD TEQ w/out DNQ Values (POLLUTANTS WITHOUT LIMITS)[4]	**3.4E-08**

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

APPENDIX D

First Quarter 2020 NPDES Permit Limit Excedances and/or Non-Compliance

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Table D – Summary of Permit Limit Exceedances and/or Non-Compliance

TABLE D
SUMMARY OF PERMIT LIMIT EXCEEDANCES AND/OR NON-COMPLIANCE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

DAILY MAXIMUM BENCHMARK EXCEEDANCES AND/OR NON-COMPLIANCE							
OUTFALL	**SAMPLE DATE**	**SAMPLE TYPE**	**ANALYTE**	**PERMIT LIMIT DAILY MAX**	**DAILY MAX RESULT**	**UNITS**	**LABORATORY/ VALIDATION QUALIFIER**
Outfall 001	03/24/2020	Comp	Manganese	50	90	µg/L	--
Outfall 001	03/24/2020	Comp	Iron	0.3	5.4	mg/L	--
Outfall 001	03/24/2020	Comp	TCDD TEQ w/out DNQ	2.8E-08	3.3E-08	µg/L	*
Outfall 002	03/14/2020	Comp	Iron	0.3	1.3	mg/L	J- (Q, Q1)

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

TABLE D
SUMMARY OF PERMIT LIMIT EXCEEDANCES AND/OR NON-COMPLIANCE

FIRST QUARTER 2019
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2019

SINGLE SAMPLE MAXIMUM RECEIVING WATER LIMIT EXCEEDANCES							
LOCATIONS	**SAMPLE DATE**	**SAMPLE TYPE**	**ANALYTE**	**SINGLE SAMPLE MAXIMUM LIMIT**	**DAILY MAX RESULT**	**UNITS**	**LABORATORY/ VALIDATION QUALIFIER**
Arroyo Simi	3/13/2020	Grab	E. coli	235	4,900	MPN/100 ml	*
Arroyo Simi	3/20/2020	Grab	E. coli	235	260	MPN/100 ml	*
Arroyo Simi	4/13/2020	Grab	E. coli	235	1,400	MPN/100 ml	*
Outfall 002 (RSW-001)	1/7/2020	Grab	E. coli	235	1,100	MPN/100 ml	--

GEOMETRIC MEAN RECEIVING WATER LIMIT EXCEEDANCES							
LOCATIONS	**SAMPLE DATES**	**SAMPLE TYPE**	**ANALYTE**	**GEOMEAN LIMIT**	**GEOMEAN RESULT**	**UNITS**	**LABORATORY/ VALIDATION QUALIFIER**
Arroyo Simi	03/13/2020-04/13/2020	Grab	E. coli	126	395	MPN/100 ml	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

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First Quarter 2020 Analytical Laboratory Reports, Chain of Custody Forms, and Validation Reports

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85 Arroyo Simi - 440-263731-1 – March 27, 2020, Eurofins Calscience Analytical Report

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Human Bacteroidetes ID Analysis:

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DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263442-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263442-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL001_20200323_GRAB	440-263442-1	Water	3/23/20 7:45	E120.1, E1664, E624, SM2540F, SW8015D, SW8015V, SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-263442-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COCs. It should be noted that portions of the COC in the SDG were illegible. Information from the case narrative and Login Sample Receipt Checklists sufficed to support this validation.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- According to the Login Sample Receipt Checklists, custody seals were absent on the coolers upon receipt at both laboratories; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 8015B— PURGEABLE AND EXTRACTABLE TOTAL PETROLEUM HYDROCARBONS (TPHS)

E. Wessling of MEC[X] reviewed the SDG on April 8, 2020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0), EPA Method 8015B*, and the *National Functional Guidelines for Organic Superfund Methods Data Review* (2017).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The preserved water sample was analyzed within 14 days for purgeable TPH (GRO), and the unpreserved water sample was extracted within seven days of collection and analyzed within 40 days of extraction for extractable TPH (DRO).

III.2. CALIBRATION

Initial calibration %RSDs were not evaluated as part of a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits for GRO and DRO of 80-120% and 40-115%, respectively.

III.3.3. *SURROGATE RECOVERY*

Recoveries were within laboratory control limits. BFB (GRO) was within the control limits of 65-140%, and n-octacosane (DRO) was within the control limits of 45-120%.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample for either fractions. MEC[X] evaluated accuracy and precision based upon LCS/LCSD results, as applicable.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.4.1. *TRIP BLANK*

A trip blank was not analyzed for the GRO analysis.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. Compound Identification

Compound identification was not evaluated as part of a Level II validation. The laboratory reported two total petroleum hydrocarbon ranges: C_4-C_{12} (GRO), and C_{13}-C_{28} (DRO).

III.6. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated as part of a Level II validation. Nondetects are valid to the reporting limit.

IV. EPA METHOD 624.1—Volatile Organic Compounds (VOCs)

E. Wessling of MEC^X reviewed the SDG on April 8, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

IV.1. Holding Times

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

IV.2. GC/MS Tuning and Calibration

The BFB tunes were not evaluated as part of a Level II validation.

Calibration criteria were not evaluated as part of a Level II validation.

IV.3. Quality Control Samples

IV.3.1. *Method Blanks*

Target compounds were not detected in the method blank above the MDL.

IV.3.2. *Laboratory Control Samples*

LCS recoveries were within the laboratory control limits.

IV.3.3. *Surrogate Recovery*

Surrogate recoveries were within the laboratory control limits.

IV.3.4. *Matrix Spike/Matrix Spike Duplicate*

MS/MSD analyses were performed on the site sample in this SDG. The RPD for acrolein was above the QC limits of 30% due to the MSD recovery below the QC limits. The nondetect for this compound was qualified as an estimated nondetect (UJ) in the site sample.

IV.4. Field QC Samples

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.4.1. *TRIP BLANKS*

Sample TB-20200323 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

IV.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were not evaluated as part of a Level II validation.

IV.6. COMPOUND IDENTIFICATION

Compound identification was not evaluated as part of a Level II validation. The laboratory analyzed for 41 target compounds by Method 624.1.

IV.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was not evaluated as part of a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

IV.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

IV.9. SYSTEM PERFORMANCE

Review of the raw data was not performed as part of a Level II validation.

V. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F and 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 28 days for specific conductance (Method 120.1) and Oil and Grease (HEM, Method 1664)
- 7 days for total settleable solids (2540F)
- 8 hours per COC for *E.Coli* (Method 9221F)

V.2. CALIBRATION

Instrument calibration review is not performed at Level II validation. The initial and continuing calibration verification recoveries met laboratory control limits for Method 120.1.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blanks had no detections for Methods 120.1 and 1664. The negative control sample was acceptable for the *E. Coli* analysis. Method blanks do not apply to Method 2540C.

V.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for Method 1664. The presumptive test was analyzed with positive detects for *E. Coli*.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

V.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

V.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402634421

Analysis Method E120.1

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	130	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE		4.9	1.4	mg/L	U	U	

Analysis Method E624.1

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1,1-Trichloroethane	N	71-55-6		0.50	0.25	ug/L	U	U	
1,1,2,2-Tetrachloroethane	N	79-34-5		0.50	0.25	ug/L	U	U	
1,1,2-Trichloroethane	N	79-00-5		0.50	0.25	ug/L	U	U	
1,1-Dichloroethane	N	75-34-3		0.50	0.25	ug/L	U	U	
1,1-Dichloroethene	N	75-35-4		0.50	0.25	ug/L	U	U	
1,2-Dichloro-1,1,2-trifluoroethane	N	354-23-4		2.0	1.0	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1		0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2		0.50	0.25	ug/L	U	U	
1,2-Dichloropropane	N	78-87-5		0.50	0.25	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1		0.50	0.25	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7		0.50	0.25	ug/L	U	U	
2-Chloroethyl vinyl ether	N	110-75-8		2.0	1.0	ug/L	U	U	
Acrolein	N	107-02-8		5.0	2.5	ug/L	U	UJ	Q1
Acrylonitrile	N	107-13-1		2.0	1.0	ug/L	U	U	
Benzene	N	71-43-2		0.50	0.25	ug/L	U	U	
Bromodichloromethane	N	75-27-4		0.50	0.25	ug/L	U	U	
Bromoform	N	75-25-2		1.0	0.40	ug/L	U	U	
Bromomethane (Methyl Bromide)	N	74-83-9		0.50	0.25	ug/L	U	U	
Carbon tetrachloride	N	56-23-5		0.50	0.25	ug/L	U	U	

Analysis Method E624.1

Chlorobenzene	N	108-90-7	0.50	0.25	ug/L	U	U
Chloroethane	N	75-00-3	1.0	0.40	ug/L	U	U
Chloroform (Trichloromethane)	N	67-66-3	0.50	0.25	ug/L	U	U
Chloromethane (Methyl Chloride)	N	74-87-3	0.50	0.25	ug/L	U	U
cis-1,2-Dichloroethene	N	156-59-2	0.50	0.25	ug/L	U	U
cis-1,3-Dichloropropene	N	10061-01-5	0.50	0.25	ug/L	U	U
Cyclohexane	N	110-82-7	2.0	1.0	ug/L	U	U
Dibromochloromethane	N	124-48-1	0.50	0.25	ug/L	U	U
Ethylbenzene	N	100-41-4	0.50	0.25	ug/L	U	U
m,p-Xylenes	N	179601-23-1	1.0	0.50	ug/L	U	U
Methylene chloride	N	75-09-2	2.0	0.88	ug/L	U	U
Naphthalene	N	91-20-3	1.0	0.40	ug/L	U	U
o-Xylene	N	95-47-6	0.50	0.25	ug/L	U	U
Tetrachloroethene	N	127-18-4	0.50	0.25	ug/L	U	U
Toluene	N	108-88-3	0.50	0.25	ug/L	U	U
trans-1,2-Dichloroethene	N	156-60-5	0.50	0.25	ug/L	U	U
trans-1,3-Dichloropropene	N	10061-02-6	0.50	0.25	ug/L	U	U
Trichloroethene	N	79-01-6	0.50	0.25	ug/L	U	U
Trichlorofluoromethane (CFC-11)	N	75-69-4	0.50	0.25	ug/L	U	U
Trifluorotrichloroethane (Freon 113)	N	76-13-1	2.0	0.50	ug/L	U	U
Vinyl chloride	N	75-01-4	0.50	0.25	ug/L	U	U
Xylene (total)	N	1330-20-7	1.0	0.50	ug/L	U	U

Analysis Method SM2540F

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS		0.10	0.10	ml/l/hr	U	U	

Analysis Method SM9221F

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
e. coli			490	1.8		MPN/10			

Analysis Method SW8015D

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C13-C28)(DRO)	N	PHC1328		0.52	0.10	mg/L	U	U	

Analysis Method SW8015V

Sample Name OUTFALL001_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263442-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C4-C12)	N	PHC412		0.050	0.025	mg/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263442-1
Client Project/Site: Annual Outfall 001 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/1/2020 10:46:58 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/1/2020 10:46:58 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263442-1	Outfall001_20200323_Grab	Water	03/23/20 07:45	03/23/20 12:55	
440-263442-3	TB-20200323	Water	03/23/20 07:45	03/23/20 12:55	

Job ID: 440-263442-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263442-1

Comments
No additional comments.

Receipt
The samples were received on 3/23/2020 12:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

GC/MS VOA
Method 624.1: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 440-602045 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8015B: Insufficient 8015-DRO sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602233 and analytical batch 440-602336. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-602233/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-602153.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 1664A, 1664B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-603083 and analytical batch 440-603132. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A/B.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602233. Method 8015B

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Client Sample ID: Outfall001_20200323_Grab
Date Collected: 03/23/20 07:45
Date Received: 03/23/20 12:55

Lab Sample ID: 440-263442-1
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/24/20 11:17	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/24/20 11:17	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/20 11:17	1
Acrolein	ND		5.0	2.5	ug/L			03/24/20 11:17	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/20 11:17	1
Benzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Bromoform	ND		1.0	0.40	ug/L			03/24/20 11:17	1
Bromomethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Chloroethane	ND		1.0	0.40	ug/L			03/24/20 11:17	1
Chloroform	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Chloromethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Cyclohexane	ND		2.0	1.0	ug/L			03/24/20 11:17	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/24/20 11:17	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/24/20 11:17	1
Naphthalene	ND		1.0	0.40	ug/L			03/24/20 11:17	1
o-Xylene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Toluene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Trichloroethene	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/24/20 11:17	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/24/20 11:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*60 - 140*		*03/24/20 11:17*	*1*
Dibromofluoromethane (Surr)	*123*		*60 - 140*		*03/24/20 11:17*	*1*
Toluene-d8 (Surr)	*118*		*60 - 140*		*03/24/20 11:17*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			03/25/20 19:16	1

Client Sample ID: Outfall001_20200323_Grab

Lab Sample ID: 440-263442-1

Date Collected: 03/23/20 07:45
Matrix: Water
Date Received: 03/23/20 12:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*97*		*65 - 140*		*03/25/20 19:16*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.52	0.10	mg/L		03/25/20 06:30	03/25/20 17:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	*67*		*45 - 120*	*03/25/20 06:30*	*03/25/20 17:24*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		4.9	1.4	mg/L		03/31/20 08:38	03/31/20 11:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**130**		1.0	1.0	umhos/cm			03/25/20 14:28	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/24/20 14:56	1

Client Sample ID: TB-20200323

Lab Sample ID: 440-263442-3

Date Collected: 03/23/20 07:45
Matrix: Water
Date Received: 03/23/20 12:55

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/24/20 12:47	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/24/20 12:47	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/20 12:47	1
Acrolein	ND		5.0	2.5	ug/L			03/24/20 12:47	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/20 12:47	1
Benzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Bromoform	ND		1.0	0.40	ug/L			03/24/20 12:47	1
Bromomethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Chloroethane	ND		1.0	0.40	ug/L			03/24/20 12:47	1
Chloroform	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Chloromethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Cyclohexane	ND		2.0	1.0	ug/L			03/24/20 12:47	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/24/20 12:47	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Client Sample ID: TB-20200323
Date Collected: 03/23/20 07:45
Date Received: 03/23/20 12:55

Lab Sample ID: 440-263442-3
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		1.0	0.50	ug/L			03/24/20 12:47	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/24/20 12:47	1
Naphthalene	ND		1.0	0.40	ug/L			03/24/20 12:47	1
o-Xylene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Toluene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Trichloroethene	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/24/20 12:47	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/24/20 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*60 - 140*		*03/24/20 12:47*	*1*
Dibromofluoromethane (Surr)	*122*		*60 - 140*		*03/24/20 12:47*	*1*
Toluene-d8 (Surr)	*117*		*60 - 140*		*03/24/20 12:47*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
Subcontract	9221F- E. Coli	None	Enthalpy
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Client Sample ID: Outfall001_20200323_Grab

Lab Sample ID: 440-263442-1

Date Collected: 03/23/20 07:45
Matrix: Water
Date Received: 03/23/20 12:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602045	03/24/20 11:17	AYL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	602300	03/25/20 19:16	EI	TAL IRV
Total/NA	Prep	3510C			955 mL	1 mL	602233	03/25/20 06:30	L1H	TAL IRV
Total/NA	Analysis	8015B		1			602336	03/25/20 17:24	MPD	TAL IRV
Total/NA	Analysis	120.1		1			602364	03/25/20 14:28	XL	TAL IRV
Total/NA	Prep	1664A			1025 mL	1000 mL	603083	03/31/20 08:38	JC1	TAL IRV
Total/NA	Analysis	1664A		1			603132	03/31/20 11:30	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	602153	03/24/20 14:56	HZ	TAL IRV

Client Sample ID: TB-20200323

Lab Sample ID: 440-263442-3

Date Collected: 03/23/20 07:45
Matrix: Water
Date Received: 03/23/20 12:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602045	03/24/20 12:47	AYL	TAL IRV

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602045/4
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/24/20 09:47	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/24/20 09:47	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/20 09:47	1
Acrolein	ND		5.0	2.5	ug/L			03/24/20 09:47	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/20 09:47	1
Benzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Bromoform	ND		1.0	0.40	ug/L			03/24/20 09:47	1
Bromomethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Chloroethane	ND		1.0	0.40	ug/L			03/24/20 09:47	1
Chloroform	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Chloromethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Cyclohexane	ND		2.0	1.0	ug/L			03/24/20 09:47	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/24/20 09:47	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/24/20 09:47	1
Naphthalene	ND		1.0	0.40	ug/L			03/24/20 09:47	1
o-Xylene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Toluene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Trichloroethene	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/24/20 09:47	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/24/20 09:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*		*03/24/20 09:47*	*1*
Dibromofluoromethane (Surr)	*119*		*60 - 140*		*03/24/20 09:47*	*1*
Toluene-d8 (Surr)	*119*		*60 - 140*		*03/24/20 09:47*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-602045/1002
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	28.8		ug/L		115	69 - 151
1,1,2,2-Tetrachloroethane	25.0	25.6		ug/L		103	68 - 136
1,1,2-Trichloroethane	25.0	26.5		ug/L		106	75 - 136
1,1-Dichloroethane	25.0	27.2		ug/L		109	71 - 143
1,1-Dichloroethene	25.0	26.6		ug/L		107	19 - 212
1,2-Dichlorobenzene	25.0	26.4		ug/L		105	59 - 174
1,2-Dichloroethane	25.0	29.3		ug/L		117	72 - 137
1,2-Dichloropropane	25.0	26.9		ug/L		108	19 - 181
1,3-Dichlorobenzene	25.0	26.4		ug/L		106	75 - 144
1,4-Dichlorobenzene	25.0	26.2		ug/L		105	59 - 174
2-Chloroethyl vinyl ether	25.0	24.0		ug/L		96	10 - 252
Acrolein	24.7	16.0		ug/L		65	50 - 150
Acrylonitrile	250	317		ug/L		127	50 - 150
Benzene	25.0	26.4		ug/L		106	75 - 125
Bromodichloromethane	25.0	27.3		ug/L		109	50 - 140
Bromoform	25.0	27.8		ug/L		111	57 - 156
Bromomethane	25.0	29.1		ug/L		116	10 - 206
Carbon tetrachloride	25.0	30.8		ug/L		123	65 - 125
Chlorobenzene	25.0	26.6		ug/L		106	82 - 137
Chloroethane	25.0	27.1		ug/L		108	42 - 202
Chloroform	25.0	27.3		ug/L		109	68 - 121
Chloromethane	25.0	25.7		ug/L		103	10 - 230
cis-1,2-Dichloroethene	25.0	25.3		ug/L		101	60 - 140
cis-1,3-Dichloropropene	25.0	24.9		ug/L		100	5 - 195
Dibromochloromethane	25.0	27.7		ug/L		111	69 - 133
Ethylbenzene	25.0	26.4		ug/L		106	75 - 134
m,p-Xylene	25.0	25.1		ug/L		101	60 - 140
Methylene Chloride	25.0	26.5		ug/L		106	10 - 205
Naphthalene	25.0	25.3		ug/L		101	60 - 140
o-Xylene	25.0	26.3		ug/L		105	60 - 140
Tetrachloroethene	25.0	27.7		ug/L		111	70 - 130
Toluene	25.0	26.0		ug/L		104	75 - 134
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	70 - 130
trans-1,3-Dichloropropene	25.0	26.2		ug/L		105	38 - 162
Trichloroethene	25.0	29.4		ug/L		118	75 - 138
Trichlorofluoromethane	25.0	33.3		ug/L		133	45 - 158
Vinyl chloride	25.0	28.3		ug/L		113	10 - 218
Xylenes, Total	50.0	51.4		ug/L		103	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*
Dibromofluoromethane (Surr)	*115*		*60 - 140*
Toluene-d8 (Surr)	*110*		*60 - 140*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-602045/1003
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloro-1,1,2-trifluoroethane	25.0	27.2		ug/L		109	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*60 - 140*
Dibromofluoromethane (Surr)	*115*		*60 - 140*
Toluene-d8 (Surr)	*115*		*60 - 140*

Lab Sample ID: 440-263442-1 MS
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Outfall001_20200323_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		10.0	10.7		ug/L		107	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	10.1		ug/L		101	46 - 157
1,1,2-Trichloroethane	ND		10.0	10.5		ug/L		105	52 - 150
1,1-Dichloroethane	ND		10.0	10.2		ug/L		102	59 - 155
1,1-Dichloroethene	ND		10.0	9.85		ug/L		99	10 - 234
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	25.2		ug/L		101	60 - 140
1,2-Dichlorobenzene	ND		10.0	10.5		ug/L		105	18 - 190
1,2-Dichloroethane	ND		10.0	11.9		ug/L		119	49 - 155
1,2-Dichloropropane	ND		10.0	10.4		ug/L		104	10 - 210
1,3-Dichlorobenzene	ND		10.0	10.2		ug/L		102	59 - 156
1,4-Dichlorobenzene	ND		10.0	10.2		ug/L		102	18 - 190
2-Chloroethyl vinyl ether	ND		10.0	8.92		ug/L		89	10 - 305
Acrolein	ND		9.88	4.33	J,DX	ug/L		44	40 - 160
Acrylonitrile	ND		100	106		ug/L		106	40 - 160
Benzene	ND		10.0	10.3		ug/L		103	37 - 151
Bromodichloromethane	ND		10.0	10.9		ug/L		109	35 - 155
Bromoform	ND		10.0	10.8		ug/L		108	45 - 169
Bromomethane	ND		10.0	10.6		ug/L		106	10 - 242
Carbon tetrachloride	ND		10.0	11.3		ug/L		113	70 - 140
Chlorobenzene	ND		10.0	10.7		ug/L		107	37 - 160
Chloroethane	ND		10.0	10.3		ug/L		103	14 - 230
Chloroform	ND		10.0	10.6		ug/L		106	51 - 138
Chloromethane	ND		10.0	9.60		ug/L		96	10 - 273
cis-1,2-Dichloroethene	ND		10.0	9.84		ug/L		98	60 - 140
cis-1,3-Dichloropropene	ND		10.0	9.82		ug/L		98	10 - 227
Dibromochloromethane	ND		10.0	11.0		ug/L		110	53 - 149
Ethylbenzene	ND		10.0	10.2		ug/L		102	37 - 162
m,p-Xylene	ND		10.0	9.67		ug/L		97	60 - 140
Methylene Chloride	ND		10.0	10.1		ug/L		101	10 - 221
Naphthalene	ND		10.0	9.32		ug/L		93	60 - 140
o-Xylene	ND		10.0	10.3		ug/L		103	60 - 140
Tetrachloroethene	ND		10.0	10.7		ug/L		107	64 - 148
Toluene	ND		10.0	10.1		ug/L		101	47 - 150
trans-1,2-Dichloroethene	ND		10.0	9.71		ug/L		97	54 - 156
trans-1,3-Dichloropropene	ND		10.0	10.3		ug/L		103	17 - 183
Trichloroethene	ND		10.0	10.5		ug/L		105	70 - 157

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263442-1 MS
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Outfall001_20200323_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	ND		10.0	12.6		ug/L		126	17 - 181
Vinyl chloride	ND		10.0	10.3		ug/L		103	10 - 251
Xylenes, Total	ND		20.0	20.0		ug/L		100	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*
Dibromofluoromethane (Surr)	*118*		*60 - 140*
Toluene-d8 (Surr)	*114*		*60 - 140*

Lab Sample ID: 440-263442-1 MSD
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Outfall001_20200323_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	10.1		ug/L		101	52 - 162	6	36
1,1,2,2-Tetrachloroethane	ND		10.0	9.75		ug/L		98	46 - 157	4	61
1,1,2-Trichloroethane	ND		10.0	9.97		ug/L		100	52 - 150	5	45
1,1-Dichloroethane	ND		10.0	9.88		ug/L		99	59 - 155	4	40
1,1-Dichloroethene	ND		10.0	9.21		ug/L		92	10 - 234	7	32
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	25.2		ug/L		101	60 - 140	0	35
1,2-Dichlorobenzene	ND		10.0	9.99		ug/L		100	18 - 190	5	57
1,2-Dichloroethane	ND		10.0	11.2		ug/L		112	49 - 155	6	49
1,2-Dichloropropane	ND		10.0	10.3		ug/L		103	10 - 210	2	55
1,3-Dichlorobenzene	ND		10.0	9.69		ug/L		97	59 - 156	5	43
1,4-Dichlorobenzene	ND		10.0	9.79		ug/L		98	18 - 190	4	57
2-Chloroethyl vinyl ether	ND		10.0	8.57		ug/L		86	10 - 305	4	71
Acrolein	ND		9.88	2.94	J,DX LN	ug/L		30	40 - 160	38	60
Acrylonitrile	ND		100	92.0		ug/L		92	40 - 160	14	60
Benzene	ND		10.0	9.94		ug/L		99	37 - 151	3	61
Bromodichloromethane	ND		10.0	11.0		ug/L		110	35 - 155	1	56
Bromoform	ND		10.0	10.0		ug/L		100	45 - 169	7	42
Bromomethane	ND		10.0	10.4		ug/L		104	10 - 242	2	61
Carbon tetrachloride	ND		10.0	10.5		ug/L		105	70 - 140	7	41
Chlorobenzene	ND		10.0	10.1		ug/L		101	37 - 160	5	53
Chloroethane	ND		10.0	9.86		ug/L		99	14 - 230	4	78
Chloroform	ND		10.0	10.4		ug/L		104	51 - 138	2	54
Chloromethane	ND		10.0	9.20		ug/L		92	10 - 273	4	60
cis-1,2-Dichloroethene	ND		10.0	9.72		ug/L		97	60 - 140	1	35
cis-1,3-Dichloropropene	ND		10.0	9.61		ug/L		96	10 - 227	2	58
Dibromochloromethane	ND		10.0	10.7		ug/L		107	53 - 149	3	50
Ethylbenzene	ND		10.0	9.87		ug/L		99	37 - 162	3	63
m,p-Xylene	ND		10.0	9.08		ug/L		91	60 - 140	6	35
Methylene Chloride	ND		10.0	9.77		ug/L		98	10 - 221	3	28
Naphthalene	ND		10.0	8.70		ug/L		87	60 - 140	7	35
o-Xylene	ND		10.0	9.72		ug/L		97	60 - 140	6	35
Tetrachloroethene	ND		10.0	10.4		ug/L		104	64 - 148	3	39
Toluene	ND		10.0	9.71		ug/L		97	47 - 150	4	41
trans-1,2-Dichloroethene	ND		10.0	9.11		ug/L		91	54 - 156	6	45

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263442-1 MSD
Matrix: Water
Analysis Batch: 602045

Client Sample ID: Outfall001_20200323_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
trans-1,3-Dichloropropene	ND		10.0	9.76		ug/L		98	17 - 183	5	86
Trichloroethene	ND		10.0	10.5		ug/L		105	70 - 157	0	48
Trichlorofluoromethane	ND		10.0	11.5		ug/L		115	17 - 181	9	84
Vinyl chloride	ND		10.0	9.70		ug/L		97	10 - 251	6	66
Xylenes, Total	ND		20.0	18.8		ug/L		94		6	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*
Dibromofluoromethane (Surr)	*115*		*60 - 140*
Toluene-d8 (Surr)	*112*		*60 - 140*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-602300/6
Matrix: Water
Analysis Batch: 602300

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			03/25/20 13:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*65 - 140*		*03/25/20 13:01*	*1*

Lab Sample ID: LCS 440-602300/5
Matrix: Water
Analysis Batch: 602300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			0.800	0.757		mg/L		95	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*65 - 140*

Lab Sample ID: 440-263535-D-5 MS
Matrix: Water
Analysis Batch: 602300

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	0.12		0.800	0.840		mg/L		89	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: 440-263535-D-5 MSD
Matrix: Water
Analysis Batch: 602300

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	0.12		0.800	0.845		mg/L		90	65 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*65 - 140*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 440-602233/1-A
Matrix: Water
Analysis Batch: 602336

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602233

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.50	0.10	mg/L		03/25/20 06:07	03/25/20 17:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*70*		*45 - 120*	*03/25/20 06:07*	*03/25/20 17:01*	*1*

Lab Sample ID: LCS 440-602233/2-A
Matrix: Water
Analysis Batch: 602336

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602233

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28			1.00	0.791		mg/L		79	40 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*74*		*45 - 120*

Lab Sample ID: LCSD 440-602233/3-A
Matrix: Water
Analysis Batch: 602336

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602233

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28			1.00	0.778		mg/L		78	40 - 115	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane	*69*		*45 - 120*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-602364/3
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/25/20 14:28	1

Method: 120.1 - Conductivity, Specific Conductance (Continued)

Lab Sample ID: LCS 440-602364/4
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Conductance			946	950		umhos/cm		100	90 - 110		

Lab Sample ID: 440-262981-A-1 DU
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	36			35.2		umhos/cm				3	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-603083/1-A
Matrix: Water
Analysis Batch: 603132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603083

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/31/20 08:38	03/31/20 11:30	1

Lab Sample ID: LCS 440-603083/2-A
Matrix: Water
Analysis Batch: 603132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603083

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	33.2		mg/L		83	78 - 114		

Lab Sample ID: LCSD 440-603083/3-A
Matrix: Water
Analysis Batch: 603132

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603083

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	34.3		mg/L		86	78 - 114	3	11

GC/MS VOA

Analysis Batch: 602045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	624.1	
440-263442-3	TB-20200323	Total/NA	Water	624.1	
MB 440-602045/4	Method Blank	Total/NA	Water	624.1	
LCS 440-602045/1002	Lab Control Sample	Total/NA	Water	624.1	
LCS 440-602045/1003	Lab Control Sample	Total/NA	Water	624.1	
440-263442-1 MS	Outfall001_20200323_Grab	Total/NA	Water	624.1	
440-263442-1 MSD	Outfall001_20200323_Grab	Total/NA	Water	624.1	

GC VOA

Analysis Batch: 602300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	8015B	
MB 440-602300/6	Method Blank	Total/NA	Water	8015B	
LCS 440-602300/5	Lab Control Sample	Total/NA	Water	8015B	
440-263535-D-5 MS	Matrix Spike	Total/NA	Water	8015B	
440-263535-D-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 602233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	3510C	
MB 440-602233/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-602233/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-602233/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 602336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	8015B	602233
MB 440-602233/1-A	Method Blank	Total/NA	Water	8015B	602233
LCS 440-602233/2-A	Lab Control Sample	Total/NA	Water	8015B	602233
LCSD 440-602233/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	602233

General Chemistry

Analysis Batch: 602153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 602364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	120.1	
MB 440-602364/3	Method Blank	Total/NA	Water	120.1	
LCS 440-602364/4	Lab Control Sample	Total/NA	Water	120.1	
440-262981-A-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 603083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	1664A	
MB 440-603083/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-603083/2-A	Lab Control Sample	Total/NA	Water	1664A	

General Chemistry (Continued)

Prep Batch: 603083 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 440-603083/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 603132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263442-1	Outfall001_20200323_Grab	Total/NA	Water	1664A	603083
MB 440-603083/1-A	Method Blank	Total/NA	Water	1664A	603083
LCS 440-603083/2-A	Lab Control Sample	Total/NA	Water	1664A	603083
LCSD 440-603083/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	603083

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Grab

Job ID: 440-263442-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263442-1
Project/Site: Annual Outfall 001 Grab

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
624.1		Water	1,1,2-Trichloro-1,2,2-trifluoroethane
624.1		Water	1,2-Dichloro-1,1,2-trifluoroethane
624.1		Water	Cyclohexane
8015B		Water	GRO (C4-C12)
8015B	3510C	Water	C13-C28
8015B	3510C	Water	n-Octacosane

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

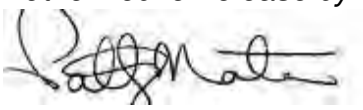
Lab Job Number: 426326
Report Level: II
Report Date: 03/31/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - Boeing-SSFL NPDES

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614		Lab Job #: Project No: Location: Date Received:	426326 BOEING SSFL NPDES Boeing-SSFL NPDES 03/23/20

Sample ID	Lab ID	Collected	Matrix
OUTFALL001_20200323_GRAB (440-263442-1)	426326-001	03/23/20 07:45	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine	Lab Job Number: 426326
17461 Derian Ave, Ste 100	Project No: BOEING SSFL NPDES
Irvine, CA 92614	Location: Boeing-SSFL NPDES
Christian Bondoc	Date Received: 03/23/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/23/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

Test America

CHAIN OF CUSTODY FORM 426326

4/1/2020

VLJOUVET

Client Name/Address:	Project:	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Grab	A A R R R R/Q/A A A A	Field Readings: (Include units) Time of Readings: 0745	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055			DO 10.27 mg/L pH 8.24 pH unit Temp 48.9 °C/°F	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		TRC 0.01 mg/L	
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field readings QC Checked by: Date/Time: 3-23-2020/0745	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357) Source Molecular in Miami Lakes, FL	E. coli (SM9221)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Oil & Grease (E1664A-HEM)	VOCs + VOCs PP + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624)	VOCs - only A+A+2CVE (E624)	TPH: gas (GRO(C4-C12)) (SW8015B)	TPH: diesel/jet fuel (DRO (C13-C28)) (SW8015B)				Comments
Outfall 001	Outfall001_20200323_Grab	3/23/2020/0745	WM	~~125mL Sterile Poly~~	~~1~~	~~None~~	~~5~~	~~No~~	~~X~~												~~Deliver to lab ASAP 8 hr hold time~~
			WM	125mL Sterile Poly	3	$Na_2S_2O_3$	10	No		X											Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No					X								
			WM	40 mL VOA	3	HCl	45	No						X							
			WM	40 mL VOA	3	None	55	No							X						
			WM	40 mL VOA	3	HCl	60	No								X					
			WM	1 L Glass Amber	2	None	65	No									X				
			WM	1 L Poly	1	None	70	No			X										
			WM	500 mL Poly	1	None	75	No				X									
	Outfall001_20200323_Grab_Extra	3/23/2020/0745	WM	1 L Glass Amber	2	HCl	15	No					H								Hold
			WM	40 mL VOA	3	HCl	45	No						H							Hold
			WM	40 mL VOA	3	None	55	No							H						Hold
			WM	500 mL Poly	1	None	75	No				H									Hold
Trip Blanks	TB-20200323	3/23/2020/0745	WQ	40 mL VOA	2	HCl	45	No						X							
			WQ	40 mL VOA	2	None	55	No							X						

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
[signature]	3-23-2020/1055	H;A	[signature] Erik Derr, DCS	3/23/20 10:55
[signature] Erik Derr, DCS	3/23/20 1215		[signature]	3/23/20 1215

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

4.7/0.5

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America

Date Received: 3/23/20

Project: _____

Sampler's Name Present: ☐ Yes ☑ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)

Sample Temp (°C) (No Cooler) : _____

Sample Temp (°C), One from each cooler: #1: 4.7 #2: _____ #3: _____ #4: _____

(Acceptonce ronge is < 6°C but not frozen (for Microbiology somples, acceptonce range is < 10°C but not frozen). It is occeptoble for somples collected the some day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.5 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 3/23/2020

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

ENTHALPY ANALYTICAL

Analysis Results for 426326

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 426326
Project No: BOEING SSFL NPDES
Location: Boeing-SSFL NPDES
Date Received: 03/23/20

Sample ID: OUTFALL001_20200323_GRAB (440-263442-1) **Lab ID:** 426326-001 **Collected:** 03/23/20 07:45
Matrix: Water

426326-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**490**		MPN/100ml	1.8	1	243714	03/23/20 12:45	03/26/20 13:55	CCO

Results for any subcontracted analyses are not included in this section.

Test America

CHAIN OF CUSTODY FORM

VLJOUVET

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-8055

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 016]
Outfall 001
Grab

Project Manager: Katherine Miller
520.289.9909, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5553, 618.566.0702 (cell)

Sampler: Dan Smith

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Method	A: Human (SAN348-387) Bacteroidales, Bovine Mnvelucan in Miami Lakes, FL	A: E. coli (SM9221)	R: Enterolert Solids (E100 5 (SM9230F))	R: Conductivity (SM2510B / E120.1)	R: Oil & Grease (E1664A-HEM)	R/O/A: VOCs + VOCs PF + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624)	A: VOCs - only A+A+2CVE (E624)	A: TPH: gas (GRO)(C4-C12)) (SW8015B)	A: TPH: diesel/jet fuel (DRO (C13-C28)) (SW8015B)	Field Readings	Meter serial #
																		Field Readings: (include units) Time of Readings: 0745	
																		DO 10.27 mg/L pH 8.24 pH unit Temp 48.9 °C	
																		TRC 0.01 mg/L	
																		Field readings QC Checked by: Date/Time 3-23-2020/0745	
																		Comments	
			WW	Client Supplied Poly															
			WW	125mL Sterile Poly	3	H_2SO_4	10	No		X								Deliver to lab ASAP 6 hr hold time. Need 1x 10x 100x dilutions	
			WW	1 L Glass Amber	2	HCl	15	No					X						
			WW	40 mL VOA	3	HCl	45	No						X					
			WW	40 mL VOA	3	None	35	No							X				
			WW	40 mL VOA	3	HCl	60	No								X			
			WW	1 L Glass Amber	2	None	65	No									X		
			WW	1 L Poly	1	None	70	No			X								
			WW	500 mL Poly	1	None	75	No				X							
			WW	1 L Glass Amber	2	HCl	15	No					H					Hold	
			WW	40 mL VOA	3	HCl	45	No						H				Hold	
			WW	40 mL VOA	3	None	60	No							H			Hold	
			WW	500 mL Poly	1	None	75	No				H						Hold	
			WW	40 mL VOA	2	HCl	45	No						X					
			WW	40 mL VOA	2	None	55	No							X				

Legend: Refrigerated, Preserved, Chemically

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
[signature]	3-23-2020/1055	H/A	[signature]	3/23/20 10:55	Gilldyer, DCS
[signature] Gilldyer, DCS	1215 3/23/20		[signature]	3/23/20 1215	
			[signature] EC IRV	3/23/20 1255	
			1204	~~3/23/20~~ 3-8/4-0	

Turn-around time: (Check)
24 Hour: ____ 72 Hour ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal: ____

Sample Integrity: (Check)
Intact: ____ On Ice: ____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: ____ All Level IV: X

4.7/0.5

JLL 3/23/20

440-263442 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263442-1

Login Number: 263442
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263518-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

20 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263518-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method	Validation Level
Outfall001_20200324_Comp	440-263518-1	N/A	Water	3/24/2020 8:25:00 AM	E1613B, E200.7, E200.8	II
Outfall001_20200324_Comp_F	440-263518-3	N/A	Water	3/24/2020 8:25:00 AM	E200.7, E200.8	II

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263518-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- The sample was transferred from TA-Irvine to TA-Savannah for analysis of Method 1613B.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (977 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 20, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals HpCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The method blank concentration for 1,2,3,4,6,7,8-HpCDD or OCDD was not sufficient to qualify the site sample. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. Compound Identification

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 977 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDD and 1,2,3,4,7,8-HxCDD reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals with the exception of total HpCDD and HxCDF included one or more EMPC peaks and were therefore qualified as estimated (J).

IV. Methods 200.7 and 200.8— Metals

M. Hilchey of MEC^X reviewed the SDG on April 21, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7 and 200.8* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

IV.1. Holding Times

The analytical holding time, six months for metals, was met. Sample Outfall001_20200324_Comp_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. Calibration

ICP-MS mass calibrations were not within 0.1 atomic mass units of the true value. In the tune associated with the dissolved metals analyzed on 3/25/2020, the mass calibration resolution for mass 115 failed. In the tune associated with the total metals analyzed on 3/26/2020, the mass calibration resolution for masses 25 and 26 failed. In the absence of information about which target masses are associated with the failed resolution masses, results for all ICP-MS results were qualified as estimated (J for detects, UJ for nondetects). The %RSDs were ≤5%.

Calibration criteria were not evaluated for Stage II validation. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP

control limits of 90-110% for both methods.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results.

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. No interferents were present in the samples for ICP-AES or ICP-MS analyses in concentrations comparable to those of the ICS; therefore, matrix interference was not suspected.

IV.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

IV.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

IV.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on not performed on a sample in this SDG.

The laboratory did not perform post-digestion spike analyses.

IV.4. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were not summarized for all analytes; therefore, internal standard performance was not evaluated for this Stage II validation.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Analyte quantification is not evaluated for Stage II validation. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

IV.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402635181

Analysis Method E1613B

Sample Name Outfall001_20200324_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/24/2020 8:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-263518-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000035	0.00010	0.0000012	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00043	0.00010	0.0000027	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000019	0.000051	0.00000072	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000065	0.000051	0.0000014	ug/L	MB		
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000011	0.000051	0.0000010	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	ND	0.000051	0.0000013	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000019	0.000051	0.00000075	ug/L	J,DXq	UJ	*III
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000051	0.0000013	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000031	0.000051	0.00000082	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	ND	0.000051	0.00000087	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000012	0.000051	0.00000072	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000051	0.00000067	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000051	0.00000089	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	ND	0.000051	0.00000079	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000051	0.00000071	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000041	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000053	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000036	0.000051	0.00000072	ug/L	J,DXMBq	J	B, *III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.00011	0.000051	0.0000014	ug/L	MB		
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000012	0.000051	0.00000079	ug/L	J,DX	J	DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000013	0.000051	0.00000072	ug/L	J,DXq	J	*III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000051	0.00000067	ug/L	U	U	

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000051	0.00000089	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000041	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000053	ug/L	U	U

Analysis Method E200.7

Sample Name Outfall001_20200324_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/24/2020 8:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-263518-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	T	7440-38-2	ND	10	8.9	ug/L	U	U	
Barium	T	7440-39-3	0.042	0.010	0.0050	mg/L			
Beryllium	T	7440-41-7	ND	2.0	1.0	ug/L	U	U	
Boron	T	7440-42-8	0.056	0.050	0.025	mg/L			
Chromium	T	7440-47-3	5.3	5.0	2.5	ug/L			
Cobalt	T	7440-48-4	ND	10	5.0	ug/L	U	U	
Iron	T	7439-89-6	5.4	0.10	0.050	mg/L			
Manganese	T	7439-96-5	90	20	15	ug/L			
Nickel	T	7440-02-0	5.8	10	5.0	ug/L	J,DX	J	DNQ
Vanadium	T	7440-62-2	11	10	5.0	ug/L			
Zinc	T	7440-66-6	30	20	12	ug/L			

Sample Name Outfall001_20200324_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/24/2020 8:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-263518-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	D	7440-38-2	18	10	8.9	ug/L			
Barium	D	7440-39-3	0.014	0.010	0.0050	mg/L			
Beryllium	D	7440-41-7	ND	2.0	1.0	ug/L	U	U	
Boron	D	7440-42-8	0.052	0.050	0.025	mg/L			
Chromium	D	7440-47-3	ND	5.0	2.5	ug/L	U	U	
Cobalt	D	7440-48-4	ND	10	5.0	ug/L	U	U	
Iron	D	7439-89-6	0.29	0.10	0.050	mg/L			
Manganese	D	7439-96-5	ND	20	15	ug/L	U	U	
Nickel	D	7440-02-0	ND	10	5.0	ug/L	U	U	
Vanadium	D	7440-62-2	ND	10	5.0	ug/L	U	U	
Zinc	D	7440-66-6	ND	20	12	ug/L	U	U	

Analysis Method E200.8

Sample Name Outfall001_20200324_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/24/2020 8:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-263518-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	ND	2.0	0.50	ug/L	U	UJ	M
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	M
Copper	T	7440-50-8	4.9	2.0	0.50	ug/L	MB	J	M
Lead	T	7439-92-1	2.6	1.0	0.50	ug/L		J	M
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	UJ	M
Silver	T	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	M
Thallium	T	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	M

Sample Name Outfall001_20200324_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/24/2020 8:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-263518-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	ND	2.0	0.50	ug/L	U	UJ	M
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	M
Copper	D	7440-50-8	2.6	2.0	0.50	ug/L		J	M
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	M
Selenium	D	7782-49-2	0.88	2.0	0.50	ug/L	J,DX	J	M, DNQ
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	M
Thallium	D	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	M

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ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263518-1
Client Project/Site: Annual Outfall 001 Comp
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
5/4/2020 7:25:07 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
5/4/2020 7:25:07 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263518-1	Outfall001_20200324_Comp	Water	03/24/20 08:25	03/24/20 12:50	
440-263518-3	Outfall001_20200324_Comp_F	Water	03/24/20 08:25	03/24/20 12:50	

Job ID: 440-263518-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263518-1

Comments
No additional comments.

Receipt
The samples were received on 3/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.1º C, 0.3º C, 1.3º C, 1.6º C, 1.7º C and 2.3º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method 625.1: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 440-602721 and analytical batch 440-602857 recovered below control limits for the following analyte(s): Benzidine and Hexachlorocyclopentadiene. These analytes have been identified as poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed. The reported results for these analytes may be biased low.

Method 625.1: The laboratory control sample duplicate (LCSD) for preparation batch 440-602721 and analytical batch 440-602857 recovered outside control limits for the following analyte(s): 3,3'-Dichlorobenzidine. This analyte has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. Batch precision also exceeded control limits for this analyte. The results for this analyte may be biased low.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602223 and analytical batch 440-602369. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-602223/2-A)

Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602223 and analytical batch 440-602384. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-602223/4-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall001_20200324_Comp (440-263518-1), (CCV 320-368420/27), (LCS 320-367895/2-A) and (MB 320-367895/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall001_20200324_Comp_F (440-263518-3). This sample was filtered and preserved upon receipt to the laboratory.

03/24/20

Job ID: 440-263518-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

2.5mL of HNO3
HNO3 Lot # 0000234822

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-602138 and 440-602353 and analytical batch 440-602527 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected. The associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The method blank for preparation batch 440-602306 and analytical batch 440-602534 contained Copper above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method SM5210B: The glucose-glutamic acid standard recovered outside the recovery limits specified in the BOD method in batch 440-602365 .

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602223. Method 8081-8082

Methods 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602721. LCS was performed in duplicate to provide precision of data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall001_20200324_Comp (440-263518-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-367895
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Weck-Hydrazine: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Client Sample ID: Outfall001_20200324_Comp
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			03/25/20 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/25/20 15:00*	*1*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Acenaphthylene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Anthracene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzidine	ND	LR	10	5.2	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzo[a]anthracene	ND		5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzo[b]fluoranthene	ND		2.1	0.31	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzo[k]fluoranthene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzo[a]pyrene	ND		2.1	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Bis(2-chloroethoxy)methane	ND		0.52	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Bis(2-chloroethyl)ether	ND		0.52	0.052	ug/L		03/27/20 11:42	03/29/20 14:44	1
Bis(2-ethylhexyl) phthalate	ND		5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Butyl benzyl phthalate	ND		5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
4-Chloro-3-methylphenol	ND		2.1	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
2-Chloronaphthalene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
2-Chlorophenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
4-Chlorophenyl phenyl ether	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Chrysene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Dibenz(a,h)anthracene	ND		0.52	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Di-n-butyl phthalate	ND		2.1	0.52	ug/L		03/27/20 11:42	03/29/20 14:44	1
1,2-Dichlorobenzene	ND		0.52	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
1,3-Dichlorobenzene	ND		0.52	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
1,4-Dichlorobenzene	ND		0.52	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
3,3'-Dichlorobenzidine	ND	LR BA	5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,4-Dichlorophenol	ND		2.1	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Diethyl phthalate	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,4-Dimethylphenol	ND		2.1	0.52	ug/L		03/27/20 11:42	03/29/20 14:44	1
Dimethyl phthalate	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
4,6-Dinitro-2-methylphenol	ND		5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,4-Dinitrophenol	ND		5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,4-Dinitrotoluene	ND		5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,6-Dinitrotoluene	ND		5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
Di-n-octyl phthalate	ND		5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Fluoranthene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Fluorene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Hexachlorobutadiene	ND		2.1	0.52	ug/L		03/27/20 11:42	03/29/20 14:44	1
Hexachloroethane	ND		3.1	0.52	ug/L		03/27/20 11:42	03/29/20 14:44	1
Hexachlorocyclopentadiene	ND	LR	5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.42	ug/L		03/27/20 11:42	03/29/20 14:44	1
Isophorone	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1

Client Sample ID: Outfall001_20200324_Comp

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.052	ug/L		03/27/20 11:42	03/29/20 14:44	1
Nitrobenzene	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
2-Nitrophenol	ND		2.1	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
4-Nitrophenol	ND		5.2	2.1	ug/L		03/27/20 11:42	03/29/20 14:44	1
N-Nitrosodimethylamine	ND		2.1	0.31	ug/L		03/27/20 11:42	03/29/20 14:44	1
N-Nitrosodiphenylamine	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
N-Nitrosodi-n-propylamine	ND		2.1	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
Pentachlorophenol	ND		2.1	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
Phenanthrene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Phenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Pyrene	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L		03/27/20 11:42	03/29/20 14:44	1
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1
Benzo[g,h,i]perylene	ND		5.2	1.0	ug/L		03/27/20 11:42	03/29/20 14:44	1
bis (2-chloroisopropyl) ether	ND		0.52	0.10	ug/L		03/27/20 11:42	03/29/20 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*78*		*51 - 120*	*03/27/20 11:42*	*03/29/20 14:44*	*1*
2-Fluorophenol	*75*		*43 - 120*	*03/27/20 11:42*	*03/29/20 14:44*	*1*
2,4,6-Tribromophenol	*80*		*60 - 120*	*03/27/20 11:42*	*03/29/20 14:44*	*1*
Nitrobenzene-d5	*83*		*53 - 150*	*03/27/20 11:42*	*03/29/20 14:44*	*1*
Terphenyl-d14	*63*		*12 - 142*	*03/27/20 11:42*	*03/29/20 14:44*	*1*
Phenol-d5	*66*		*45 - 150*	*03/27/20 11:42*	*03/29/20 14:44*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0051	0.0015	ug/L		03/25/20 05:34	03/25/20 15:45	1
alpha-BHC	ND		0.0051	0.0025	ug/L		03/25/20 05:34	03/25/20 15:45	1
beta-BHC	ND		0.010	0.0041	ug/L		03/25/20 05:34	03/25/20 15:45	1
delta-BHC	ND		0.0051	0.0036	ug/L		03/25/20 05:34	03/25/20 15:45	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		03/25/20 05:34	03/25/20 15:45	1
Chlordane (technical)	ND		0.10	0.081	ug/L		03/25/20 05:34	03/25/20 15:45	1
4,4'-DDD	ND		0.0051	0.0041	ug/L		03/25/20 05:34	03/25/20 15:45	1
4,4'-DDE	ND		0.0051	0.0030	ug/L		03/25/20 05:34	03/25/20 15:45	1
4,4'-DDT	ND		0.010	0.0041	ug/L		03/25/20 05:34	03/25/20 15:45	1
Dieldrin	ND		0.0051	0.0020	ug/L		03/25/20 05:34	03/25/20 15:45	1
Endosulfan I	ND		0.0051	0.0030	ug/L		03/25/20 05:34	03/25/20 15:45	1
Endosulfan II	ND		0.0051	0.0020	ug/L		03/25/20 05:34	03/25/20 15:45	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		03/25/20 05:34	03/25/20 15:45	1
Endrin	ND		0.0051	0.0020	ug/L		03/25/20 05:34	03/25/20 15:45	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/25/20 05:34	03/25/20 15:45	1
Heptachlor	ND		0.0091	0.0030	ug/L		03/25/20 05:34	03/25/20 15:45	1
Heptachlor epoxide	ND		0.0051	0.0025	ug/L		03/25/20 05:34	03/25/20 15:45	1
Toxaphene	ND		0.51	0.24	ug/L		03/25/20 05:34	03/25/20 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*52*		*10 - 104*	*03/25/20 05:34*	*03/25/20 15:45*	*1*

Client Sample ID: Outfall001_20200324_Comp

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1

Matrix: Water

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1221	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1232	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1242	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1248	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1254	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1
Aroclor 1260	ND		0.51	0.25	ug/L		03/25/20 05:34	03/25/20 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*18 - 134*	*03/25/20 05:34*	*03/25/20 12:50*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/24/20 21:27	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.0**		0.50	0.25	mg/L			03/24/20 14:19	1
Nitrate as N	**0.29**		0.11	0.055	mg/L			03/24/20 14:19	1
Fluoride	ND		0.50	0.25	mg/L			03/24/20 14:19	1
Nitrite as N	ND		0.15	0.025	mg/L			03/24/20 14:19	1
Sulfate	**5.3**		0.50	0.25	mg/L			03/24/20 14:19	1

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/26/20 12:08	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.29**		0.15	0.055	mg/L			03/26/20 08:06	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 14:23	1
2,3,7,8-TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,7,8-PeCDD	ND		0.000051	0.00000089	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,7,8-PeCDF	ND		0.000051	0.00000067	ug/L		03/26/20 11:50	03/28/20 14:23	1
2,3,4,7,8-PeCDF	ND		0.000051	0.00000071	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,4,7,8-HxCDD	**0.0000019**	**J,DX q**	0.000051	0.00000075	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,6,7,8-HxCDD	**0.0000031**	**J,DX**	0.000051	0.00000082	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,7,8,9-HxCDD	**0.0000012**	**J,DX q**	0.000051	0.00000072	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,4,7,8-HxCDF	ND		0.000051	0.0000013	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,6,7,8-HxCDF	ND		0.000051	0.0000013	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,7,8,9-HxCDF	ND		0.000051	0.00000087	ug/L		03/26/20 11:50	03/28/20 14:23	1

Client Sample ID: Outfall001_20200324_Comp
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,4,6,7,8-HxCDF	ND		0.000051	0.00000079	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,4,6,7,8-HpCDD	**0.000065**	**MB**	0.000051	0.0000014	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,4,6,7,8-HpCDF	**0.000019**	**J,DX MB**	0.000051	0.00000072	ug/L		03/26/20 11:50	03/28/20 14:23	1
1,2,3,4,7,8,9-HpCDF	**0.0000011**	**J,DX q**	0.000051	0.0000010	ug/L		03/26/20 11:50	03/28/20 14:23	1
OCDD	**0.00043**	**MB**	0.00010	0.0000027	ug/L		03/26/20 11:50	03/28/20 14:23	1
OCDF	**0.000035**	**J,DX MB**	0.00010	0.0000012	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total PeCDD	ND		0.000051	0.00000089	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total PeCDF	ND		0.000051	0.00000067	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total HxCDD	**0.000013**	**J,DX q**	0.000051	0.00000072	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total HxCDF	**0.000012**	**J,DX**	0.000051	0.00000079	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total HpCDD	**0.00011**	**MB**	0.000051	0.0000014	ug/L		03/26/20 11:50	03/28/20 14:23	1
Total HpCDF	**0.000036**	**J,DX MB q**	0.000051	0.00000072	ug/L		03/26/20 11:50	03/28/20 14:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-2,3,7,8-TCDF	*55*		*24 - 169*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,7,8-PeCDF	*49*		*24 - 185*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,6,7,8-HxCDD	*59*		*28 - 130*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,6,7,8-HxCDF	*55*		*26 - 123*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*70*		*23 - 140*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*71*		*28 - 143*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*73*		*26 - 138*	*03/26/20 11:50*	*03/28/20 14:23*	*1*
13C-OCDD	*58*		*17 - 157*	*03/26/20 11:50*	*03/28/20 14:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*72*		*35 - 197*	*03/26/20 11:50*	*03/28/20 14:23*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/25/20 10:43	03/25/20 17:57	1
Boron	**0.056**		0.050	0.025	mg/L		03/25/20 10:43	03/25/20 17:57	1
Barium	**0.042**		0.010	0.0050	mg/L		03/25/20 10:43	03/25/20 17:57	1
Beryllium	ND		2.0	1.0	ug/L		03/25/20 10:43	03/25/20 17:57	1
Cobalt	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:57	1
Chromium	**5.3**		5.0	2.5	ug/L		03/25/20 10:43	03/25/20 17:57	1
Iron	**5.4**		0.10	0.050	mg/L		03/25/20 10:43	03/25/20 17:57	1

Client Sample ID: Outfall001_20200324_Comp

Lab Sample ID: 440-263518-1
Matrix: Water
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**90**		20	15	ug/L		03/25/20 10:43	03/25/20 17:57	1
Nickel	**5.8**	**J,DX**	10	5.0	ug/L		03/25/20 10:43	03/25/20 17:57	1
Vanadium	**11**		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:57	1
Zinc	**30**		20	12	ug/L		03/25/20 10:43	03/25/20 17:57	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 11:12	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 11:06	03/26/20 11:12	1
Copper	**4.9**	**MB**	2.0	0.50	ug/L		03/25/20 11:06	03/26/20 11:12	1
Lead	**2.6**		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 11:12	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 11:12	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 11:12	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 11:06	03/26/20 11:12	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 07:17	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**48**		0.33	0.17	mg/L			03/27/20 17:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**110**		2.0	0.80	NTU			03/24/20 12:53	20
Total Suspended Solids	**43**		3.3	1.7	mg/L			03/25/20 15:54	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1
Ammonia (as N)	ND		0.200	0.100	mg/L			03/25/20 11:48	1
Total Organic Carbon	**13**		1.0	0.65	mg/L			03/26/20 17:24	1
Methylene Blue Active Substances	**0.052**	**J,DX**	0.10	0.050	mg/L			03/24/20 15:47	1
Biochemical Oxygen Demand	ND	LR	2.0	2.0	mg/L			03/25/20 14:35	1

Client Sample ID: Outfall001_20200324_Comp_F

Lab Sample ID: 440-263518-3
Matrix: Water
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**18**		10	8.9	ug/L		03/24/20 17:29	03/25/20 12:02	1
Boron	**0.052**		0.050	0.025	mg/L		03/24/20 17:29	03/25/20 12:02	1
Barium	**0.014**		0.010	0.0050	mg/L		03/24/20 17:29	03/25/20 12:02	1
Beryllium	ND		2.0	1.0	ug/L		03/24/20 17:29	03/25/20 12:02	1
Cobalt	ND		10	5.0	ug/L		03/24/20 17:29	03/25/20 12:02	1
Chromium	ND		5.0	2.5	ug/L		03/24/20 17:29	03/25/20 12:02	1
Iron	**0.29**		0.10	0.050	mg/L		03/24/20 17:29	03/25/20 12:02	1
Manganese	ND		20	15	ug/L		03/24/20 17:29	03/25/20 12:02	1
Nickel	ND		10	5.0	ug/L		03/24/20 17:29	03/25/20 12:02	1
Vanadium	ND		10	5.0	ug/L		03/24/20 17:29	03/25/20 12:02	1
Zinc	ND		20	12	ug/L		03/24/20 17:29	03/25/20 12:02	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Client Sample ID: Outfall001_20200324_Comp_F

Lab Sample ID: 440-263518-3

Date Collected: 03/24/20 08:25
Matrix: Water
Date Received: 03/24/20 12:50

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:30	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 09:35	03/25/20 22:30	1
Copper	**2.6**		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:30	1
Lead	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:30	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:30	1
Selenium	**0.88**	**J,DX**	2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:30	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 09:35	03/25/20 22:30	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:48	03/26/20 06:13	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**38**		0.33	0.17	mg/L			03/25/20 17:46	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Method	Method Description	Protocol	Laboratory
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
Subcontract	Weck-Hydrazine	None	Weck Lab
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Client Sample ID: Outfall001_20200324_Comp

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	10 mL	10 mL	602245	03/25/20 15:00	DCI	TAL IRV
Total/NA	Prep	625			960 mL	2.0 mL	602721	03/27/20 11:42	ACT	TAL IRV
Total/NA	Analysis	625.1		1			602857	03/29/20 14:44	HN	TAL IRV
Total/NA	Prep	608			985 mL	2 mL	602223	03/25/20 05:34	L1H	TAL IRV
Total/NA	Analysis	608.3		1			602369	03/25/20 15:45	D1D	TAL IRV
Total/NA	Prep	608			985 mL	2 mL	602223	03/25/20 05:34	L1H	TAL IRV
Total/NA	Analysis	608.3		1			602384	03/25/20 12:50	JM	TAL IRV
Total/NA	Analysis	218.6		1			602016	03/24/20 21:27	MN	TAL IRV
Total/NA	Analysis	300.0		1			602057	03/24/20 14:19	NTN	TAL IRV
Total/NA	Analysis	300.0		1			602058	03/24/20 14:19	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602483	03/26/20 12:08	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			602474	03/26/20 08:06	TLN	TAL IRV
Total/NA	Prep	1613B			976.5 mL	20 uL	367895	03/26/20 11:50	NIR	TAL SAC
Total/NA	Analysis	1613B		1			368420	03/28/20 14:23	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602301	03/25/20 10:43	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			602421	03/25/20 17:57	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602306	03/25/20 11:06	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			602534	03/26/20 11:12	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602360	03/25/20 13:54	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602527	03/26/20 07:17	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			602197	03/27/20 17:46	P1R	TAL IRV
Total/NA	Analysis	180.1		20			602123	03/24/20 12:53	HZ	TAL IRV
Total/NA	Analysis	SM 2540D		1	300 mL	1000 mL	602390	03/25/20 15:54	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	602698	03/27/20 09:59	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			602725	03/27/20 12:12	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	602338	03/25/20 11:48	KMY	TAL IRV
Total/NA	Analysis	SM 5310B		1	100 mL	100 mL	602613	03/26/20 17:24	YZ	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	602166	03/24/20 15:47	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	602365	03/25/20 14:35	MMP	TAL IRV

Client Sample ID: Outfall001_20200324_Comp_F

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602149	03/24/20 14:42	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602185	03/24/20 17:29	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			602334	03/25/20 12:02	TQN	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602149	03/24/20 14:42	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602188	03/25/20 09:35	M1G	TAL IRV
Dissolved	Analysis	200.8		1			602452	03/25/20 22:30	B1H	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Client Sample ID: Outfall001_20200324_Comp_F

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			80 mL	80 mL	602138	03/24/20 14:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	602353	03/25/20 13:48	MEM	TAL IRV
Dissolved	Analysis	245.1		1			602527	03/26/20 06:13	MEM	TAL IRV
Dissolved	Analysis	SM 2340B		1			602409	03/25/20 17:46	P1R	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602245/2
Matrix: Water
Analysis Batch: 602245

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			03/25/20 10:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*93*		*80 - 120*		*03/25/20 10:05*	*1*

Lab Sample ID: LCS 440-602245/3
Matrix: Water
Analysis Batch: 602245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			10.0	9.02		ug/L		90	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*94*		*80 - 120*

Lab Sample ID: 440-263373-B-3 MS
Matrix: Water
Analysis Batch: 602245

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		10.0	9.20		ug/L		92	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*80 - 120*

Lab Sample ID: 440-263373-B-3 MSD
Matrix: Water
Analysis Batch: 602245

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		10.0	8.95		ug/L		90	70 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*80 - 120*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602721/1-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Acenaphthylene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Anthracene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Benzidine	ND		10	5.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
Benzo[a]anthracene	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
Benzo[b]fluoranthene	ND		2.0	0.30	ug/L		03/27/20 11:42	03/29/20 13:07	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-602721/1-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Benzo[a]pyrene	ND		2.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Bis(2-chloroethoxy)methane	ND		0.50	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Bis(2-chloroethyl)ether	ND		0.50	0.050	ug/L		03/27/20 11:42	03/29/20 13:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
4-Chloro-3-methylphenol	ND		2.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
2-Chloronaphthalene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
2-Chlorophenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
4-Chlorophenyl phenyl ether	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Chrysene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Dibenz(a,h)anthracene	ND		0.50	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Di-n-butyl phthalate	ND		2.0	0.50	ug/L		03/27/20 11:42	03/29/20 13:07	1
1,2-Dichlorobenzene	ND		0.50	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
1,4-Dichlorobenzene	ND		0.50	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dichlorophenol	ND		2.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Diethyl phthalate	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dimethylphenol	ND		2.0	0.50	ug/L		03/27/20 11:42	03/29/20 13:07	1
Dimethyl phthalate	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
4,6-Dinitro-2-methylphenol	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dinitrophenol	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,6-Dinitrotoluene	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
Di-n-octyl phthalate	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Fluoranthene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Fluorene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		03/27/20 11:42	03/29/20 13:07	1
Hexachloroethane	ND		3.0	0.50	ug/L		03/27/20 11:42	03/29/20 13:07	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		03/27/20 11:42	03/29/20 13:07	1
Isophorone	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Naphthalene	ND		1.0	0.050	ug/L		03/27/20 11:42	03/29/20 13:07	1
Nitrobenzene	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
2-Nitrophenol	ND		2.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
4-Nitrophenol	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
N-Nitrosodimethylamine	ND		2.0	0.30	ug/L		03/27/20 11:42	03/29/20 13:07	1
N-Nitrosodiphenylamine	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
N-Nitrosodi-n-propylamine	ND		2.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1
Pentachlorophenol	ND		2.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
Phenanthrene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Phenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Pyrene	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.20	ug/L		03/27/20 11:42	03/29/20 13:07	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-602721/1-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Benzo[g,h,i]perylene	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
bis (2-chloroisopropyl) ether	ND		0.50	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*86*		*51 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2-Fluorophenol	*83*		*43 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2,4,6-Tribromophenol	*86*		*60 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Nitrobenzene-d5	*88*		*53 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Terphenyl-d14	*100*		*12 - 142*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Phenol-d5	*79*		*45 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*

Lab Sample ID: LCS 440-602721/2-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	15.0	13.2		ug/L		88	60 - 132
Acenaphthylene	15.0	13.5		ug/L		90	54 - 126
Anthracene	15.0	13.4		ug/L		90	43 - 120
Benzidine	15.0	ND	LR	ug/L		0	5 - 140
Benzo[a]anthracene	15.0	14.7		ug/L		98	42 - 133
Benzo[b]fluoranthene	15.0	15.0		ug/L		100	42 - 140
Benzo[k]fluoranthene	15.0	14.6		ug/L		97	25 - 146
Benzo[a]pyrene	15.0	14.5		ug/L		97	32 - 148
Bis(2-chloroethoxy)methane	15.0	12.9		ug/L		86	49 - 165
Bis(2-chloroethyl)ether	15.0	13.0		ug/L		87	43 - 126
Bis(2-ethylhexyl) phthalate	15.0	14.5		ug/L		97	29 - 137
4-Bromophenyl phenyl ether	15.0	13.4		ug/L		90	65 - 120
Butyl benzyl phthalate	15.0	15.3		ug/L		102	10 - 140
4-Chloro-3-methylphenol	15.0	14.9		ug/L		99	41 - 128
2-Chloronaphthalene	15.0	13.2		ug/L		88	65 - 120
2-Chlorophenol	15.0	12.6		ug/L		84	36 - 120
4-Chlorophenyl phenyl ether	15.0	13.0		ug/L		87	38 - 145
Chrysene	15.0	14.4		ug/L		96	44 - 140
Dibenz(a,h)anthracene	15.0	16.6		ug/L		111	10 - 200
Di-n-butyl phthalate	15.0	15.0		ug/L		100	8 - 120
1,2-Dichlorobenzene	15.0	11.4		ug/L		76	60 - 140
1,3-Dichlorobenzene	15.0	11.1		ug/L		74	60 - 140
1,4-Dichlorobenzene	15.0	11.5		ug/L		77	60 - 140
3,3'-Dichlorobenzidine	15.0	2.02	J,DX	ug/L		13	8 - 213
2,4-Dichlorophenol	15.0	13.1		ug/L		87	53 - 122
Diethyl phthalate	15.0	15.3		ug/L		102	10 - 120
2,4-Dimethylphenol	15.0	12.0		ug/L		80	42 - 120
Dimethyl phthalate	15.0	14.1		ug/L		94	10 - 120
4,6-Dinitro-2-methylphenol	30.0	25.5		ug/L		85	53 - 130
2,4-Dinitrophenol	30.0	21.6		ug/L		72	10 - 173
2,4-Dinitrotoluene	15.0	14.6		ug/L		97	48 - 127

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-602721/2-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,6-Dinitrotoluene	15.0	14.2		ug/L		94	68 - 137
Di-n-octyl phthalate	15.0	15.4		ug/L		103	19 - 132
1,2-Diphenylhydrazine(as Azobenzene)	15.0	13.2		ug/L		88	60 - 140
Fluoranthene	15.0	15.2		ug/L		101	43 - 121
Fluorene	15.0	13.4		ug/L		89	70 - 120
Hexachlorobenzene	15.0	13.3		ug/L		88	8 - 142
Hexachlorobutadiene	15.0	11.1		ug/L		74	38 - 120
Hexachloroethane	15.0	10.4		ug/L		69	55 - 120
Hexachlorocyclopentadiene	15.0	6.36	LR	ug/L		42	60 - 140
Indeno[1,2,3-cd]pyrene	15.0	16.6		ug/L		111	10 - 151
Isophorone	15.0	14.6		ug/L		97	47 - 180
Naphthalene	15.0	12.5		ug/L		83	36 - 120
Nitrobenzene	15.0	13.5		ug/L		90	54 - 158
2-Nitrophenol	15.0	13.3		ug/L		89	45 - 167
4-Nitrophenol	30.0	24.3		ug/L		81	13 - 129
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
N-Nitrosodiphenylamine	15.0	12.6		ug/L		84	60 - 140
N-Nitrosodi-n-propylamine	15.0	13.6		ug/L		90	14 - 198
Pentachlorophenol	30.0	27.1		ug/L		90	38 - 152
Phenanthrene	15.0	13.3		ug/L		89	65 - 120
Phenol	15.0	13.2		ug/L		88	17 - 120
Pyrene	15.0	15.7		ug/L		104	70 - 120
1,2,4-Trichlorobenzene	15.0	12.0		ug/L		80	57 - 130
2,4,6-Trichlorophenol	15.0	14.9		ug/L		99	52 - 129
Benzo[g,h,i]perylene	15.0	16.6		ug/L		111	10 - 195
bis (2-chloroisopropyl) ether	15.0	13.1		ug/L		88	63 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*84*		*43 - 120*
2,4,6-Tribromophenol	*95*		*60 - 120*
Nitrobenzene-d5	*92*		*53 - 150*
Terphenyl-d14	*103*		*12 - 142*
Phenol-d5	*87*		*45 - 150*

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	15.0	13.0		ug/L		87	60 - 132	1	35
Acenaphthylene	15.0	13.1		ug/L		88	54 - 126	3	35
Anthracene	15.0	13.1		ug/L		87	43 - 120	3	35
Benzidine	15.0	ND	LR	ug/L		0	5 - 140	NC	35
Benzo[a]anthracene	15.0	14.3		ug/L		95	42 - 133	3	35
Benzo[b]fluoranthene	15.0	14.5		ug/L		96	42 - 140	3	35
Benzo[k]fluoranthene	15.0	13.9		ug/L		92	25 - 146	5	35
Benzo[a]pyrene	15.0	14.0		ug/L		93	32 - 148	3	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethoxy)methane	15.0	12.7		ug/L		85	49 - 165	2	35
Bis(2-chloroethyl)ether	15.0	13.0		ug/L		87	43 - 126	0	35
Bis(2-ethylhexyl) phthalate	15.0	14.3		ug/L		95	29 - 137	2	35
4-Bromophenyl phenyl ether	15.0	13.1		ug/L		87	65 - 120	3	35
Butyl benzyl phthalate	15.0	14.5		ug/L		97	10 - 140	6	35
4-Chloro-3-methylphenol	15.0	15.1		ug/L		100	41 - 128	1	35
2-Chloronaphthalene	15.0	13.2		ug/L		88	65 - 120	0	35
2-Chlorophenol	15.0	12.6		ug/L		84	36 - 120	0	35
4-Chlorophenyl phenyl ether	15.0	13.0		ug/L		86	38 - 145	0	35
Chrysene	15.0	13.8		ug/L		92	44 - 140	4	35
Dibenz(a,h)anthracene	15.0	17.3		ug/L		116	10 - 200	4	35
Di-n-butyl phthalate	15.0	14.9		ug/L		99	8 - 120	1	35
1,2-Dichlorobenzene	15.0	11.7		ug/L		78	60 - 140	3	35
1,3-Dichlorobenzene	15.0	11.3		ug/L		75	60 - 140	2	35
1,4-Dichlorobenzene	15.0	11.7		ug/L		78	60 - 140	2	35
3,3'-Dichlorobenzidine	15.0	ND	LR BA	ug/L		0	8 - 213	200	35
2,4-Dichlorophenol	15.0	13.3		ug/L		89	53 - 122	1	35
Diethyl phthalate	15.0	15.3		ug/L		102	10 - 120	0	35
2,4-Dimethylphenol	15.0	12.3		ug/L		82	42 - 120	2	35
Dimethyl phthalate	15.0	13.8		ug/L		92	10 - 120	2	35
4,6-Dinitro-2-methylphenol	30.0	25.3		ug/L		84	53 - 130	1	35
2,4-Dinitrophenol	30.0	22.9		ug/L		76	10 - 173	6	35
2,4-Dinitrotoluene	15.0	14.4		ug/L		96	48 - 127	1	35
2,6-Dinitrotoluene	15.0	13.9		ug/L		92	68 - 137	2	35
Di-n-octyl phthalate	15.0	15.5		ug/L		104	19 - 132	1	35
1,2-Diphenylhydrazine(as Azobenzene)	15.0	12.5		ug/L		83	60 - 140	5	35
Fluoranthene	15.0	15.3		ug/L		102	43 - 121	1	35
Fluorene	15.0	13.3		ug/L		88	70 - 120	1	35
Hexachlorobenzene	15.0	13.2		ug/L		88	8 - 142	1	35
Hexachlorobutadiene	15.0	12.0		ug/L		80	38 - 120	8	35
Hexachloroethane	15.0	10.9		ug/L		72	55 - 120	4	35
Hexachlorocyclopentadiene	15.0	6.20	LR	ug/L		41	60 - 140	3	35
Indeno[1,2,3-cd]pyrene	15.0	17.0		ug/L		113	10 - 151	3	35
Isophorone	15.0	14.9		ug/L		99	47 - 180	2	35
Naphthalene	15.0	12.5		ug/L		83	36 - 120	1	35
Nitrobenzene	15.0	13.1		ug/L		87	54 - 158	3	35
2-Nitrophenol	15.0	13.6		ug/L		91	45 - 167	2	35
4-Nitrophenol	30.0	22.5		ug/L		75	13 - 129	8	35
N-Nitrosodimethylamine	15.0	12.9		ug/L		86	60 - 140	5	35
N-Nitrosodiphenylamine	15.0	10.8		ug/L		72	60 - 140	16	35
N-Nitrosodi-n-propylamine	15.0	13.3		ug/L		89	14 - 198	2	35
Pentachlorophenol	30.0	29.7		ug/L		99	38 - 152	9	35
Phenanthrene	15.0	13.1		ug/L		88	65 - 120	1	35
Phenol	15.0	12.5		ug/L		84	17 - 120	5	35
Pyrene	15.0	15.9		ug/L		106	70 - 120	1	35
1,2,4-Trichlorobenzene	15.0	12.3		ug/L		82	57 - 130	3	35
2,4,6-Trichlorophenol	15.0	14.8		ug/L		99	52 - 129	1	35
Benzo[g,h,i]perylene	15.0	16.5		ug/L		110	10 - 195	1	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
bis (2-chloroisopropyl) ether			15.0	12.8		ug/L		85	63 - 139	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*87*		*51 - 120*
2-Fluorophenol	*83*		*43 - 120*
2,4,6-Tribromophenol	*93*		*60 - 120*
Nitrobenzene-d5	*90*		*53 - 150*
Terphenyl-d14	*96*		*12 - 142*
Phenol-d5	*86*		*45 - 150*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-602223/1-A
Matrix: Water
Analysis Batch: 602369

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		03/25/20 05:34	03/25/20 14:55	1
alpha-BHC	ND		0.0050	0.0025	ug/L		03/25/20 05:34	03/25/20 14:55	1
beta-BHC	ND		0.010	0.0040	ug/L		03/25/20 05:34	03/25/20 14:55	1
delta-BHC	ND		0.0050	0.0035	ug/L		03/25/20 05:34	03/25/20 14:55	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		03/25/20 05:34	03/25/20 14:55	1
Chlordane (technical)	ND		0.10	0.080	ug/L		03/25/20 05:34	03/25/20 14:55	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		03/25/20 05:34	03/25/20 14:55	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		03/25/20 05:34	03/25/20 14:55	1
4,4'-DDT	ND		0.010	0.0040	ug/L		03/25/20 05:34	03/25/20 14:55	1
Dieldrin	ND		0.0050	0.0020	ug/L		03/25/20 05:34	03/25/20 14:55	1
Endosulfan I	ND		0.0050	0.0030	ug/L		03/25/20 05:34	03/25/20 14:55	1
Endosulfan II	ND		0.0050	0.0020	ug/L		03/25/20 05:34	03/25/20 14:55	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		03/25/20 05:34	03/25/20 14:55	1
Endrin	ND		0.0050	0.0020	ug/L		03/25/20 05:34	03/25/20 14:55	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/25/20 05:34	03/25/20 14:55	1
Heptachlor	ND		0.0090	0.0030	ug/L		03/25/20 05:34	03/25/20 14:55	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		03/25/20 05:34	03/25/20 14:55	1
Toxaphene	ND		0.50	0.24	ug/L		03/25/20 05:34	03/25/20 14:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*53*		*10 - 104*	*03/25/20 05:34*	*03/25/20 14:55*	*1*

Lab Sample ID: LCS 440-602223/2-A
Matrix: Water
Analysis Batch: 602369

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602223

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aldrin			0.400	0.264		ug/L		66	42 - 140		
alpha-BHC			0.400	0.276		ug/L		69	37 - 140		
beta-BHC			0.400	0.283		ug/L		71	17 - 147		
delta-BHC			0.400	0.262		ug/L		65	19 - 140		

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 440-602223/2-A
Matrix: Water
Analysis Batch: 602369

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602223

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
gamma-BHC (Lindane)			0.400	0.276		ug/L		69	32 - 140		
4,4'-DDD			0.400	0.295		ug/L		74	31 - 141		
4,4'-DDE			0.400	0.278		ug/L		69	30 - 145		
4,4'-DDT			0.400	0.303		ug/L		76	25 - 160		
Dieldrin			0.400	0.301		ug/L		75	36 - 146		
Endosulfan I			0.400	0.290		ug/L		72	45 - 153		
Endosulfan II			0.400	0.295		ug/L		74	10 - 202		
Endosulfan sulfate			0.400	0.296		ug/L		74	26 - 144		
Endrin			0.400	0.306		ug/L		76	30 - 147		
Endrin aldehyde			0.400	0.259		ug/L		65	60 - 140		
Heptachlor			0.400	0.287		ug/L		72	34 - 140		
Heptachlor epoxide			0.400	0.279		ug/L		70	37 - 142		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*70*		*10 - 104*

Lab Sample ID: LCSD 440-602223/3-A
Matrix: Water
Analysis Batch: 602369

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602223

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin			0.400	0.267		ug/L		67	42 - 140	1	35
alpha-BHC			0.400	0.279		ug/L		70	37 - 140	1	36
beta-BHC			0.400	0.286		ug/L		71	17 - 147	1	44
delta-BHC			0.400	0.264		ug/L		66	19 - 140	1	52
gamma-BHC (Lindane)			0.400	0.278		ug/L		70	32 - 140	1	39
4,4'-DDD			0.400	0.299		ug/L		75	31 - 141	1	39
4,4'-DDE			0.400	0.280		ug/L		70	30 - 145	1	35
4,4'-DDT			0.400	0.308		ug/L		77	25 - 160	2	42
Dieldrin			0.400	0.305		ug/L		76	36 - 146	1	49
Endosulfan I			0.400	0.293		ug/L		73	45 - 153	1	28
Endosulfan II			0.400	0.299		ug/L		75	10 - 202	1	53
Endosulfan sulfate			0.400	0.300		ug/L		75	26 - 144	1	38
Endrin			0.400	0.311		ug/L		78	30 - 147	1	48
Endrin aldehyde			0.400	0.262		ug/L		66	60 - 140	1	30
Heptachlor			0.400	0.290		ug/L		72	34 - 140	1	43
Heptachlor epoxide			0.400	0.282		ug/L		70	37 - 142	1	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*70*		*10 - 104*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-602223/1-A
Matrix: Water
Analysis Batch: 602384

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1221	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1232	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1242	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1248	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1254	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1
Aroclor 1260	ND		0.50	0.25	ug/L		03/25/20 05:34	03/25/20 13:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*89*		*18 - 134*	*03/25/20 05:34*	*03/25/20 13:17*	*1*

Lab Sample ID: LCS 440-602223/4-A
Matrix: Water
Analysis Batch: 602384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602223

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor 1016			4.00	3.00		ug/L		75	50 - 140		
Aroclor 1260			4.00	3.20		ug/L		80	8 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*92*		*18 - 134*

Lab Sample ID: LCSD 440-602223/5-A
Matrix: Water
Analysis Batch: 602384

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602223

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016			4.00	3.15		ug/L		79	50 - 140	5	36
Aroclor 1260			4.00	3.38		ug/L		85	8 - 140	6	38

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*96*		*18 - 134*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-602016/6
Matrix: Water
Analysis Batch: 602016

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/24/20 07:21	1

Lab Sample ID: LCS 440-602016/5
Matrix: Water
Analysis Batch: 602016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			50.0	49.3		ug/L		99	90 - 110		

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography) (Continued)

Lab Sample ID: MRL 440-602016/4
Matrix: Water
Analysis Batch: 602016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	1.00	0.901	J,DX	ug/L		90	50 - 150

Lab Sample ID: 440-263523-O-1 MS
Matrix: Water
Analysis Batch: 602016

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		50.0	50.0		ug/L		100	90 - 110

Lab Sample ID: 440-263523-O-1 MSD
Matrix: Water
Analysis Batch: 602016

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		50.0	49.9		ug/L		100	90 - 110	0	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-602057/6
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/24/20 11:24	1
Nitrite as N	ND		0.15	0.025	mg/L			03/24/20 11:24	1

Lab Sample ID: LCS 440-602057/5
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.16		mg/L		103	90 - 110
Nitrite as N	1.52	1.53		mg/L		100	90 - 110

Lab Sample ID: 440-263518-1 MS
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.29		1.13	1.48		mg/L		105	80 - 120
Nitrite as N	ND		1.52	1.42		mg/L		93	80 - 120

Lab Sample ID: 440-263518-1 MSD
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.29		1.13	1.48		mg/L		105	80 - 120	0	20
Nitrite as N	ND		1.52	1.42		mg/L		93	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-602058/6
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/24/20 11:24	1
Fluoride	ND		0.50	0.25	mg/L			03/24/20 11:24	1
Sulfate	ND		0.50	0.25	mg/L			03/24/20 11:24	1

Lab Sample ID: LCS 440-602058/5
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.91		mg/L		98	90 - 110
Fluoride	5.00	4.69		mg/L		94	90 - 110
Sulfate	5.00	4.95		mg/L		99	90 - 110

Lab Sample ID: 440-263518-1 MS
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.0		5.00	7.96		mg/L		100	80 - 120
Fluoride	ND		5.00	4.61		mg/L		92	80 - 120
Sulfate	5.3		5.00	10.4		mg/L		102	80 - 120

Lab Sample ID: 440-263518-1 MSD
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	3.0		5.00	7.95		mg/L		99	80 - 120	0	20
Fluoride	ND		5.00	4.59		mg/L		92	80 - 120	0	20
Sulfate	5.3		5.00	10.4		mg/L		102	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602483/6
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/26/20 10:03	1

Lab Sample ID: LCS 440-602483/5
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	10.0	10.2		ug/L		102	85 - 115

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: MRL 440-602483/4
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	1.16	J,DX	ug/L		116	75 - 125

Lab Sample ID: MRL 440-602483/8
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.89	J,DX	ug/L		97	75 - 125

Lab Sample ID: 440-263523-P-1 MS
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		10.0	9.62		ug/L		96	80 - 120

Lab Sample ID: 440-263523-P-1 MSD
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		10.0	9.78		ug/L		98	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,7,8-TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000070	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000010	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000093	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.00000063	ug/L		03/26/20 11:50	03/28/20 10:35	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDD	0.00000250	J,DX	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000071	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDD	0.0000101	J,DX	0.00010	0.0000013	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDF	0.00000304	J,DX q	0.00010	0.0000012	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDD	0.00000154	J,DX q	0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDD	0.00000435	J,DX q	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDD	*60*		*28 - 130*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDF	*57*		*26 - 123*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,6,7,8-HxCDF	*59*		*28 - 136*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*66*		*23 - 140*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*67*		*28 - 143*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*70*		*26 - 138*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-OCDD	*49*		*17 - 157*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*79*		*35 - 197*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			0.000200	0.000179		ug/L		90	67 - 158		
2,3,7,8-TCDF			0.000200	0.000179		ug/L		89	75 - 158		
1,2,3,7,8-PeCDD			0.00100	0.000970		ug/L		97	70 - 142		
1,2,3,7,8-PeCDF			0.00100	0.000950		ug/L		95	80 - 134		
2,3,4,7,8-PeCDF			0.00100	0.000884		ug/L		88	68 - 160		
1,2,3,4,7,8-HxCDD			0.00100	0.000867		ug/L		87	70 - 164		
1,2,3,6,7,8-HxCDD			0.00100	0.000956		ug/L		96	76 - 134		
1,2,3,7,8,9-HxCDD			0.00100	0.000911		ug/L		91	64 - 162		
1,2,3,4,7,8-HxCDF			0.00100	0.000887		ug/L		89	72 - 134		
1,2,3,6,7,8-HxCDF			0.00100	0.000974		ug/L		97	84 - 130		
1,2,3,7,8,9-HxCDF			0.00100	0.000977		ug/L		98	78 - 130		
2,3,4,6,7,8-HxCDF			0.00100	0.000962		ug/L		96	70 - 156		
1,2,3,4,6,7,8-HpCDD			0.00100	0.000927	MB	ug/L		93	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.00100	0.000957	MB	ug/L		96	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.00100	0.000899		ug/L		90	78 - 138		
OCDD			0.00200	0.00186	MB	ug/L		93	78 - 144		
OCDF			0.00200	0.00204	MB	ug/L		102	63 - 170		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*65*		*20 - 175*
13C-2,3,7,8-TCDF	*60*		*22 - 152*
13C-1,2,3,7,8-PeCDD	*53*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*54*		*21 - 192*
13C-2,3,4,7,8-PeCDF	*57*		*13 - 328*
13C-1,2,3,4,7,8-HxCDD	*66*		*21 - 193*
13C-1,2,3,6,7,8-HxCDD	*67*		*25 - 163*
13C-1,2,3,4,7,8-HxCDF	*65*		*19 - 202*
13C-1,2,3,6,7,8-HxCDF	*61*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*62*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*63*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*77*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*79*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*81*		*20 - 186*
13C-OCDD	*63*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*74*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602301/1-A
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/25/20 10:43	03/25/20 17:26	1
Boron	ND		0.050	0.025	mg/L		03/25/20 10:43	03/25/20 17:26	1
Barium	ND		0.010	0.0050	mg/L		03/25/20 10:43	03/25/20 17:26	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 440-602301/1-A
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		2.0	1.0	ug/L		03/25/20 10:43	03/25/20 17:26	1
Cobalt	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:26	1
Chromium	ND		5.0	2.5	ug/L		03/25/20 10:43	03/25/20 17:26	1
Iron	ND		0.10	0.050	mg/L		03/25/20 10:43	03/25/20 17:26	1
Manganese	ND		20	15	ug/L		03/25/20 10:43	03/25/20 17:26	1
Nickel	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:26	1
Vanadium	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:26	1
Zinc	ND		20	12	ug/L		03/25/20 10:43	03/25/20 17:26	1

Lab Sample ID: LCS 440-602301/2-A
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	499		ug/L		100	85 - 115
Boron	0.500	0.480		mg/L		96	85 - 115
Barium	0.500	0.483		mg/L		97	85 - 115
Beryllium	500	497		ug/L		99	85 - 115
Cobalt	500	499		ug/L		100	85 - 115
Chromium	500	496		ug/L		99	85 - 115
Iron	0.500	0.479		mg/L		96	85 - 115
Manganese	500	493		ug/L		99	85 - 115
Nickel	500	502		ug/L		100	85 - 115
Vanadium	500	486		ug/L		97	85 - 115
Zinc	500	503		ug/L		101	85 - 115

Lab Sample ID: 440-263514-A-1-B MS
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	530		ug/L		106	70 - 130
Boron	0.51		0.500	1.07		mg/L		110	70 - 130
Barium	0.068		0.500	0.551		mg/L		97	70 - 130
Beryllium	ND		500	525		ug/L		105	70 - 130
Cobalt	ND		500	509		ug/L		102	70 - 130
Chromium	ND		500	516		ug/L		103	70 - 130
Iron	ND		0.500	0.517		mg/L		103	70 - 130
Manganese	420		500	951		ug/L		105	70 - 130
Nickel	ND		500	507		ug/L		101	70 - 130
Vanadium	ND		500	520		ug/L		104	70 - 130
Zinc	ND		500	531		ug/L		106	70 - 130

Lab Sample ID: 440-263514-A-1-C MSD
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	542		ug/L		108	70 - 130	2	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-263514-A-1-C MSD
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.51		0.500	1.08		mg/L		113	70 - 130	1	20
Barium	0.068		0.500	0.563		mg/L		99	70 - 130	2	20
Beryllium	ND		500	536		ug/L		107	70 - 130	2	20
Cobalt	ND		500	519		ug/L		104	70 - 130	2	20
Chromium	ND		500	526		ug/L		105	70 - 130	2	20
Iron	ND		0.500	0.530		mg/L		106	70 - 130	2	20
Manganese	420		500	966		ug/L		108	70 - 130	2	20
Nickel	ND		500	519		ug/L		104	70 - 130	2	20
Vanadium	ND		500	532		ug/L		106	70 - 130	2	20
Zinc	ND		500	544		ug/L		109	70 - 130	2	20

Lab Sample ID: MB 440-602149/1-B
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/24/20 17:28	03/25/20 13:00	1
Boron	ND		0.050	0.025	mg/L		03/24/20 17:28	03/25/20 13:00	1
Barium	ND		0.010	0.0050	mg/L		03/24/20 17:28	03/25/20 13:00	1
Beryllium	ND		2.0	1.0	ug/L		03/24/20 17:28	03/25/20 13:00	1
Cobalt	ND		10	5.0	ug/L		03/24/20 17:28	03/25/20 13:00	1
Chromium	ND		5.0	2.5	ug/L		03/24/20 17:28	03/25/20 13:00	1
Iron	ND		0.10	0.050	mg/L		03/24/20 17:28	03/25/20 13:00	1
Manganese	ND		20	15	ug/L		03/24/20 17:28	03/25/20 13:00	1
Nickel	ND		10	5.0	ug/L		03/24/20 17:28	03/25/20 13:00	1
Vanadium	ND		10	5.0	ug/L		03/24/20 17:28	03/25/20 13:00	1
Zinc	ND		20	12	ug/L		03/24/20 17:28	03/25/20 13:00	1

Lab Sample ID: LCS 440-602149/2-B
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	485		ug/L		97	85 - 115
Boron	0.500	0.475		mg/L		95	85 - 115
Barium	0.500	0.477		mg/L		95	85 - 115
Beryllium	500	489		ug/L		98	85 - 115
Cobalt	500	480		ug/L		96	85 - 115
Chromium	500	489		ug/L		98	85 - 115
Iron	0.500	0.479		mg/L		96	85 - 115
Manganese	500	484		ug/L		97	85 - 115
Nickel	500	492		ug/L		98	85 - 115
Vanadium	500	481		ug/L		96	85 - 115
Zinc	500	489		ug/L		98	85 - 115

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-263499-B-1-C MS
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	507		ug/L		101	70 - 130
Boron	0.10		0.500	0.595		mg/L		98	70 - 130
Barium	0.013		0.500	0.488		mg/L		95	70 - 130
Beryllium	ND		500	505		ug/L		101	70 - 130
Cobalt	ND		500	489		ug/L		98	70 - 130
Chromium	2.8	J,DX	500	499		ug/L		99	70 - 130
Iron	ND		0.500	0.504		mg/L		101	70 - 130
Manganese	ND		500	495		ug/L		99	70 - 130
Nickel	ND		500	496		ug/L		99	70 - 130
Vanadium	ND		500	502		ug/L		100	70 - 130
Zinc	54		500	557		ug/L		101	70 - 130

Lab Sample ID: 440-263499-B-1-D MSD
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602185

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	495		ug/L		99	70 - 130	2	20
Boron	0.10		0.500	0.585		mg/L		96	70 - 130	2	20
Barium	0.013		0.500	0.479		mg/L		93	70 - 130	2	20
Beryllium	ND		500	495		ug/L		99	70 - 130	2	20
Cobalt	ND		500	480		ug/L		96	70 - 130	2	20
Chromium	2.8	J,DX	500	490		ug/L		98	70 - 130	2	20
Iron	ND		0.500	0.495		mg/L		99	70 - 130	2	20
Manganese	ND		500	485		ug/L		97	70 - 130	2	20
Nickel	ND		500	488		ug/L		98	70 - 130	2	20
Vanadium	ND		500	492		ug/L		98	70 - 130	2	20
Zinc	54		500	547		ug/L		98	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602306/1-A
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 11:06	03/26/20 10:23	1
Copper	0.797	J,DX	2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Lead	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 11:06	03/26/20 10:23	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-602306/2-A
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	84.3		ug/L		105	85 - 115
Cadmium	80.0	80.0		ug/L		100	85 - 115
Copper	80.0	81.2		ug/L		101	85 - 115
Lead	80.0	77.8		ug/L		97	85 - 115
Antimony	80.0	83.3		ug/L		104	85 - 115
Selenium	80.0	78.5		ug/L		98	85 - 115
Thallium	80.0	77.2		ug/L		97	85 - 115

Lab Sample ID: 440-263515-F-1-C MS
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	88.1		ug/L		110	70 - 130
Cadmium	ND		80.0	84.7		ug/L		106	70 - 130
Copper	2.5	MB	80.0	88.4		ug/L		107	70 - 130
Lead	ND		80.0	82.5		ug/L		103	70 - 130
Antimony	ND		80.0	87.8		ug/L		110	70 - 130
Selenium	ND		80.0	84.8		ug/L		106	70 - 130
Thallium	ND		80.0	81.9		ug/L		102	70 - 130

Lab Sample ID: 440-263515-F-1-D MSD
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	89.2		ug/L		111	70 - 130	1	20
Cadmium	ND		80.0	85.4		ug/L		107	70 - 130	1	20
Copper	2.5	MB	80.0	89.6		ug/L		109	70 - 130	1	20
Lead	ND		80.0	83.1		ug/L		104	70 - 130	1	20
Antimony	ND		80.0	88.9		ug/L		111	70 - 130	1	20
Selenium	ND		80.0	80.5		ug/L		101	70 - 130	5	20
Thallium	ND		80.0	83.1		ug/L		104	70 - 130	1	20

Lab Sample ID: MB 440-602149/1-D
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 09:35	03/25/20 22:18	1
Copper	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Lead	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 09:35	03/25/20 22:18	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-602149/2-D
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	82.6		ug/L		103	85 - 115
Cadmium	80.0	79.1		ug/L		99	85 - 115
Copper	80.0	81.0		ug/L		101	85 - 115
Lead	80.0	80.8		ug/L		101	85 - 115
Antimony	80.0	83.2		ug/L		104	85 - 115
Selenium	80.0	81.8		ug/L		102	85 - 115
Thallium	80.0	73.2		ug/L		91	85 - 115

Lab Sample ID: 440-263515-A-2-D MS
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	82.0		ug/L		103	70 - 130
Cadmium	ND		80.0	79.4		ug/L		99	70 - 130
Copper	2.2		80.0	84.6		ug/L		103	70 - 130
Lead	ND		80.0	81.1		ug/L		101	70 - 130
Antimony	ND		80.0	84.5		ug/L		106	70 - 130
Selenium	ND		80.0	82.1		ug/L		103	70 - 130
Thallium	0.49	J,DX	80.0	80.3		ug/L		100	70 - 130

Lab Sample ID: 440-263515-A-2-E MSD
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	82.6		ug/L		103	70 - 130	1	20
Cadmium	ND		80.0	79.8		ug/L		100	70 - 130	1	20
Copper	2.2		80.0	85.2		ug/L		104	70 - 130	1	20
Lead	ND		80.0	81.4		ug/L		102	70 - 130	0	20
Antimony	ND		80.0	85.2		ug/L		107	70 - 130	1	20
Selenium	ND		80.0	82.6		ug/L		103	70 - 130	1	20
Thallium	0.49	J,DX	80.0	80.7		ug/L		100	70 - 130	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602360/1-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 06:37	1

Lab Sample ID: LCS 440-602360/2-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.79		ug/L		95	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263076-F-1-D MS
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.94		ug/L		99	75 - 125

Lab Sample ID: 440-263076-F-1-E MSD
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.87		ug/L		97	75 - 125	2	20

Lab Sample ID: MB 440-602138/1-C
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602353

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:48	03/26/20 06:08	1

Lab Sample ID: LCS 440-602138/2-C
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.03		ug/L		101	85 - 115

Lab Sample ID: 440-263518-3 MS
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Outfall001_20200324_Comp_F
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	7.69	LM	ug/L		192	75 - 125

Lab Sample ID: 440-263518-3 MSD
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Outfall001_20200324_Comp_F
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	7.63	LM	ug/L		191	75 - 125	1	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-602123/5
Matrix: Water
Analysis Batch: 602123

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/24/20 12:53	1

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: 320-59699-B-2 DU
Matrix: Water
Analysis Batch: 602123

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Turbidity	79			80.2		NTU				2	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602390/1
Matrix: Water
Analysis Batch: 602390

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/25/20 15:54	1

Lab Sample ID: LCS 440-602390/2
Matrix: Water
Analysis Batch: 602390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	1050		mg/L		105	85 - 115		

Lab Sample ID: 440-263457-B-1 DU
Matrix: Water
Analysis Batch: 602390

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	180			160		mg/L				9	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-602698/1-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1

Lab Sample ID: LCS 440-602698/2-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602698

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	96.0		ug/L		96	80 - 120		

Lab Sample ID: 440-263409-C-1-A MS
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND		100	93.0		ug/L		93	75 - 125		

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-263409-C-1-B MSD
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	104		ug/L		104	75 - 125	11	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-602338/10
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/25/20 11:06	1

Lab Sample ID: LCS 440-602338/11
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.130		mg/L		103	90 - 110

Lab Sample ID: MRL 440-602338/9
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.2080		mg/L		104	50 - 150

Lab Sample ID: 440-263328-J-1 MS
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.560		5.00	5.710		mg/L		103	90 - 110

Lab Sample ID: 440-263328-J-1 MSD
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	0.560		5.00	5.650		mg/L		102	90 - 110	1	15

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-602613/6
Matrix: Water
Analysis Batch: 602613

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.65	mg/L			03/26/20 16:48	1

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 440-602613/5
Matrix: Water
Analysis Batch: 602613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			10.0	9.35		mg/L		94	85 - 115		

Lab Sample ID: 440-263570-C-1 MS
Matrix: Water
Analysis Batch: 602613

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	7.0		5.00	11.7		mg/L		94	85 - 115		

Lab Sample ID: 440-263570-C-1 MSD
Matrix: Water
Analysis Batch: 602613

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	7.0		5.00	11.7		mg/L		95	85 - 115	0	20

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-602166/4
Matrix: Water
Analysis Batch: 602166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/24/20 15:47	1

Lab Sample ID: LCS 440-602166/5
Matrix: Water
Analysis Batch: 602166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances			0.250	0.264		mg/L		106	90 - 110		

Lab Sample ID: MRL 440-602166/3
Matrix: Water
Analysis Batch: 602166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances			0.100	0.123		mg/L		123	50 - 150		

Lab Sample ID: 440-263518-1 MS
Matrix: Water
Analysis Batch: 602166

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances	0.052	J,DX	0.250	0.237		mg/L		74	50 - 125		

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: 440-263518-1 MSD
Matrix: Water
Analysis Batch: 602166

Client Sample ID: Outfall001_20200324_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.052	J,DX	0.250	0.242		mg/L		76	50 - 125	2	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-602365/3
Matrix: Water
Analysis Batch: 602365

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/25/20 14:35	1

Lab Sample ID: LCS 440-602365/7
Matrix: Water
Analysis Batch: 602365

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	166	LR	mg/L		84	85 - 115

Lab Sample ID: LCSD 440-602365/8
Matrix: Water
Analysis Batch: 602365

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	166	LR	mg/L		84	85 - 115	0	20

Lab Sample ID: LCSD 440-602365/9
Matrix: Water
Analysis Batch: 602365

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	199		mg/L		100	85 - 115	18	20

Lab Sample ID: 440-263519-A-2 DU
Matrix: Water
Analysis Batch: 602365

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	11	LR	10.7	LR	mg/L		2	20

GC/MS VOA

Analysis Batch: 602245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	8260B SIM	
MB 440-602245/2	Method Blank	Total/NA	Water	8260B SIM	
LCS 440-602245/3	Lab Control Sample	Total/NA	Water	8260B SIM	
440-263373-B-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
440-263373-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

GC/MS Semi VOA

Prep Batch: 602721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	625	
MB 440-602721/1-A	Method Blank	Total/NA	Water	625	
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 602857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	625.1	602721
MB 440-602721/1-A	Method Blank	Total/NA	Water	625.1	602721
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625.1	602721
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	602721

GC Semi VOA

Prep Batch: 602223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	608	
MB 440-602223/1-A	Method Blank	Total/NA	Water	608	
LCS 440-602223/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-602223/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-602223/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 440-602223/5-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 602369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	608.3	602223
MB 440-602223/1-A	Method Blank	Total/NA	Water	608.3	602223
LCS 440-602223/2-A	Lab Control Sample	Total/NA	Water	608.3	602223
LCSD 440-602223/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	602223

Analysis Batch: 602384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	608.3	602223
MB 440-602223/1-A	Method Blank	Total/NA	Water	608.3	602223
LCS 440-602223/4-A	Lab Control Sample	Total/NA	Water	608.3	602223
LCSD 440-602223/5-A	Lab Control Sample Dup	Total/NA	Water	608.3	602223

HPLC/IC

Analysis Batch: 602016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	218.6	

HPLC/IC (Continued)

Analysis Batch: 602016 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602016/6	Method Blank	Total/NA	Water	218.6	
LCS 440-602016/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-602016/4	Lab Control Sample	Total/NA	Water	218.6	
440-263523-O-1 MS	Matrix Spike	Total/NA	Water	218.6	
440-263523-O-1 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 602057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	300.0	
MB 440-602057/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602057/5	Lab Control Sample	Total/NA	Water	300.0	
440-263518-1 MS	Outfall001_20200324_Comp	Total/NA	Water	300.0	
440-263518-1 MSD	Outfall001_20200324_Comp	Total/NA	Water	300.0	

Analysis Batch: 602058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	300.0	
MB 440-602058/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602058/5	Lab Control Sample	Total/NA	Water	300.0	
440-263518-1 MS	Outfall001_20200324_Comp	Total/NA	Water	300.0	
440-263518-1 MSD	Outfall001_20200324_Comp	Total/NA	Water	300.0	

Analysis Batch: 602474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 602483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	314.0	
MB 440-602483/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602483/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602483/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602483/8	Lab Control Sample	Total/NA	Water	314.0	
440-263523-P-1 MS	Matrix Spike	Total/NA	Water	314.0	
440-263523-P-1 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 367895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	1613B	
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 368420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	1613B	367895
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	367895
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	367895

Metals

Filtration Batch: 602138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602138/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263518-3 MS	Outfall001_20200324_Comp_F	Dissolved	Water	FILTRATION	
440-263518-3 MSD	Outfall001_20200324_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 602149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602149/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-602149/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-263515-A-2-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263515-A-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 602185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	200.2	602149
MB 440-602149/1-B	Method Blank	Dissolved	Water	200.2	602149
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	200.2	602149
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	200.2	602149
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	602149

Prep Batch: 602188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	200.2	602149
MB 440-602149/1-D	Method Blank	Dissolved	Water	200.2	602149
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	200.2	602149
440-263515-A-2-D MS	Matrix Spike	Dissolved	Water	200.2	602149
440-263515-A-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	602149

Analysis Batch: 602197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total Recoverable	Water	SM 2340B	

Prep Batch: 602301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total Recoverable	Water	200.2	
MB 440-602301/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602301/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263514-A-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263514-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 602306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total Recoverable	Water	200.2	
MB 440-602306/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602306/2-A	Lab Control Sample	Total Recoverable	Water	200.2	

Metals (Continued)

Prep Batch: 602306 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-F-1-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263515-F-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Analysis Batch: 602334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	200.7 Rev 4.4	602185
MB 440-602149/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	602185
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	602185
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	602185
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	602185

Prep Batch: 602353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602138
MB 440-602138/1-C	Method Blank	Dissolved	Water	245.1	602138
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	245.1	602138
440-263518-3 MS	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602138
440-263518-3 MSD	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602138

Prep Batch: 602360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	245.1	
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263076-F-1-D MS	Matrix Spike	Total/NA	Water	245.1	
440-263076-F-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 602409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	SM 2340B	

Analysis Batch: 602421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total Recoverable	Water	200.7 Rev 4.4	602301
MB 440-602301/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602301
LCS 440-602301/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602301
440-263514-A-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	602301
440-263514-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	602301

Analysis Batch: 602452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	200.8	602188
MB 440-602149/1-D	Method Blank	Dissolved	Water	200.8	602188
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	200.8	602188
440-263515-A-2-D MS	Matrix Spike	Dissolved	Water	200.8	602188
440-263515-A-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	602188

Analysis Batch: 602527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	245.1	602360
440-263518-3	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602353

Metals (Continued)

Analysis Batch: 602527 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602138/1-C	Method Blank	Dissolved	Water	245.1	602353
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	602360
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	245.1	602353
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	602360
440-263076-F-1-D MS	Matrix Spike	Total/NA	Water	245.1	602360
440-263076-F-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	602360
440-263518-3 MS	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602353
440-263518-3 MSD	Outfall001_20200324_Comp_F	Dissolved	Water	245.1	602353

Analysis Batch: 602534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total Recoverable	Water	200.8	602306
MB 440-602306/1-A	Method Blank	Total Recoverable	Water	200.8	602306
LCS 440-602306/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602306
440-263515-F-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	602306
440-263515-F-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	602306

General Chemistry

Analysis Batch: 602123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	180.1	
MB 440-602123/5	Method Blank	Total/NA	Water	180.1	
320-59699-B-2 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 602166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 5540C	
MB 440-602166/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-602166/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-602166/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263518-1 MS	Outfall001_20200324_Comp	Total/NA	Water	SM 5540C	
440-263518-1 MSD	Outfall001_20200324_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 602338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-602338/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-602338/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-602338/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263328-J-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263328-J-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 602365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM5210B	
USB 440-602365/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-602365/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-602365/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-602365/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263519-A-2 DU	Duplicate	Total/NA	Water	SM5210B	

General Chemistry

Analysis Batch: 602390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 2540D	
MB 440-602390/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602390/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263457-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 602613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 5310B	
MB 440-602613/6	Method Blank	Total/NA	Water	SM 5310B	
LCS 440-602613/5	Lab Control Sample	Total/NA	Water	SM 5310B	
440-263570-C-1 MS	Matrix Spike	Total/NA	Water	SM 5310B	
440-263570-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5310B	

Prep Batch: 602698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	Distill/CN	
MB 440-602698/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 602725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 4500 CN E	602698
MB 440-602698/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	602698
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	602698

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LR	LCS/LCSD recovery below method control limits

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LR	LCS/LCSD recovery below method control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263518-1
Project/Site: Annual Outfall 001 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
625.1	625	Water	1,2-Diphenylhydrazine(as Azobenzene)
8260B SIM		Water	1,4-Dioxane
NO3NO2 Calc		Water	Nitrate Nitrite as N
SM 5310B		Water	Total Organic Carbon

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	04-07-20
Pennsylvania	NELAP	68-01272	03-30-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

WECK LABORATORIES, INC.

Certificate of Analysis

SUPPLEMENTAL REPORT

Work Orders: 0C25010

Project: 440-263518-1

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 5/01/2020

Received Date: 3/25/2020

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #: 44009879

Billing Code:

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 3/25/20 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Case Narrative

This is a Supplement to the Certificate of Analysis previously issued for the above referenced Project to change compound reported.

Sample Results

Sample: Outfall001_20200324_Comp (440-263518-1) Sampled: 03/24/20 8:25 by Client

0C25010-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8315M **Batch ID:** W0D0790 **Instr:** LCMS03 **Prepared:** 04/15/20 10:47 **Analyst:** PJS						
Monomethylhydrazine (MMH)	ND	2.0	ug/l	1	04/15/20	U-01

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www.wecklabs.com

Quality Control Results

Hydrazine by LCMS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W0D0790 - Microextraction										
Blank (W0D0790-BLK1)				**Prepared & Analyzed: 04/15/20**						
1,1-Dimethylhydrazine	ND	2.0	ug/l							
Hydrazine	ND	1.0	ug/l							
Monomethylhydrazine (MMH)	ND	2.0	ug/l							
LCS (W0D0790-BS1)				**Prepared & Analyzed: 04/15/20**						
1,1-Dimethylhydrazine	22.4	2.0	ug/l	20.0		112	50-150			
Hydrazine	19.7	1.0	ug/l	20.0		99	50-150			
Monomethylhydrazine (MMH)	23.3	2.0	ug/l	20.0		117	50-150			
Matrix Spike (W0D0790-MS1)	**Source: 0C25010-01**			**Prepared & Analyzed: 04/15/20**						
1,1-Dimethylhydrazine	27.7	2.0	ug/l	20.0	*ND*	138	50-150			
Hydrazine	21.2	1.0	ug/l	20.0	*ND*	106	50-150			
Monomethylhydrazine (MMH)	26.2	2.0	ug/l	20.0	*ND*	131	50-150			
Matrix Spike Dup (W0D0790-MSD1)	**Source: 0C25010-01**			**Prepared & Analyzed: 04/15/20**						
1,1-Dimethylhydrazine	29.0	2.0	ug/l	20.0	*ND*	145	50-150	5	30	
Hydrazine	22.6	1.0	ug/l	20.0	*ND*	113	50-150	6	30	
Monomethylhydrazine (MMH)	27.2	2.0	ug/l	20.0	*ND*	136	50-150	4	30	

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Notes and Definitions

Item	Definition
U-01	The sample was received without the proper preservation.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 8315M in Water			
Monomethylhydrazine (MMH)	60-34-4	✓	

Reviewed by:



Regina M. Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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aquatic bioassay & consulting laboratories, inc

April 14, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall001_20200324_Comp (440-263518-1)
DATE RECEIVED:	24 March - 2020
ABC LAB. NO.:	CSE0320.169

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = 2.87 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-4726-2052	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	24 Mar-20 16:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	28 Mar-20 15:24	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	20-8511-1315	**Code:**	CSE0320.169sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	24 Mar-20 08:25	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall001_20200324_Comp
Sample Age:	8h	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
19-1852-7890	Cell Density	TST-Welch's t Test	4.1E-05	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
19-1852-7890	Cell Density	Control CV	0.05654	<<	0.2	Yes	Passes Criteria
19-1852-7890	Cell Density	Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.189E+6	1.406E+6	2.590E+4	7.325E+4	5.65%	0.00%
100		8	1.258E+6	1.162E+6	1.355E+6	1.148E+6	1.443E+6	4.065E+4	1.150E+5	9.14%	2.87%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.277E+6	1.148E+6	1.443E+6	1.189E+6	1.227E+6	1.424E+6	1.168E+6	1.191E+6

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	19-1852-7890	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:39	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	05-4726-2052	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	24 Mar-20 16:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	28 Mar-20 15:24	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	20-8511-1315	**Code:**	CSE0320.169sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	24 Mar-20 08:25	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall001_20200324_Comp
Sample Age:	8h	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	6.364	0.6998	10	CDF	4.1E-05	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.05654	<<	0.2	Yes	Passes Criteria
Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.513E+09	5.513E+09	1	0.5932	0.4540	Non-Significant Effect
Error	1.301E+11	9.294E+09	14			
Total	1.356E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.675	8.862	0.2165	Equal Variances
	Mod Levene Equality of Variance Test	0.4741	8.862	0.5023	Equal Variances
	Variance Ratio F Test	2.464	8.885	0.2571	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.5926	3.878	0.1256	Normal Distribution
	D'Agostino Skewness Test	1.419	2.576	0.1558	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1944	0.2471	0.1079	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9113	0.8408	0.1223	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.288E+6	1.189E+6	1.406E+6	2.590E+4	5.65%	0.00%
100		8	1.258E+6	1.162E+6	1.355E+6	1.209E+6	1.148E+6	1.443E+6	4.065E+4	9.14%	2.87%

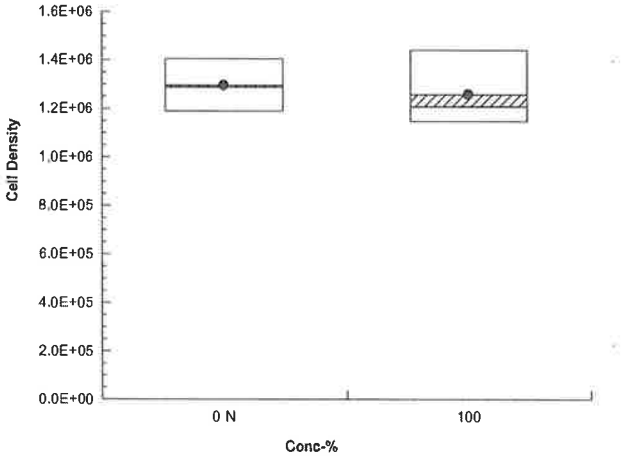
Cell Density Detail

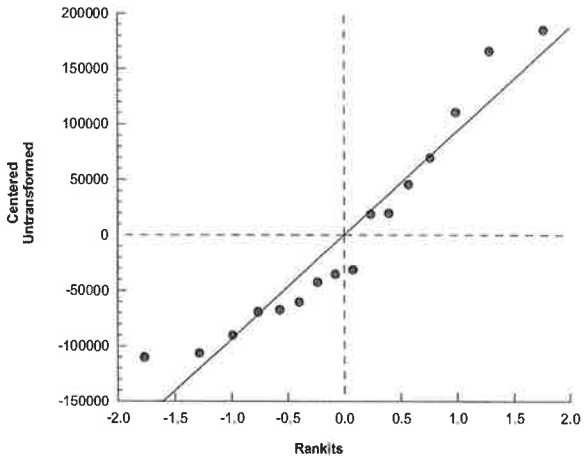
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.277E+6	1.148E+6	1.443E+6	1.189E+6	1.227E+6	1.424E+6	1.168E+6	1.191E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	19-1852-7890	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:39	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-4726-2052	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	24 Mar-20 16:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	28 Mar-20 15:24	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	

Sample ID:	20-8511-1315	**Code:**	CSE0320.169sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	24 Mar-20 08:25	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall001_20200324_Comp
Sample Age:	8h	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	58			58	58	0	0	0.0%	0
100		1	53			53	53	0	0	0.0%	0
Overall		2	55.5	23.73	87.27	53	58	2.5	3.536	6.37%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	475.2	460.2	490.2	454	483	5.398	12.07	2.54%	0
100		5	191.8	185.6	198	186	199	2.223	4.97	2.59%	0
Overall		10	333.5	226.5	440.5	186	483	47.31	149.6	44.86%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	115			115	115	0	0	0.0%	0
100		1	50			50	50	0	0	0.0%	0
Overall		2	82.5	-330.5	495.5	50	115	32.5	45.96	55.71%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.581	8.339	7.8	8.5	0.1364	0.305	3.83%	0
100		5	8.06	7.681	8.439	7.9	8.6	0.1364	0.305	3.78%	0
Overall		10	8.01	7.801	8.219	7.8	8.6	0.09244	0.2923	3.65%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
100		5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
Overall		10	24.68	24.47	24.89	24.3	25	0.09286	0.2936	1.19%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		58					
100				53					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		454					
100				186					
0	N	2		483					
100				189					
0	N	3		477					
100				191					
0	N	4		480					
100				194					
0	N	5		482					
100				199					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		115					
100				50					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				8					
0	N	2		8.5					
100				8.6					
0	N	3		7.9					
100				7.9					
0	N	4		7.8					
100				7.9					
0	N	5		7.8					
100				7.9					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.6					
100				24.6					
0	N	2		24.3					
100				24.3					
0	N	3		24.5					
100				24.5					
0	N	4		25					
100				25					
0	N	5		25					
100				25					

Test America

CHAIN OF CUSTODY FORM

Temp. deg. C = 2.3

Chlorine (mg/L) = <0.1

NH3 (mg/L) = 0.1

5/4/2020 (Rev. 1)

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 001
Comp

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Sampler: Dan Smith

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R/A Total Dissolved Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	R Cyanide (SM4500-CN-E / E335.2)	R Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	R [illegible]	A 1,4-Dioxane (E624 (SW8260M_SIM))	A Total Organic Carbon (415.2 (SM 5310B))	A Monomethyl hydrazine (SW8315M/DV-MC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals: Mercury (E245.1)	[illegible]	Comments
Outfall 001	Outfall001_20200324_Comp_F	3/24/2020 0825	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab Outfall 018 analyze for Al.
			WM	borosilicate vials	1	None	320	No										X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No											Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No			X								
			WM	1 Gal Cube	6	None	235	No										.169 *	
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	1 2 RM	None	255	No							H				Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hann	03/24/2020 / 1250	H&A	[signature]	3-24-2020 / 1250
[signature]	3/24/2020/1250	H&A	CJamia	03/24/2020 ; 1250

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months

Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal cubes delivered to ABC Labs directly by H&A (M. Dominick)

Test America

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 001
Comp

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Project Manager: Katherine Miller

520.289.8606, 520.904.6944 (cell)

Sampler: Dan Smith

Field Manager: Mark Dominick

978.234.5033, 818.599.0702 (cell)

									R/A	R	R	R	R/A	R	R	R	A	A	R	R				
									ANALYSIS REQUIRED															
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): As, Be, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals: Mercury (E245.1)				Comments
Outfall 001	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	HNO_3	80	No	X										X					Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	1 L Poly	1	None	115	No			X													
			WM	500 mL Poly	2	None	120	No				X												
			WM	500 mL Poly	2	None	125	No					X											48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X										48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X								
			WM	1 L Glass Amber	2	None	250	No									X							
			WM	1 L Glass Amber	2	None	175	No										X						
			WM	1 L Poly	1	None	185	No							X									
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	1 L Glass Amber	2	None	110	No		H														Hold
			WM	500 mL Poly	2	None	120	No				H												Hold
			WM	500 mL Poly	2	None	125	No					H											Hold
			WM	1 L Glass Amber	2	None	250	No									H							Hold
			WM	1 L Glass Amber	2	None	175	No										H						Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hahn	03/24/2020/1250	H&A	[signature]	3-24-2020/1250
[signature]	3-24-2020/1250	H&A	[signature]	03/24/2020/1250
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal cubes delivered to ABC directly by H&A (M. DOMINICK)

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 17 March - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 46.37 ug/l
IC50 = 95.06 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

29 north olive st. ventura, ca 93001 (805) 643 5621 aquabio.org

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
01-5313-8868	Cell Density	Dunnett Multiple Comparison Test		20	40	28.28		7.47%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	TU	S
07-1463-6845	Cell Density	Linear Interpolation (ICPIN)		IC5	14.28	2.725	31.44		1
				IC10	24.24	8.04	34.46		
				IC15	31.31	16.45	40.45		
				IC20	38.37	28.87	47.16		
				IC25	46.37	37.27	55.2		
				IC40	71.17	63.42	81.71		
				IC50	95.06	78.77	110		

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-5313-8868	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
07-1463-6845	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
01-5313-8868	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria
07-1463-6845	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.233E+6	1.365E+6	2.882E+4	5.764E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.092E+6	1.315E+6	4.858E+4	9.717E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	9.880E+5	1.050E+6	1.719E+4	3.438E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	6.560E+5	7.590E+5	2.566E+4	5.132E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.070E+5	5.150E+5	2.591E+4	5.182E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.900E+5	2.010E+5	3.175E+3	6.351E+3	3.25%	84.87%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	01-5313-8868	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	20	40	28.28		7.47%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		20	2.256	2.407	96550	6	CDF	0.0662	Non-Significant Effect
		40*	6.813	2.407	96550	6	CDF	3.2E-05	Significant Effect
		80*	14.6	2.407	96550	6	CDF	2.7E-05	Significant Effect
		140*	20.59	2.407	96550	6	CDF	2.7E-05	Significant Effect
		180*	27.34	2.407	96550	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.743E+12	7.485E+11	5	232.6	<1.0E-37	Significant Effect
Error	5.792E+10	3.218E+09	18			
Total	3.800E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.36	15.09	0.0302	Equal Variances
	Levene Equality of Variance Test	4.939	4.248	0.0051	Unequal Variances
	Mod Levene Equality of Variance Test	4.739	4.248	0.0062	Unequal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2623	3.878	0.7305	Normal Distribution
	D'Agostino Kurtosis Test	0.3634	2.576	0.7163	Normal Distribution
	D'Agostino Skewness Test	0.2035	2.576	0.8387	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.1735	9.21	0.9169	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1231	0.2056	0.4534	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9834	0.884	0.9491	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.285E+6	1.233E+6	1.365E+6	2.882E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.200E+6	1.092E+6	1.315E+6	4.858E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	1.018E+6	9.880E+5	1.050E+6	1.719E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	7.050E+5	6.560E+5	7.590E+5	2.566E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.715E+5	4.070E+5	5.150E+5	2.591E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.955E+5	1.900E+5	2.010E+5	3.175E+3	3.25%	84.87%

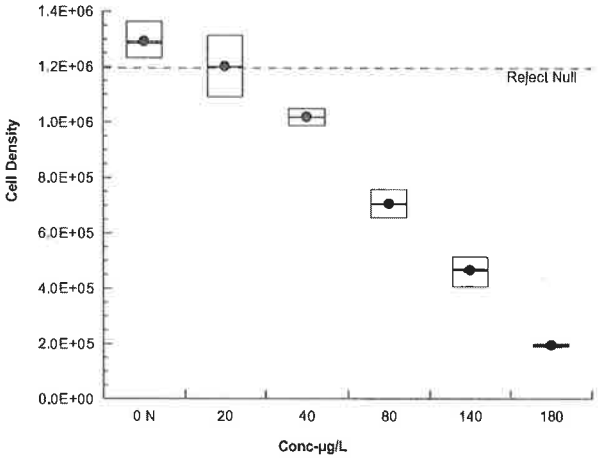
Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

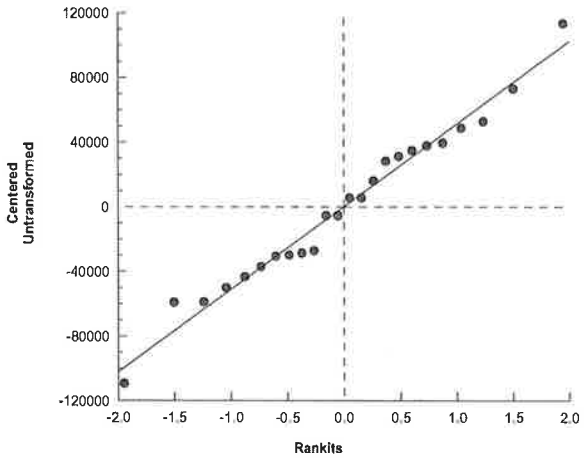
Analysis ID:	01-5313-8868	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	14.28	2.725	31.44
IC10	24.24	8.04	34.46
IC15	31.31	16.45	40.45
IC20	38.37	28.87	47.16
IC25	46.37	37.27	55.2
IC40	71.17	63.42	81.71
IC50	95.06	78.77	110

Cell Density Summary

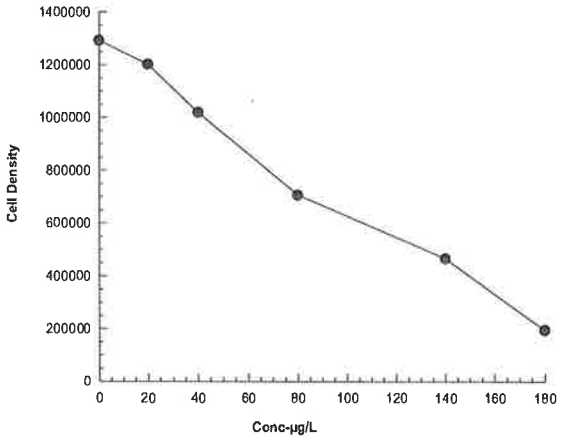
			Calculated Variate						Isotonic Variate	
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	N	4	1.292E+6	1.233E+6	1.365E+6	5.764E+4	4.46%	0.0%	1292000	0.0%
20		4	1.202E+6	1.092E+6	1.315E+6	9.717E+4	8.09%	7.01%	1202000	7.01%
40		4	1.019E+6	9.880E+5	1.050E+6	3.438E+4	3.38%	21.15%	1019000	21.15%
80		4	7.062E+5	6.560E+5	7.590E+5	5.132E+4	7.27%	45.34%	706200	45.34%
140		4	4.662E+5	4.070E+5	5.150E+5	5.182E+4	11.11%	63.91%	466200	63.91%
180		4	1.955E+5	1.900E+5	2.010E+5	6.351E+3	3.25%	84.87%	195500	84.87%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
20		1	52			52	52	0	0	0.0%	0
40		1	52			52	52	0	0	0.0%	0
80		1	53			53	53	0	0	0.0%	0
140		1	46			46	46	0	0	0.0%	0
180		1	43			43	43	0	0	0.0%	0
Overall		6	49.83	45.36	54.31	43	53	1.74	4.262	8.55%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	468	410.9	525.1	443	550	20.56	45.98	9.83%	0
20		5	422.4	420.3	424.5	421	425	0.7483	1.673	0.4%	0
40		5	414.2	412.6	415.8	412	415	0.5831	1.304	0.31%	0
80		5	400.4	396.4	404.4	397	405	1.435	3.209	0.8%	0
140		5	386.8	367.9	405.7	360	398	6.822	15.25	3.94%	0
180		5	280.2	250.2	310.2	252	305	10.81	24.18	8.63%	0
Overall		30	395.3	372.3	418.4	252	550	11.26	61.7	15.61%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
20		1	90			90	90	0	0	0.0%	0
40		1	55			55	55	0	0	0.0%	0
80		1	70			70	70	0	0	0.0%	0
140		1	88			88	88	0	0	0.0%	0
180		1	87			87	87	0	0	0.0%	0
Overall		6	78.33	64.09	92.58	55	90	5.542	13.57	17.33%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.651	8.189	7.7	8.2	0.09695	0.2168	2.74%	0
20		5	7.7	7.159	8.241	7.2	8.2	0.1949	0.4359	5.66%	0
40		5	7.74	7.262	8.218	7.3	8.2	0.172	0.3847	4.97%	0
80		5	7.72	7.26	8.18	7.3	8.2	0.1655	0.3701	4.79%	0
140		5	7.74	7.313	8.167	7.4	8.2	0.1536	0.3435	4.44%	0
180		5	7.72	7.333	8.107	7.4	8.1	0.1393	0.3114	4.03%	0
Overall		30	7.757	7.634	7.879	7.2	8.2	0.05982	0.3277	4.22%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
20		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
40		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
80		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
140		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
180		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
Overall		30	24.8	24.73	24.87	24.5	25	0.03523	0.193	0.78%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
20				52					
40				52					
80				53					
140				46					
180				43					

Conductivity-µmhos

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
20				421					
40				412					
80				398					
140				360					
180				260					
0	N	2		445					
20				421					
40				414					
80				397					
140				390					
180				252					
0	N	3		450					
20				422					
40				415					
80				400					
140				393					
180				281					
0	N	4		452					
20				423					
40				415					
80				402					
140				393					
180				303					
0	N	5		550					
20				425					
40				415					
80				405					
140				398					
180				305					

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
20				90					
40				55					
80				70					
140				88					
180				87					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
20				8					
40				8					
80				7.9					
140				7.9					
180				7.9					
0	N	2		7.8					
20				7.8					
40				7.8					
80				7.8					
140				7.8					
180				7.8					
0	N	3		8.2					
20				8.2					
40				8.2					
80				8.2					
140				8.2					
180				8.1					
0	N	4		7.8					
20				7.2					
40				7.3					
80				7.3					
140				7.4					
180				7.4					
0	N	5		7.7					
20				7.3					
40				7.4					
80				7.4					
140				7.4					
180				7.4					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.7					
20				24.7					
40				24.7					
80				24.7					
140				24.7					
180				24.7					
0	N	2		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	3		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	4		24.8					
20				24.8					
40				24.8					
80				24.8					
140				24.8					
180				24.8					
0	N	5		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					

Test America



440-263518 Chain of Custody

3/24/20 LD

CHAIN OF CUSTODY FORM

									R/A	R	R	R	R/A	R	R	R	A	A	R	R				
Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108									ANALYSIS REQUIRED															
Project: Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp									Total Recoverable Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals. Mercury (E245.1)				Comments
Test America Contact: Urvashi Patel, 17461 Derian Ave Suite #100, Irvine CA 92614, Tel 949-260-3269, Cell 949-333-9055		TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc its subsidiaries and affiliates, and TestAmerica Laboratories Inc																						
Project Manager: Katherine Miller, 520.289.8606, 520.904.6944 (cell)																								
Sampler: Dan Smith																								
Field Manager: Mark Dominick, 978.234.5033, 818.599.0702 (cell)																								
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD																
Outfall 001	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	HNO_3	80	No	X										X				~~Outfall 018 analyze for Al~~ RM
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No											H				Hold
			WM	1 L Glass Amber	2	None	175	No												H			Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/24/2020 1110	H&A	S. Hazl	03/24/2020 1110 A DCS
SHAD ALI	03/24/2020 1250	DCS		
			JO EC-IRV	3/24/20 1250

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements (Check)
No Level IV. _____ All Level IV: __X__

* 1 gal cubes delivered to ABC directly by H&A (M DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

CHAIN OF CUSTODY FORM

Client Name/Address.	Project.	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp	R/A R R R A A A A
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Katherine Miller 520 289 8606, 520 904.6944 (cell)	
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234 5033, 818 599.0702 (cell)	

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chlorine Tox Trip - Subcontracted EPA 8141A/8270C(SIM), ABC Labs in Ventura CA	1,4-Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals, Mercury (E245.1)		Comments
Outfall 001	Outfall001_20200324_Comp_F	3/24/2020 0825	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab ~~Outfall 018 analyze for Al~~ RH
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2 5 Gal Cube	1	None	225	No			X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No											
			WM	1 Gal Cube	6	None	235	No				-							Only test if first or second run events of the year Deliver to ABC Labs in Ventura CA *
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	1 2 RH	None	255	No							H				Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/24/2020 1110	H&A	S. Hall	03/24/2020 1110 DCS
Relinquished By	Date/Time	Company	Received By	Date/Time
SHAD Oli Seth	3/24/2020 1250	DCS		
Relinquished By	Date/Time	Company	Received By	Date/Time
			JQ EC-IRV	3/24/20 1250

Turn-around time. (Check)
24 Hour. _____ 72 Hour. _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal. _____

Sample Integrity (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements. (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal cubes delivered to ABC Labs directly by H&A (M. DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154338.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263518-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/3/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall001_20200324_Comp (440-263518-1)	3/24/20	08:25 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*			***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*		
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2		Special Instructions/QC Requirements:		
Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: [signature]	Date/Time: 3/24/20 1700	Company: EC-IRV	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: Michakoninhigh	Date/Time: 3/25/2020 08:50	Company: ETA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience

Initiated by: JMK Date: 3/25/2020 Time: 08:50 Shipper: FE Package Quantity: 1

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids. If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1SAD 4107 4244	192688461	0.3	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Samples received with pH=7. Samples were preserved upon receipt.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/25/2020 13:53

Preservative and lot#: HNO3 0000 24482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154336.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263518-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/3/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall001_20200324_Comp (440-263518-1)	3/24/20	08:25 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	3/24/20 1700	EC-IRV		3/25/20 0935	EDA-EQC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263518-1

Login Number: 263518
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263518-1

Login Number: 263518
List Number: 3
Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/25/20 04:31 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263518-1	Outfall001_20200324_Comp	60	55	49	49	51	58	59	57
MB 320-367895/1-A	Method Blank	63	57	51	50	53	60	60	59

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263518-1	Outfall001_20200324_Comp	55	55	56	70	71	73	58
MB 320-367895/1-A	Method Blank	57	58	59	66	67	70	49

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-367895/2-A	Lab Control Sample	65	60	53	54	57	66	67	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-367895/2-A	Lab Control Sample	61	62	63	77	79	81	63

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes


440-263518 Field Sheet

Tracking # : 1540 4107 4152

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 0.9 °C

From: Temp Blank ☒ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: PK Date: 03/25/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☒

Initials: SO Date: 3/25/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Q120

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263518-2
Client Project/Site: Annual Outfall 001 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/22/2020 12:13:11 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:13:11 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263518-1	Outfall001_20200324_Comp	Water	03/24/20 08:25	03/24/20 12:50	

Job ID: 440-263518-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263518-2

Comments
No additional comments.

Receipt
The samples were received on 3/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.1º C, 0.3º C, 1.3º C, 1.6º C, 1.7º C and 2.3º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

The laboratory control sample (LCS, 68%) failed below the lower limit (75%). The lab reached out to the client who requested the data be reported.

(LCS 160-465900/2-A)

Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-465900/2-A), (LCSB 160-465900/3-A), (MB 160-465900/1-A), (440-263409-J-1-D), (440-263409-J-1-G DU), (440-263409-F-1-E MS), (440-263409-J-1-E MSBT), (440-263409-J-1-F MSBTD) and (440-263409-F-1-F MSD)

Method 901.1: Gamma Prep Batch 160-465827
Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Job ID: 440-263518-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-465827/2-A), (MB 160-465827/1-A), (440-263515-K-1-C) and (440-263515-K-1-D DU)

Methods 903.0, 9315: Ra-226 Prep Batch 160-465586
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-465586/1-A), (MB 160-465586/20-A), (440-263409-J-1-B), (440-263409-F-1-A MS) and (440-263409-F-1-B MSD)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588

The laboratory control sample (LCS, 73%) failed below the lower limit of 75%. The MB, MS and MSD were within passing limits. The data has been reported with this narrative.

Outfall001_20200324_Comp (440-263518-1) and (MB 160-465588/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall001_20200324_Comp (440-263518-1) and (MB 160-465588/20-A)

Method 905: Strontium-90 Prep Batch 160-465961

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-465961/1-A), (MB 160-465961/11-A), (440-263409-J-1-J), (440-263409-F-1-K MS) and (440-263409-F-1-L MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post

Job ID: 440-263518-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

spiked" during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall001_20200324_Comp (440-263518-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall001_20200324_Comp (440-263518-1), (LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall001_20200324_Comp (440-263518-1).

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall001_20200324_Comp (440-263518-1).

Method PrecSep_0: Radium 228 Prep Batch 160-465588:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall001_20200324_Comp (440-263518-1).

Method PrecSep-21: Radium 226 Prep Batch 160-465586:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall001_20200324_Comp (440-263518-1).

Method PrecSep-7: Sr-90 Prep Batch 160-465961:

Samples 160-37640-1, 160-37641-1, and 440-263408-1 were slightly discolored. Samples 440-263409-1, 1MS, 1MSD, 440-263515-1 and 440-263518-1 had a bright yellow discoloration. In addition, sample 440-263518-1 was reduced in volume because it was cloudy.

Outfall001_20200324_Comp (440-263518-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall001_20200324_Comp

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	**2.96**		1.36	1.40	3.00	1.71	pCi/L	03/27/20 11:28	04/03/20 08:24	1
Gross Beta	**2.86**		0.760	0.812	4.00	0.885	pCi/L	03/27/20 11:28	04/03/20 08:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.77	U	12.9	12.9	20.0	15.5	pCi/L	03/26/20 17:56	03/27/20 04:18	1
Potassium-40	-68.8	U	136	137		197	pCi/L	03/26/20 17:56	03/27/20 04:18	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0813	U	0.168	0.168	1.00	0.310	pCi/L	03/26/20 06:31	04/17/20 08:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:52*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0501	U	0.409	0.409	1.00	0.738	pCi/L	03/26/20 06:59	04/15/20 13:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:20*	*1*
Y Carrier	*80.0*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:20*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.321	U	0.388	0.389	3.00	0.746	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*83.0*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:14*	*1*
Y Carrier	*84.1*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:14*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-101	U	171	171	500	327	pCi/L	04/05/20 12:18	04/09/20 08:14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.365**		0.287	0.288	1.00	0.315	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Client Sample ID: Outfall001_20200324_Comp
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	62.5		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Client Sample ID: Outfall001_20200324_Comp

Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.07 mL	1.0 g	465900	03/27/20 11:28	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	466614	04/03/20 08:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	465827	03/26/20 17:56	PMS	TAL SL
Total/NA	Analysis	901.1		1			466060	03/27/20 04:18	KLS	TAL SL
Total/NA	Prep	PrecSep-21			500.58 mL	1.0 g	465586	03/26/20 06:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			468017	04/17/20 08:52	KRR	TAL SL
Total/NA	Prep	PrecSep_0			500.58 mL	1.0 g	465588	03/26/20 06:59	RBR	TAL SL
Total/NA	Analysis	904.0		1			467720	04/15/20 13:20	CJQ	TAL SL
Total/NA	Prep	PrecSep-7			500.06 mL	1.0 g	465961	03/29/20 09:20	MMO	TAL SL
Total/NA	Analysis	905		1			467045	04/07/20 10:14	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 08:14	JS	TAL SL
Total/NA	Prep	ExtChrom			250.73 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467798	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465900/1-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465900

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4046	U	0.519	0.521	3.00	0.861	pCi/L	03/27/20 11:28	04/03/20 08:23	1
Gross Beta	0.4550	U	0.481	0.483	4.00	0.772	pCi/L	03/27/20 11:28	04/03/20 08:23	1

Lab Sample ID: LCS 160-465900/2-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	33.94	*	5.41	3.00	1.58	pCi/L	68	75 - 125

Lab Sample ID: LCSB 160-465900/3-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.6	80.84		8.62	4.00	0.942	pCi/L	96	75 - 125

Lab Sample ID: 440-263409-F-1-E MS
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	-0.0978	U	49.5	36.73		5.47	3.00	1.38	pCi/L	74	60 - 140

Lab Sample ID: 440-263409-F-1-F MSD
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	-0.0978	U	49.5	39.84		5.86	3.00	1.64	pCi/L	80	60 - 140	0.27	1

Lab Sample ID: 440-263409-J-1-E MSBT
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	0.603	U	84.5	78.67		8.39	4.00	0.921	pCi/L	92	60 - 140

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263409-J-1-F MSBTD
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	0.603	U	84.5	74.07		7.92	4.00	0.902	pCi/L	87	60 - 140	0.28	1

Lab Sample ID: 440-263409-J-1-G DU
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	-0.0978	U	1.373	*		3.00	1.00	pCi/L	0.79	1
Gross Beta	0.603	U	0.8697	U		4.00	1.00	pCi/L	0.23	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-465827/1-A
Matrix: Water
Analysis Batch: 465572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465827

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.790	U	5.70	5.70	20.0	7.42	pCi/L	03/26/20 17:56	03/26/20 22:41	1
Potassium-40	-36.96	U	125	126		188	pCi/L	03/26/20 17:56	03/26/20 22:41	1

Lab Sample ID: LCS 160-465827/2-A
Matrix: Water
Analysis Batch: 465573

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465827

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	132800		15300		521	pCi/L	98	90 - 111
Cesium-137	43800	42740		4290	20.0	148	pCi/L	98	90 - 111
Cobalt-60	26400	25750		2560		79.6	pCi/L	97	89 - 110

Lab Sample ID: 440-263515-K-1-D DU
Matrix: Water
Analysis Batch: 466064

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465827

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-4.76	U	-3.585	U	12.8	20.0	15.8	pCi/L	0.05	1
Potassium-40	-59.1	U	-61.91	U	160		218	pCi/L	0.01	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-465586/20-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465586

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03638	U	0.0859	0.0860	1.00	0.199	pCi/L	03/26/20 06:31	04/17/20 08:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:55*	*1*

Lab Sample ID: LCS 160-465586/1-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465586

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.27		1.18	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.6*		*40 - 110*

Lab Sample ID: 440-263409-F-1-A MS
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	-0.0860	U	15.1	12.69		1.49	1.00	0.304	pCi/L	84	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-263409-F-1-B MSD
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	-0.0860	U	15.1	13.28		1.56	1.00	0.235	pCi/L	88	75 - 138	0.19	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-465588/20-A
Matrix: Water
Analysis Batch: 467720

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465588

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1859	U	0.267	0.268	1.00	0.447	pCi/L	03/26/20 06:59	04/15/20 13:22	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110	03/26/20 06:59	04/15/20 13:22	1
Y Carrier	79.6		40 - 110	03/26/20 06:59	04/15/20 13:22	1

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-465961/11-A
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465961

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.05867	U	0.135	0.135	3.00	0.258	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110	03/29/20 09:20	04/07/20 10:14	1
Y Carrier	95.3		40 - 110	03/29/20 09:20	04/07/20 10:14	1

Lab Sample ID: LCS 160-465961/1-A
Matrix: Water
Analysis Batch: 467049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465961

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	7.289		0.803	3.00	0.348	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	87.2		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-263409-F-1-K MS
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.216	U	7.88	7.311		0.805	3.00	0.295	pCi/L	90	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	82.3		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 440-263409-F-1-L MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.216	U	7.89	6.434		0.751	3.00	0.297	pCi/L	79	19 - 150	0.56	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-263409-F-1-L MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465961

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	79.5		40 - 110
Y Carrier	83.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	91.7		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

Rad

Prep Batch: 465586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	PrecSep-21	
MB 160-465586/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-465586/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263409-F-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263409-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 465588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	PrecSep_0	
MB 160-465588/20-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 465827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-465827/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-465827/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263515-K-1-D DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 465900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	Evaporation	
MB 160-465900/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465900/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465900/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263409-F-1-E MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-F-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-J-1-F MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-G DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 465961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	PrecSep-7	
MB 160-465961/11-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-465961/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263409-F-1-K MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263409-F-1-L MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Rad (Continued)

Prep Batch: 466637 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Qualifiers

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America



440-263518 Chain of Custody

3/24/20 LD

CHAIN OF CUSTODY FORM

									R/A	R	R	R	R/A	R	R	R	A	A	R	R				
Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108								Project: Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp	ANALYSIS REQUIRED															
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055		TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc its subsidiaries and affiliates, and TestAmerica Laboratories Inc						Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																
Sampler: Dan Smith								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals. Mercury (E245.1)				Comments
Outfall 001	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	HNO_3	80	No	X										X				~~Outfall 018 analyze for Al~~ RM
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										*48 hours Holding Time NO_3 & NO_2*
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/24/2020 1110	H&A	S. Hazl	03/24/2020 1110 A DCS
SHAD ALI	03/24/2020 1250	DCS		
			JO EC-IRV	3/24/20 1250

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements (Check)
No Level IV. _____ All Level IV: __X__

* 1 gal cubes delivered to ABC directly by H&A (M DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

4/22/2020

CHAIN OF CUSTODY FORM

Client Name/Address. Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project. Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc
Sampler. Dan Smith	Project Manager: Katherine Miller 520 289 8606, 520 904.6944 (cell) Field Manager: Mark Dominick 978 234 5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900.0), Gross Beta(E900 0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908 0), K-40, CS-137 (E901.0 or E901 1) (R)	Chlorine Tuning - Sub-Lactone EPA 821-P-02 013 ABC Labs in Ventura CA (R)	1,4-Dioxane (E624 (SW8260M_SIM)) (A)	Total Organic Carbon (415 2 (SM 5310B)) (A)	Monomethyl hydrazine (SW8315M/DV-WC-0077) (A)	Cr (VI), Total (E218.6) (A)	Total Dissolved Metals, Mercury (E245.1)		Comments
Outfall 001	Outfall001_20200324_Comp_F	3/24/2020 0825	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab ~~Outfall 018 analyze for Al~~ RH
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2 5 Gal Cube	1	None	225	No			X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No											
			WM	1 Gal Cube	6	None	235	No											Only test if first or second rain events of the year Deliver to ABC Labs in Ventura CA *
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	1 ~~2~~ RH	None	255	No							H				Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/24/2020 1110	H&A	S. ALI [signature]	03/24/2020 1110 DCS
SHAD ALI [signature]	3/24/2020 1250	DCS		
			[signature] EC-IRV	3/24/20 1250

Turn-around time. (Check)
24 Hour. _____ 72 Hour. _____ 10 Day: __X____
48 Hour: _____ 5 Day: _____ Normal. _____

Sample Integrity (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements. (Check)
No Level IV: _____ All Level IV: ___X_____

* 1 gal cubes delivered to ABC Labs directly by H&A (M. DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263518-2

Login Number: 263518
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263518-2

Login Number: 263518
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/25/20 02:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Samples received with pH=7. Samples preserved upon receipt.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263409-F-1-A MS	Matrix Spike	92.0
440-263409-F-1-B MSD	Matrix Spike Duplicate	83.8
440-263518-1	Outfall001_20200324_Comp	87.5
LCS 160-465586/1-A	Lab Control Sample	93.6
MB 160-465586/20-A	Method Blank	90.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263518-1	Outfall001_20200324_Comp	87.5	80.0
MB 160-465588/20-A	Method Blank	90.5	79.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263409-F-1-K MS	Matrix Spike	82.3	89.3
440-263409-F-1-L MSD	Matrix Spike Duplicate	79.5	83.7
440-263518-1	Outfall001_20200324_Comp	83.0	84.1
LCS 160-465961/1-A	Lab Control Sample	87.2	93.5
MB 160-465961/11-A	Method Blank	86.1	95.3

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
440-263518-1	Outfall001_20200324_Comp	62.5
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-263518 Field Sheet

Tracking # : 1540 4107 4152

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 0.9 °C

From: Temp Blank ☒ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: PK Date: 03/25/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☒

Initials: SO Date: 3/25/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Q120

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263518-4
Client Project/Site: Annual Outfall 001 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/22/2020 12:15:55 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:15:55 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263518-1	Outfall001_20200324_Comp	Water	03/24/20 08:25	03/24/20 12:50	

Job ID: 440-263518-4

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263518-4

Comments
No additional comments.

Receipt
The samples were received on 3/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.1º C, 0.3º C, 1.3º C, 1.6º C, 1.7º C and 2.3º C.

General Chemistry
Method SM 2540C: The following sample was added in after the holding time had expired: Outfall001_20200324_Comp (440-263518-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Client Sample ID: Outfall001_20200324_Comp
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	93	BU	10	5.0	mg/L			04/20/20 10:24	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Method	Method Description	Protocol	Laboratory
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Client Sample ID: Outfall001_20200324_Comp
Date Collected: 03/24/20 08:25
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263518-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605662	04/20/20 10:24	XL	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605662/1
Matrix: Water
Analysis Batch: 605662

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			04/20/20 09:53	1

Lab Sample ID: LCS 440-605662/2
Matrix: Water
Analysis Batch: 605662

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	980		mg/L		98	90 - 110		

Lab Sample ID: 440-264671-A-1 DU
Matrix: Water
Analysis Batch: 605662

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	690			697		mg/L				1	5

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

General Chemistry

Analysis Batch: 605662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263518-1	Outfall001_20200324_Comp	Total/NA	Water	SM 2540C	
MB 440-605662/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605662/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264671-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Qualifiers

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 001 Comp

Job ID: 440-263518-4

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America



440-263518 Chain of Custody

3/24/20 LD

CHAIN OF CUSTODY FORM

									R/A	R	R	R	R/A	R	R	R	A	A	R	R				
Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108									ANALYSIS REQUIRED															
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc its subsidiaries and affiliates, and TestAmerica Laboratories Inc								Total Recoverable Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals. Mercury (E245.1)				Comments
Project: Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp																								
Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																								
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																							
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD																
Outfall 001	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	HNO_3	80	No	X										X				~~Outfall 018 analyze for Al~~ RM
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No											H				Hold
			WM	1 L Glass Amber	2	None	175	No												H			Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/24/2020 1110	H&A	S. Hazl	03/24/2020 1110 A DCS
SHAD ALI	03/24/2020 1250	DCS		
			JO EC-IRV	3/24/20 1250

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements (Check)
No Level IV. _____ All Level IV: __X__

* 1 gal cubes delivered to ABC directly by H&A (M DOMINICK)
0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

4/22/2020

CHAIN OF CUSTODY FORM

Client Name/Address.	Project.	
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 001 Comp	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520 289 8606, 520 904.6944 (cell)
Sampler: Dan Smith		Field Manager: Mark Dominick 978 234 5033, 818 599.0702 (cell)

									R/A	R	R	R	A	A	A	A		
									ANALYSIS REQUIRED									
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	[illegible] EPA 8141A/8270C (TCL), ABC Labs in Ventura CA	1,4-Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals, Mercury (E245.1)		Comments
Outfall 001	Outfall001_20200324_Comp_F	3/24/2020 0825	WM	1 L Poly	1	None	190	No	X									Filter and preserve w/in 24hrs of receipt at lab ~~Outfall 018 analyze for Al~~ RH
			WM	borosilicate vials	1	None	320	No								X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall001_20200324_Comp	3/24/2020 0825	WM	500 mL Poly	1	NaOH	220	No		X								
			WM	2 5 Gal Cube	1	None	225	No			X							Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No										
			WM	1 Gal Cube	6	None	235	No				-						Only test if first or second run events of the year Deliver to ABC Labs in Ventura CA *
			WM	40 mL VOA	3	HCl	240	No					X					
			WM	1 L Glass Amber	1	HCl	245	No						X				
			WM	1 L Glass Amber	2	None	255	No							X			
			WM	500 mL Poly	1	None	260	No								X		
	Outfall001_20200324_Comp_Extra	3/24/2020 0825	WM	40 mL VOA	3	HCl	240	No					H					Hold
			WM	1 L Glass Amber	1 RH	None	255	No							H			Hold

Legend: R=Routine, A=Annual, Q=Quarterly

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/24/2020 1110	H&A	[signature]	03/24/2020 1110 DCS
[signature]	3/24/2020 1250	DCS		
			[signature] EC-IRV	3/24/20 1250

Turn-around time. (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements. (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal cubes delivered to ABC Labs directly by H&A (M. DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR-89

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263518-4

Login Number: 263518
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258618-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

4 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258618-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200107_GRAB	440-258618-1	Water	1/7/2020 11:05:00 AM	E120.1, E1664, E624.1, SM2540F, SM9221F, SW8015D, SW8015V

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-258618-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the COCs.
- The sample was submitted to Enthalpy Analytical for Method 9221F.
- According to the Login Sample Receipt Checklists, custody seals were absent on the coolers upon receipt at both laboratories; however, no evidence of tampering was noted.
- The laboratory noted in the narrative that due to multiple analyses, sample TB-20200107 was analyzed from a container with significant headspace, defined as a bubble six millimeters or greater in diameter. The sample was not included for data validation and the data was not included in the EDD. However, detects for VOCs could be considered potentially high biases as the associated TB may be biased low. Based upon professional judgement, the detects results were not qualified.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 8015B— PURGEABLE AND EXTRACTABLE TOTAL PETROLEUM HYDROCARBONS (TPHS)

K. Zilis of MEC[X] reviewed the SDG on March 6, 2020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0), EPA Method 8015B*, and the *National Functional Guidelines for Organic Superfund Methods Data Review* (2017).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The preserved water sample was analyzed within 14 days for purgeable TPH (GRO), and the unpreserved water sample was extracted within seven days of collection and analyzed within 40 days of extraction for extractable TPH (DRO).

III.2. CALIBRATION

Initial calibration %RSDs were within the method control limit of ≤20%, and the ICV and CCV %Ds were within the control limit of ≤15%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits for GRO and DRO of 80-120% and 40-115%, respectively.

III.3.3. *SURROGATE RECOVERY*

Recoveries were within laboratory control limits. BFB (GRO) was within the control limits of 65-140%, and n-octacosane (DRO) was within the control limits of 45-120%.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample for both fractions. The GRO recoveries were within the laboratory limits of 65-140% and the RPD was ≤20%. The DRO recoveries were within the laboratory limit of 40-120% and the RPD was within the laboratory limit of ≤30%. No qualifications were required.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.4.1. *TRIP BLANK*

A trip blank was not analyzed for the GRO analysis.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory reported two total petroleum hydrocarbon ranges: C_4-C_{12} (GRO), and C_{13}-C_{28} (DRO). Review indicated no issues with target compound range identification.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified. Review of the raw data did not indicate calculation or transcription errors. Results reported below the reporting limit were flagged as estimated (J) and coded DNQ to comply with the NPDES permit. Nondetects are valid to the reporting limit.

IV. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

K. Zilis of MEC^X reviewed the SDG on March 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624*, and the *National Functional Guidelines for Organic Superfund Methods Data Review* (2017).

IV.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample was analyzed within 14 days of collection, and the unpreserved trip blank and site sample aliquot for 2-chloroethylvinyl ether, acrolein, and acrylonitrile were analyzed within seven days of collection.

IV.2. GC/MS TUNING AND CALIBRATION

The BFB tunes met the method abundance criteria. Samples were analyzed within 12 hours of the BFB injection time.

All calibration criteria were met. The initial calibration average RRFs and the ICV and continuing calibration RRFs were ≥0.05 for all applicable target compounds. The initial calibration %RSDs were ≤35%, or r^2 values ≥0.990. The second source ICV and all applicable CCV recoveries were within the method control limits.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits.

IV.3.3. *SURROGATE RECOVERY*

Recoveries were within the laboratory control limits.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG. Recoveries were within the laboratory QC limits with the exception of 1,2-dichloro-1,1,2-trifluoroethane and acrylonitrile at 164% and 167% recovery with QC limits of 60-140% and 40-160% respectively. The RPD for 1,1-dichloroethene and methylene chloride exceeded the laboratory control limit at 40% and 30% with control limits of 32% and 28% respectively. The laboratory RPD criteria did not appear reasonable. They were high and varied, ranging from 28% to 86%. Applying a reasonable RPD of 30% for data validation, the RPDs for 1,2-dichloro-1,1,2-trifluoroethane and acrylonitrile were 34% and 50% respectively but were within stated laboratory QC criteria. All recoveries were high and none of these compounds were detected in the sample and no qualifications were required.

MS/MSD analyses were not performed on the site sample for 2-chloroethylvinyl ether or acrolein.

IV.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.4.1. *TRIP BLANKS*

Sample TB-20200107 was identified as the trip blank associated with the site sample in this SDG. The sample was not included for data validation and was not included in the EDD.

IV.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the continuing calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

IV.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for 41 target compounds by Method 624.1. Review of the sample chromatograms, retention times, and spectra indicated no issues with target compound identification.

The laboratory reported m,p-xylenes and o-xylene, as well as total xylenes. As the isomers are more specific, the nondetect result for total xylenes was rejected (R) as duplicate data.

IV.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

IV.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

IV.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

V. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on March 4, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F and 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 6 hours for *E. Coli (SM9221F)*
- 24 hours for total settleable solids (2540F)
- 28 days for HEM (Oil and Grease Method 1664) and specific conductance (EPA Method 120.1)

V.2. CALIBRATION

No instrument calibration information was provided for specific conductance analysis. The initial and continuing calibration verifications met laboratory acceptance limits for specific conductance. Analytical balance calibration logs were not provided by the laboratory; however, the preparation worksheet notes for Method 1664 indicated that the balance was verified. Biological controls were acceptable for *E. Coli* analysis.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects. No quality control (QC) data were provided for Method 2540F. The negative control sample was acceptable for the *E. Coli* analysis.

V.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries, as applicable, were within the laboratory control limits for Method 120.1 and 1664. The presumptive test was analyzed with the positive detects for *E. Coli*. No QC data were provided for Method 2540F.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable to these analyses.

V.4. SAMPLE RESULT VERIFICATION

Calculations were verified, and the sample results reported on the sample results summary were verified against the raw data, if provided. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

The sample was analyzed at 1×, 10× and 100× dilutions for *E. Coli*, as requested on the COC.

V.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402586181

Analysis Method E120.1

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	700	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	5.2	1.4	mg/L	U	U	

Analysis Method E624.1

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1,1-Trichloroethane	N	71-55-6	ND	0.50	0.25	ug/L	U	U	
1,1,2,2-Tetrachloroethane	N	79-34-5	ND	0.50	0.25	ug/L	U	U	
1,1,2-Trichloroethane	N	79-00-5	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethane	N	75-34-3	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloro-1,1,2-trifluoroethane	N	354-23-4	ND	2.0	1.0	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloropropane	N	78-87-5	ND	0.50	0.25	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.50	0.25	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	0.25	0.50	0.25	ug/L	J,DX	J	DNQ
2-Chloroethyl vinyl ether	N	110-75-8	ND	2.0	1.0	ug/L	U	U	
Acrolein	N	107-02-8	ND	5.0	2.5	ug/L	U	U	
Acrylonitrile	N	107-13-1	ND	2.0	1.0	ug/L	U	U	
Benzene	N	71-43-2	ND	0.50	0.25	ug/L	U	U	
Bromodichloromethane	N	75-27-4	ND	0.50	0.25	ug/L	U	U	
Bromoform	N	75-25-2	ND	1.0	0.40	ug/L	U	U	
Bromomethane (Methyl Bromide)	N	74-83-9	ND	0.50	0.25	ug/L	U	U	
Carbon tetrachloride	N	56-23-5	ND	0.50	0.25	ug/L	U	U	

Analysis Method E624.1

Chlorobenzene	N	108-90-7	0.61	0.50	0.25	ug/L			
Chloroethane	N	75-00-3	ND	1.0	0.40	ug/L	U	U	
Chloroform (Trichloromethane)	N	67-66-3	ND	0.50	0.25	ug/L	U	U	
Chloromethane (Methyl Chloride)	N	74-87-3	ND	0.50	0.25	ug/L	U	U	
cis-1,2-Dichloroethene	N	156-59-2	ND	0.50	0.25	ug/L	U	U	
cis-1,3-Dichloropropene	N	10061-01-5	ND	0.50	0.25	ug/L	U	U	
Cyclohexane	N	110-82-7	ND	2.0	1.0	ug/L	U	U	
Dibromochloromethane	N	124-48-1	ND	0.50	0.25	ug/L	U	U	
Ethylbenzene	N	100-41-4	ND	0.50	0.25	ug/L	U	U	
m,p-Xylenes	N	179601-23-1	ND	1.0	0.50	ug/L	U	U	
Methylene chloride	N	75-09-2	ND	2.0	0.88	ug/L	U	U	
Naphthalene	N	91-20-3	ND	1.0	0.40	ug/L	U	U	
o-Xylene	N	95-47-6	ND	0.50	0.25	ug/L	U	U	
Tetrachloroethene	N	127-18-4	ND	0.50	0.25	ug/L	U	U	
Toluene	N	108-88-3	ND	0.50	0.25	ug/L	U	U	
trans-1,2-Dichloroethene	N	156-60-5	ND	0.50	0.25	ug/L	U	U	
trans-1,3-Dichloropropene	N	10061-02-6	ND	0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	U	
Trichlorofluoromethane (CFC-11)	N	75-69-4	ND	0.50	0.25	ug/L	U	U	
Trifluorotrichloroethane (Freon 113)	N	76-13-1	ND	2.0	0.50	ug/L	U	U	
Vinyl chloride	N	75-01-4	ND	0.50	0.25	ug/L	U	U	
Xylene (total)	N	1330-20-7	ND	1.0	0.50	ug/L	U	R	D

Analysis Method SM2540F

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS	ND	0.10	0.10	ml/l/hr	U	U	

Analysis Method SM9221F

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	1100			mpn/100			

Analysis Method SW8015D

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C13-C28)(DRO)	N	PHC1328	ND	0.53	0.11	mg/L	U	U	

Analysis Method SW8015V

Sample Name OUTFALL002_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 11:05:00 AM **Validation Level:** 8

Lab Sample Name: 440-258618-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C4-C12)	N	PHC412	ND	0.050	0.025	mg/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258618-1
Client Project/Site: Annual Outfall 002 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/21/2020 3:52:24 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/21/2020 3:52:24 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258618-1	Outfall002_20200107_Grab	Water	01/07/20 11:05	01/07/20 15:00	
440-258618-3	TB-20200107	Water	01/07/20 11:05	01/07/20 15:00	

Job ID: 440-258618-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258618-1

Comments
No additional comments.

Receipt
The samples were received on 1/7/2020 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.7º C and 1.2º C.

GC/MS VOA
Method 624.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 440-589543 were outside control limits. Sample matrix interference is suspected. The associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 624.1: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 440-589543 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method 624.1: The following volatile sample was analyzed with significant headspace in the sample container(s) due to multiple runs: TB-20200107 (440-258618-3). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-589489.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-589692 and analytical batch 440-589730. 1664 - The Laboratory Control Sample (LCS) was performed in duplicate to provide precision data for this batch

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200107_Grab

Date Collected: 01/07/20 11:05
Date Received: 01/07/20 15:00

Lab Sample ID: 440-258618-1

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 17:45	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 17:45	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
1,4-Dichlorobenzene	**0.25**	**J,DX**	0.50	0.25	ug/L			01/08/20 17:45	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 17:45	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 17:45	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Chlorobenzene	**0.61**		0.50	0.25	ug/L			01/08/20 17:45	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 17:45	1
Chloroform	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 17:45	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 17:45	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 17:45	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 17:45	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 17:45	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*60 - 140*		*01/08/20 17:45*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*01/08/20 17:45*	*1*
Toluene-d8 (Surr)	*108*		*60 - 140*		*01/08/20 17:45*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 11:00	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 11:00	1

Client Sample ID: Outfall002_20200107_Grab

Lab Sample ID: 440-258618-1

Date Collected: 01/07/20 11:05
Matrix: Water
Date Received: 01/07/20 15:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*60 - 140*		*01/09/20 11:00*	*1*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*01/09/20 11:00*	*1*
Toluene-d8 (Surr)	*105*		*60 - 140*		*01/09/20 11:00*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			01/16/20 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*65 - 140*		*01/16/20 13:00*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.53	0.11	mg/L		01/08/20 05:31	01/08/20 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*77*		*45 - 120*	*01/08/20 05:31*	*01/08/20 16:15*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.4	mg/L		01/09/20 05:36	01/09/20 08:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**700**		1.0	1.0	umhos/cm			01/17/20 09:45	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			01/07/20 17:39	1

Client Sample ID: TB-20200107

Lab Sample ID: 440-258618-3

Date Collected: 01/07/20 11:05
Matrix: Water
Date Received: 01/07/20 15:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 11:49	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 11:49	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 11:49	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 11:49	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Chlorobenzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 11:49	1

Client Sample ID: TB-20200107

Date Collected: 01/07/20 11:05
Date Received: 01/07/20 15:00

Lab Sample ID: 440-258618-3

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 11:49	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 11:49	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 11:49	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 11:49	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 11:49	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 11:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*60 - 140*		*01/08/20 11:49*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*01/08/20 11:49*	*1*
Toluene-d8 (Surr)	*110*		*60 - 140*		*01/08/20 11:49*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 12:02	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 12:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*		*01/09/20 12:02*	*1*
Dibromofluoromethane (Surr)	*114*		*60 - 140*		*01/09/20 12:02*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*01/09/20 12:02*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
Subcontract	9221F- E. Coli	None	Enthalpy
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

Client Sample ID: Outfall002_20200107_Grab

Lab Sample ID: 440-258618-1

Date Collected: 01/07/20 11:05

Matrix: Water

Date Received: 01/07/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	589543	01/08/20 17:45	GMA	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	589706	01/09/20 11:00	MML	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	590734	01/16/20 13:00	IM	TAL IRV
Total/NA	Prep	3510C			940 mL	1 mL	589518	01/08/20 05:31	L1H	TAL IRV
Total/NA	Analysis	8015B		1			589563	01/08/20 16:15	MPD	TAL IRV
Total/NA	Analysis	120.1		1			591054	01/17/20 09:45	XL	TAL IRV
Total/NA	Prep	1664A			970 mL	1000 mL	589692	01/09/20 05:36	JC1	TAL IRV
Total/NA	Analysis	1664A		1			589730	01/09/20 08:28	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	589489	01/07/20 17:39	HZ	TAL IRV

Client Sample ID: TB-20200107

Lab Sample ID: 440-258618-3

Date Collected: 01/07/20 11:05

Matrix: Water

Date Received: 01/07/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	589543	01/08/20 11:49	GMA	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	589706	01/09/20 12:02	MML	TAL IRV

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589543/4
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 09:31	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 09:31	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Acrolein	ND		5.0	2.5	ug/L			01/08/20 09:31	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 09:31	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 09:31	1
Chloroform	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 09:31	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 09:31	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 09:31	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 09:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*60 - 140*		*01/08/20 09:31*	*1*
Dibromofluoromethane (Surr)	*103*		*60 - 140*		*01/08/20 09:31*	*1*
Toluene-d8 (Surr)	*108*		*60 - 140*		*01/08/20 09:31*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-589543/1002
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	27.0		ug/L		108	69 - 151
1,1,2,2-Tetrachloroethane	25.0	30.1		ug/L		120	68 - 136
1,1,2-Trichloroethane	25.0	26.4		ug/L		106	75 - 136
1,1-Dichloroethane	25.0	25.8		ug/L		103	71 - 143
1,1-Dichloroethene	25.0	27.1		ug/L		108	19 - 212
1,2-Dichlorobenzene	25.0	25.4		ug/L		102	59 - 174
1,2-Dichloroethane	25.0	22.8		ug/L		91	72 - 137
1,2-Dichloropropane	25.0	26.4		ug/L		106	19 - 181
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	75 - 144
1,4-Dichlorobenzene	25.0	25.3		ug/L		101	59 - 174
Acrylonitrile	250	242		ug/L		97	50 - 150
Benzene	25.0	25.3		ug/L		101	75 - 125
Bromodichloromethane	25.0	25.0		ug/L		100	50 - 140
Bromoform	25.0	25.9		ug/L		104	57 - 156
Bromomethane	25.0	25.5		ug/L		102	10 - 206
Carbon tetrachloride	25.0	25.6		ug/L		103	65 - 125
Chlorobenzene	25.0	25.1		ug/L		100	82 - 137
Chloroethane	25.0	25.8		ug/L		103	42 - 202
Chloroform	25.0	23.8		ug/L		95	68 - 121
Chloromethane	25.0	30.7		ug/L		123	10 - 230
cis-1,2-Dichloroethene	25.0	26.6		ug/L		107	60 - 140
cis-1,3-Dichloropropene	25.0	26.7		ug/L		107	5 - 195
Dibromochloromethane	25.0	27.3		ug/L		109	69 - 133
Ethylbenzene	25.0	25.2		ug/L		101	75 - 134
m,p-Xylene	25.0	25.9		ug/L		103	60 - 140
Methylene Chloride	25.0	22.8		ug/L		91	10 - 205
Naphthalene	25.0	22.2		ug/L		89	60 - 140
o-Xylene	25.0	25.1		ug/L		100	60 - 140
Tetrachloroethene	25.0	25.9		ug/L		104	70 - 130
Toluene	25.0	25.6		ug/L		102	75 - 134
trans-1,2-Dichloroethene	25.0	25.9		ug/L		103	70 - 130
trans-1,3-Dichloropropene	25.0	27.3		ug/L		109	38 - 162
Trichloroethene	25.0	25.5		ug/L		102	75 - 138
Trichlorofluoromethane	25.0	26.6		ug/L		106	45 - 158
Vinyl chloride	25.0	28.9		ug/L		116	10 - 218
Xylenes, Total	50.0	51.0		ug/L		102	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*60 - 140*
Dibromofluoromethane (Surr)	*100*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Lab Sample ID: 440-258618-1 MS
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		10.0	10.7		ug/L		107	52 - 162

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258618-1 MS
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	ND		10.0	13.1		ug/L		131	46 - 157
1,1,2-Trichloroethane	ND		10.0	11.6		ug/L		116	52 - 150
1,1-Dichloroethane	ND		10.0	11.8		ug/L		118	59 - 155
1,1-Dichloroethene	ND		10.0	14.9		ug/L		149	10 - 234
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	40.9	LM	ug/L		164	60 - 140
1,2-Dichlorobenzene	ND		10.0	10.8		ug/L		108	18 - 190
1,2-Dichloroethane	ND		10.0	9.59		ug/L		96	49 - 155
1,2-Dichloropropane	ND		10.0	10.4		ug/L		104	10 - 210
1,3-Dichlorobenzene	ND		10.0	10.3		ug/L		103	59 - 156
1,4-Dichlorobenzene	0.25	J,DX	10.0	10.6		ug/L		106	18 - 190
2-Chloroethyl vinyl ether	ND	LR	10.0	ND	LN	ug/L		0	10 - 305
Acrolein	ND	LR	9.88	ND	LN	ug/L		0	40 - 160
Acrylonitrile	ND		100	167	LM	ug/L		167	40 - 160
Benzene	ND		10.0	10.3		ug/L		103	37 - 151
Bromodichloromethane	ND		10.0	10.7		ug/L		107	35 - 155
Bromoform	ND		10.0	9.87		ug/L		99	45 - 169
Bromomethane	ND		10.0	10.1		ug/L		101	10 - 242
Carbon tetrachloride	ND		10.0	9.77		ug/L		98	70 - 140
Chlorobenzene	0.61		10.0	9.85		ug/L		92	37 - 160
Chloroethane	ND		10.0	10.1		ug/L		101	14 - 230
Chloroform	ND		10.0	9.65		ug/L		96	51 - 138
Chloromethane	ND		10.0	9.20		ug/L		92	10 - 273
cis-1,2-Dichloroethene	ND		10.0	11.8		ug/L		118	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.2		ug/L		112	10 - 227
Dibromochloromethane	ND		10.0	11.1		ug/L		111	53 - 149
Ethylbenzene	ND		10.0	10.2		ug/L		102	37 - 162
m,p-Xylene	ND		10.0	10.1		ug/L		101	60 - 140
Methylene Chloride	ND		10.0	13.0		ug/L		130	10 - 221
Naphthalene	ND		10.0	9.39		ug/L		94	60 - 140
o-Xylene	ND		10.0	9.93		ug/L		99	60 - 140
Tetrachloroethene	ND		10.0	10.7		ug/L		107	64 - 148
Toluene	ND		10.0	9.93		ug/L		99	47 - 150
trans-1,2-Dichloroethene	ND		10.0	13.1		ug/L		131	54 - 156
trans-1,3-Dichloropropene	ND		10.0	11.4		ug/L		114	17 - 183
Trichloroethene	ND		10.0	9.81		ug/L		98	70 - 157
Trichlorofluoromethane	ND		10.0	11.9		ug/L		119	17 - 181
Vinyl chloride	ND		10.0	9.78		ug/L		98	10 - 251
Xylenes, Total	ND		20.0	20.0		ug/L		100	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*60 - 140*
Dibromofluoromethane (Surr)	*102*		*60 - 140*
Toluene-d8 (Surr)	*102*		*60 - 140*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258618-1 MSD
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	9.90		ug/L		99	52 - 162	8	36
1,1,2,2-Tetrachloroethane	ND		10.0	11.9		ug/L		119	46 - 157	10	61
1,1,2-Trichloroethane	ND		10.0	10.1		ug/L		101	52 - 150	14	45
1,1-Dichloroethane	ND		10.0	9.78		ug/L		98	59 - 155	19	40
1,1-Dichloroethene	ND		10.0	9.98	BA	ug/L		100	10 - 234	40	32
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	29.0		ug/L		116	60 - 140	34	35
1,2-Dichlorobenzene	ND		10.0	10.2		ug/L		102	18 - 190	5	57
1,2-Dichloroethane	ND		10.0	9.35		ug/L		94	49 - 155	2	49
1,2-Dichloropropane	ND		10.0	10.4		ug/L		104	10 - 210	0	55
1,3-Dichlorobenzene	ND		10.0	9.95		ug/L		100	59 - 156	4	43
1,4-Dichlorobenzene	0.25	J,DX	10.0	10.3		ug/L		103	18 - 190	3	57
2-Chloroethyl vinyl ether	ND	LR	10.0	ND	LN	ug/L		0	10 - 305	NC	71
Acrolein	ND	LR	9.88	ND	LN	ug/L		0	40 - 160	NC	60
Acrylonitrile	ND		100	100		ug/L		100	40 - 160	50	60
Benzene	ND		10.0	10.1		ug/L		101	37 - 151	2	61
Bromodichloromethane	ND		10.0	10.0		ug/L		100	35 - 155	7	56
Bromoform	ND		10.0	10.4		ug/L		104	45 - 169	5	42
Bromomethane	ND		10.0	9.16		ug/L		92	10 - 242	10	61
Carbon tetrachloride	ND		10.0	9.71		ug/L		97	70 - 140	1	41
Chlorobenzene	0.61		10.0	9.61		ug/L		90	37 - 160	2	53
Chloroethane	ND		10.0	9.06		ug/L		91	14 - 230	10	78
Chloroform	ND		10.0	9.89		ug/L		99	51 - 138	2	54
Chloromethane	ND		10.0	9.72		ug/L		97	10 - 273	5	60
cis-1,2-Dichloroethene	ND		10.0	12.0		ug/L		120	60 - 140	2	35
cis-1,3-Dichloropropene	ND		10.0	10.5		ug/L		105	10 - 227	6	58
Dibromochloromethane	ND		10.0	10.8		ug/L		108	53 - 149	3	50
Ethylbenzene	ND		10.0	9.92		ug/L		99	37 - 162	3	63
m,p-Xylene	ND		10.0	9.94		ug/L		99	60 - 140	2	35
Methylene Chloride	ND		10.0	9.55	BA	ug/L		96	10 - 221	30	28
Naphthalene	ND		10.0	9.13		ug/L		91	60 - 140	3	35
o-Xylene	ND		10.0	9.62		ug/L		96	60 - 140	3	35
Tetrachloroethene	ND		10.0	10.9		ug/L		109	64 - 148	2	39
Toluene	ND		10.0	10.1		ug/L		101	47 - 150	1	41
trans-1,2-Dichloroethene	ND		10.0	10.2		ug/L		102	54 - 156	25	45
trans-1,3-Dichloropropene	ND		10.0	11.0		ug/L		110	17 - 183	4	86
Trichloroethene	ND		10.0	9.48		ug/L		95	70 - 157	3	48
Trichlorofluoromethane	ND		10.0	8.83		ug/L		88	17 - 181	29	84
Vinyl chloride	ND		10.0	9.48		ug/L		95	10 - 251	3	66
Xylenes, Total	ND		20.0	19.6		ug/L		98		2	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589706/4
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/09/20 08:37	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 08:37	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 08:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*60 - 140*		*01/09/20 08:37*	*1*
Dibromofluoromethane (Surr)	*113*		*60 - 140*		*01/09/20 08:37*	*1*
Toluene-d8 (Surr)	*105*		*60 - 140*		*01/09/20 08:37*	*1*

Lab Sample ID: LCS 440-589706/1002
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloroethyl vinyl ether	25.0	17.3		ug/L		69	10 - 252
Acrolein	24.7	19.3		ug/L		78	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*60 - 140*
Dibromofluoromethane (Surr)	*111*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Lab Sample ID: 440-258621-H-1 MS
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloroethyl vinyl ether	ND		10.0	7.02		ug/L		70	10 - 305
Acrolein	ND		9.88	6.38		ug/L		65	40 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*
Dibromofluoromethane (Surr)	*110*		*60 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Lab Sample ID: 440-258621-H-1 MSD
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chloroethyl vinyl ether	ND		10.0	6.57		ug/L		66	10 - 305	7	71
Acrolein	ND		9.88	5.32		ug/L		54	40 - 160	18	60

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*60 - 140*
Dibromofluoromethane (Surr)	*109*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-590734/39
Matrix: Water
Analysis Batch: 590734

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			01/16/20 09:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*65 - 140*		*01/16/20 09:30*	*1*

Lab Sample ID: LCS 440-590734/44
Matrix: Water
Analysis Batch: 590734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	0.800	0.807		mg/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*

Lab Sample ID: 440-258618-1 MS
Matrix: Water
Analysis Batch: 590734

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	ND		0.800	0.793		mg/L		99	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*78*		*65 - 140*

Lab Sample ID: 440-258618-1 MSD
Matrix: Water
Analysis Batch: 590734

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		0.800	0.791		mg/L		99	65 - 140	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 440-589518/1-A
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.50	0.10	mg/L		01/08/20 05:31	01/08/20 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*68*		*45 - 120*	*01/08/20 05:31*	*01/08/20 10:22*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 440-589518/2-A
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589518

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28			1.00	0.799		mg/L		80	40 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*85*		*45 - 120*

Lab Sample ID: 440-258618-1 MS
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA
Prep Batch: 589518

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28	ND		1.06	0.954		mg/L		90	40 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane	*86*		*45 - 120*

Lab Sample ID: 440-258618-1 MSD
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Outfall002_20200107_Grab
Prep Type: Total/NA
Prep Batch: 589518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28	ND		1.11	0.774		mg/L		70	40 - 120	21	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*85*		*45 - 120*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-591054/3
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/17/20 09:45	1

Lab Sample ID: LCS 440-591054/4
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Conductance			1030	997		umhos/cm		97	90 - 110		

Lab Sample ID: 440-258843-B-1 DU
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	61			60.8		umhos/cm				0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-589692/1-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		01/09/20 05:36	01/09/20 08:28	1

Lab Sample ID: LCS 440-589692/2-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589692

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	32.1		mg/L		80	78 - 114		

Lab Sample ID: LCSD 440-589692/3-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589692

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	33.2		mg/L		83	78 - 114	3	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

GC/MS VOA

Analysis Batch: 589543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	624.1	
440-258618-3	TB-20200107	Total/NA	Water	624.1	
MB 440-589543/4	Method Blank	Total/NA	Water	624.1	
LCS 440-589543/1002	Lab Control Sample	Total/NA	Water	624.1	
440-258618-1 MS	Outfall002_20200107_Grab	Total/NA	Water	624.1	
440-258618-1 MSD	Outfall002_20200107_Grab	Total/NA	Water	624.1	

Analysis Batch: 589706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1 - RA	Outfall002_20200107_Grab	Total/NA	Water	624.1	
440-258618-3 - RA	TB-20200107	Total/NA	Water	624.1	
MB 440-589706/4	Method Blank	Total/NA	Water	624.1	
LCS 440-589706/1002	Lab Control Sample	Total/NA	Water	624.1	
440-258621-H-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-258621-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

GC VOA

Analysis Batch: 590734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	8015B	
MB 440-590734/39	Method Blank	Total/NA	Water	8015B	
LCS 440-590734/44	Lab Control Sample	Total/NA	Water	8015B	
440-258618-1 MS	Outfall002_20200107_Grab	Total/NA	Water	8015B	
440-258618-1 MSD	Outfall002_20200107_Grab	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 589518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	3510C	
MB 440-589518/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-589518/2-A	Lab Control Sample	Total/NA	Water	3510C	
440-258618-1 MS	Outfall002_20200107_Grab	Total/NA	Water	3510C	
440-258618-1 MSD	Outfall002_20200107_Grab	Total/NA	Water	3510C	

Analysis Batch: 589563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	8015B	589518
MB 440-589518/1-A	Method Blank	Total/NA	Water	8015B	589518
LCS 440-589518/2-A	Lab Control Sample	Total/NA	Water	8015B	589518
440-258618-1 MS	Outfall002_20200107_Grab	Total/NA	Water	8015B	589518
440-258618-1 MSD	Outfall002_20200107_Grab	Total/NA	Water	8015B	589518

General Chemistry

Analysis Batch: 589489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	SM 2540F	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

General Chemistry

Prep Batch: 589692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	1664A	
MB 440-589692/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-589692/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-589692/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 589730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	1664A	589692
MB 440-589692/1-A	Method Blank	Total/NA	Water	1664A	589692
LCS 440-589692/2-A	Lab Control Sample	Total/NA	Water	1664A	589692
LCSD 440-589692/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	589692

Analysis Batch: 591054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258618-1	Outfall002_20200107_Grab	Total/NA	Water	120.1	
MB 440-591054/3	Method Blank	Total/NA	Water	120.1	
LCS 440-591054/4	Lab Control Sample	Total/NA	Water	120.1	
440-258843-B-1 DU	Duplicate	Total/NA	Water	120.1	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-258618-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258618-1
Project/Site: Annual Outfall 002 Grab

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
624.1		Water	1,1,2-Trichloro-1,2,2-trifluoroethane
624.1		Water	1,2-Dichloro-1,1,2-trifluoroethane
624.1		Water	Cyclohexane
8015B		Water	GRO (C4-C12)

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc

Lab Request:	423536
Report Date:	01/14/2020
Date Received:	01/07/2020
Client ID:	12194

Comments: Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001,002,011,018}
Outfall 002
Grab

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423536-001	Outfall002_20200107_Grab (440-258618-1)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

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Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/07/2020 11:05	**Site:**			
Sample #:	**423536-001**	**Client Sample #:**	Outfall002_20200107_Grab (440-258	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213288		
Coliform, E. Coli	**1100**	1		MPN/100ml	01/07/19 16:30	01/10/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Test America

CHAIN OF CUSTODY FORM

423536.

Client Name/Address:	Project:	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 002 Grab	A: MST-Bacteroidales, Human (SAM348-357) Source Molecular in Miami Lakes, FL A: E. coli (SM9221) R: Settleable Solids (E160.5 (SM2540F)) R: Conductivity (SM2510B / E120.1) R: Oil & Grease (E1664A-HEM) R/Q/A: VOCs + VOCs PP + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624) A: VOCs - only A+A+2CVE (E624) A: TPH: gas (GRO(C4-C12)) (SW8015B) A: TPH: diesel/jet fuel (DRO (C13-C28)) (SW8015B)	Field Readings: (Include units) Time of Readings: 1050 DO 7.84 mg/L pH 7.4 pH unit Temp 52.1 °C/°F TRC 0.05 mg/L Field readings QC Checked by: Date/Time:	

Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Comments
Outfall 002	Outfall002_20200107_Grab	1/7/2020 1105	~~WM~~	~~125mL Sterile Poly~~	~~1~~	~~None~~	~~5~~	~~No~~	~~Deliver to lab ASAP 8 hr hold time~~ RH
			WM	125mL Sterile Poly	3	$Na_2S_2O_3$	10	No	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No	
			WM	40 mL VOA	9	HCl	45	Yes	
			WM	40 mL VOA	9	None	55	Yes	
			WM	40 mL VOA	9	HCl	60	Yes	
			WM	1 L Glass Amber	6	None	65	Yes	
			WM	1 L Poly	1	None	70	No	
			WM	500 mL Poly	1	None	75	No	
	Outfall002_20200107_Grab_Extra	1/7/2020 1105	WM	1 L Glass Amber	2	HCl	15	No	Hold
			WM	40 mL VOA	3	HCl	45	No	Hold
			WM	40 mL VOA	3	None	55	No	Hold
			WM	500 mL Poly	1	None	75	No	Hold
Trip Blanks	TB-20200107	1/7/2020 1105	WQ	40 mL VOA	2	HCl	45	No	
			WQ	40 mL VOA	2	None	55	No	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hahn	01/07/20	H&A		1/7/20
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	1/7/20	1552		1/7/20 1552
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

1/21/2020

2019-2020 Rainy Season
Version 1

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Boeing-SSFL NPDES

Date Received: 1/7/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.4 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☐ Ice ☑ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.8 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/7/20

CHAIN OF CUSTODY FORM

| | | |

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258618-1

Login Number: 258618
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258718-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

9 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258718-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200108_COMP	440-258718-1	Water	1/8/20 10:55 AM	E180.1, E200.7, E200.8, E218.6, E245.1, E300, E314.0, E525.2, E608.3, E625.1, SM2340, SM2540C/D, SM4500-CN-E, SM4500-NH3G, SM5210B, SM5310B, SM5540, SW8260SIM, E8315M
OUTFALL002_20200108_COMP_F	440-258718-2	Water	1/8/20 10:55 AM	E200.7, E200.8, E245.1, SM2340

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-258718-1:

- The laboratory received the samples in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHODS 200.7, 200.8, 245.1 AND SM2340B — METALS, MERCURY AND HARDNESS

M. Hilchey of MEC[X] reviewed the SDG on March 11, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7, 200.8 and 245.1, Standard Methods for the Examination of Water and Wastewater 2340B* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES

The analytical holding times, 28 days for mercury and six months for metals, were met. Sample OUTFALL002_20200108_COMP_F was filtered and preserved 42 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were qualified as estimated (J for detects, UJ for nondetects).

III.2. CALIBRATION

QAPP calibration criteria were met. A blank and two or three standards were used for calibration of ICP-AES target analytes, a blank and four standards were used for calibration of ICP-MS, and a blank and five standards were used for calibration of mercury. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES and mercury, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for all methods.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results.

III.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. Interferents were not present in the samples at concentrations comparable to those of the ICSAs; therefore, interference was not suspected.

III.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

III.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

III.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the samples in this SDG for all methods. Results were not assessed when the parent sample concentration exceeded the spike amount by 4×. Recoveries and RPDs were within the QAPP control limits of 70-130% and ≤20%.

The laboratory did not perform post-digestion spike analyses.

III.4. SERIAL DILUTION

No serial dilution analyses were performed on a sample in this SDG.

III.5. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified, and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

III.6. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.6.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.6.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

IV. EPA METHOD 525.2 — CHLORPYRIFOS AND DIAZINON

L. Calvin of MEC^X reviewed the SDG on March 9, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 525.2* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

IV.1. HOLDING TIMES

The extraction holding time of 24-hours from collection for diazinon was not met. The water sample was extracted approximately 23 hours past the holding time. The nondetect sample result for diazinon was qualified as estimated (UJ). The sample was analyzed within 30 days of extraction.

IV.2. GC/MS TUNING AND CALIBRATION

As the analyses were acquired in SIM mode, tuning was not applicable.

Calibration criteria were met. The initial calibration average RRFs were ≥0.05 and %RSDs ≤30% or r^2 ≥0.990. The continuing calibration RRFs were ≥0.05 and recoveries were within the method control limits of 70-130%.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank.

IV.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries were above the laboratory control limits of 37-169% for chlorpyrifos (170%, 208%) and above the control limits of 43-152% for diazinon in the LCSD (153%). As neither compound was detected in the associated sample, no qualification was necessary. RPDs were within the control limit of ≤30%.

IV.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits of 76-128% for 1,3-dimethyl-2-nitrobenzene and 40-163% for triphenyl phosphate.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG. Method accuracy and precision were evaluated based upon LCS/LCSD results.

IV.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

IV.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within ±30% of the most recent CCV internal standard areas.

IV.6. COMPOUND IDENTIFICATION

Compound identification was verified at Level IV. The laboratory analyzed for chlorpyrifos and diazinon by Method 525.2. The requested target compounds were not detected above the MDL in the sample.

IV.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified at Level IV. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit. The sample did not require dilution.

IV.8. SYSTEM PERFORMANCE

Evaluation indicated no issues with system performance.

V. EPA METHOD 608.3 –PESTICIDES AND PCBS

E. Wessling of MEC[X] reviewed the SDG on March 9, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608.3* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

V.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

V.2. CALIBRATION

The initial calibration %RSDs were ≤15% or r^2 ≥0.990. The initial calibration verification (ICV) recoveries were within the control limit of ±20%, and continuing calibration verification (CCV) %Ds met method criteria.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blanks had no detects for pesticides and no detects for pesticides or Aroclors.

V.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries and RPDs were within the respective laboratory control limits for pesticides and PCBs. Toxaphene and chlordane were not spiked into the pesticide LCS/LCSD samples.

V.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) was recovered within the laboratory control limits of 10-104% in the site sample and PCB surrogate decachlorobiphenyl (DCB) was recovered within the laboratory control limits of 18-134%.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG with acceptable recoveries and RPD for pesticides and PCBs. Toxaphene and chlordane were not spiked into the pesticide MS/MSD samples.

V.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

V.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

V.5. Compound Identification

Compound identification was verified. Review of the sample chromatograms and retention times indicated no issues with target compound identification. The laboratory analyzed for seven Aroclors and 18 pesticide target compounds by Method 608.3.

V.6. Compound Quantification and Reported Detection Limits

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Pesticides and PCB Aroclors were not detected in the sample. Reported nondetects are valid to the reporting limit.

The laboratory's extraction bench sheet for PCBs indicated the sample extract was cloudy with an emulsion.

VI. EPA METHOD 314.0 — Perchlorate

M. Hilchey of MEC^X reviewed the SDG on March 11, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 314.0,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

VI.1. Holding Times

The analytical holding time, 28 days, was met.

VI.2. Calibration

Calibration criteria were met. The initial calibration r^2 value was ≥0.995. The initial calibration recovery was within QAPP control limits of 75-125% and the continuing calibration recoveries were within QAPP control limits of 85-115%. The MRL was recovered within the QAPP control limits of 70-130%. Interference check sample recovery was within the QAPP control limits of 80-120%.

VI.3. Quality Control Samples

VI.3.1. *Method Blanks*

Method blanks and calibration blanks had no detects.

VI.3.2. *Laboratory Control Samples*

The recovery was within the QAPP control limits of 85-115%.

VI.3.3. *Laboratory Duplicates*

Laboratory duplicate analyses were not performed on the sample from this SDG.

VI.3.4. *Matrix Spike/Matrix Spike Duplicate*

Matrix spike/matrix spike duplicate analyses were performed on sample the sample in this SDG. Recoveries and the RPD met QAPP control limits of 80-120% and ≤15%, respectively.

VI.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

VI.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VI.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VI.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VII. EPA METHOD 625.1 — SEMIVOLATILE ORGANIC COMPOUNDS (SVOCS)

K. Zilis of MEC^X reviewed the SDG on March 10, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 625.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VII.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within seven days of collection and analyzed within 30 days of extraction.

VII.2. GC/MS TUNING AND CALIBRATION

The DFTPP tunes met the method abundance criteria. Samples were analyzed within 12 hours of the DFTPP injection time.

Calibration criteria were met. Initial calibration average relative response factors (RRFs) were within the method control limits, and the %RSDs were $\leq$35% or r^2 values $\geq$0.990. For applicable target compound pentachlorophenol, ICV and CCV RRFs were within the method control limits. ICV recoveries and CCV %Ds were within method control limits.

VII.3. QUALITY CONTROL SAMPLES

VII.3.1. *METHOD BLANKS*

The target compound was not detected in the method blank.

VII.3.2. *LABORATORY CONTROL SAMPLES*

LCS recovery was within the laboratory control limits with the exception of hexachlorocyclopentadiene with a recovery of 54% with limits of 60-140%. The nondetect result for this compound was qualified as estimated

(UJ). Benzidine was not recovered at a concentration above the MDL. Raw data confirmed a detection at 9% recovery, above the laboratory QC limit of 5%. Benzidine in the site sample was rejected (flagged R) for the recovery less than 10%. No further qualifiers were applied.

VII.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within laboratory control limits.

VII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG. Compounds benzidine and 3,3'-dichlorobenzidine were not recovered in the matrix spikes, with 0% recovery in the MS and MSD. Data for these two compounds have been rejected (R). The recovery of hexachlorocyclopentadiene was below the QC limits of 60-140% in the MS/MSD (51%/44%). The data for this compound has been qualified as estimated (UJ).

VII.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

VII.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

Field blank or equipment blank samples were not identified for this SDG.

VII.4.2. *FIELD DUPLICATES:*

Field duplicate samples were not identified in this SDG.

VII.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the midpoint of the initial calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

VII.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed 57 compounds by EPA Method 625.1. Review of the sample chromatogram, retention times, and spectra indicated no issues with target compound identification.

VII.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. The result reported below the RL was qualified as estimated (J) and coded with DNQ to comply with the NPDES permit reporting requirements. The sample did not require dilution.

VII.8. TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

The laboratory did not report TICs for this SDG.

VII.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

VIII. EPA METHOD 8260B SIM—1,4-DIOXANE

K. Zilis of MEC^X reviewed the SDG on March 10, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 8260B*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VIII.1. HOLDING TIMES

Analytical holding times were met. The preserved water sample was analyzed within 14 days of collection.

VIII.2. GC/MS TUNING AND CALIBRATION

The BFB tunes met the method abundance criteria. The sample was analyzed within 12 hours of the BFB injection time.

Calibration criteria were met. The initial calibration average RRF and the ICV and continuing calibration RRFs were ≥0.05 for 1,4-dioxane. The initial calibration %RSD was ≤15%. The second source ICV and CCV %Ds were within the control limit of ≤20%.

VIII.3. QUALITY CONTROL SAMPLES

VIII.3.1. *METHOD BLANKS*

Target compound 1,4-dioxane was not detected in the method blank.

VIII.3.2. *LABORATORY CONTROL SAMPLES*

The recovery was within the laboratory control limits.

VIII.3.3. *SURROGATE RECOVERY*

Recoveries were within the laboratory control limits.

VIII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG. Recoveries and RPDs were within QC criteria.

VIII.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

VIII.4.1. *TRIP BLANKS*

A trip blank was not identified for this SDG.

VIII.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VIII.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VIII.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the continuing calibration standard: ±30 seconds for retention times and -50%/+100% for internal standard areas.

VIII.6. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatogram, retention times, and spectra indicated no issues with target compound identification.

VIII.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. The reported nondetect is valid to the reporting limit.

VIII.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

VIII.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

IX. EPA 8315M — MONOMETHYL HYDRAZINE

E. Wessling of MEC^X reviewed the SDG on March 12, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Polynuclear Aromatic Hydrocarbons by HPLC (DVP-15, Rev. 0), EPA Method 8315A* and the *National Functional Guidelines for Organic Superfund Data Review* (2017).

IX.1. HOLDING TIMES

The water sample was prepared twenty days past the three days holding time. The nonddetect result for sample OUTFALL002_20200108_COMP was rejected (flagged R) for this gross holding time exceedance.

IX.2. CALIBRATION

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.3. QUALITY CONTROL SAMPLES

IX.3.1. *METHOD BLANKS*

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.3.2. *LABORATORY CONTROL SAMPLES*

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.3.3. *LABORATORY DUPLICATES*

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.4. SAMPLE RESULT VERIFICATION

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

IX.5. FIELD QC SAMPLES

As the sample result for Outfall002_20200108_Comp was previously rejected (see Holding Times section) further evaluation was not performed.

X. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 180.1, 218.6, and 300.0, Standard Methods for the Examination of Water and Wastewater 2540C, 2540D, 4500-NH3-G and 4500-CN-E , 5210B, 5310B, 5540C* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

X.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 48 hours from collection for nitrate as N and nitrite as N (300.0); biological oxygen demand (5310B); turbidity (180.1); MBAS (5540C)
- 7 days for total dissolved solids (2540C); total suspended solids (2540D)
- 28 days for ammonia (4500-NH3-G); chloride, fluoride and sulfate (300.0); total organic carbon (5210B)
- 14 days for total cyanide (4500-CN-E)

- 24 hours from collection for hexavalent chromium (218.6)

X.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values, as appropriate, were ≥0.995 and all initial calibration verification recoveries were within 95-105% for anions and 90-110% for the remaining analyses, as appropriate. All continuing calibration verification recoveries were within 90-110% for all appropriate analyses. The MRL recoveries for ammonia, MBAS and hexavalent chromium were within the laboratory control limits of 50-150%. Instrument calibration information for BOD was not provided.

X.3. QUALITY CONTROL SAMPLES

X.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detections.

X.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits.

X.3.3. *LABORATORY DUPLICATES*

L Laboratory duplicate analysis was performed on the sample in this SDG for Method 2540C. The RPD met the laboratory acceptance limit. Laboratory duplicate analyses were not performed on the sample in this SDG for the remaining methods.

X.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for Methods 314.0, 4500-CN-E, 4500-NH3G, 5540C, 300.0, 218.6 and 5310B. Recoveries and RPDs met laboratory acceptance limits. MS/MSD analyses were not performed on the sample in this SDG for the remaining methods.

X.4. SAMPLE RESULT VERIFICATION

Calculations were verified, and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Reported nondetects are valid to the MDL.

The sample in this SDG was diluted 5× for Method 300.0. The reported results from the undiluted analysis for chloride, fluoride, nitrate, nitrite and nitrite/nitrate were accepted and reviewed. The reported results from the diluted analysis for chloride, fluoride, nitrate and nitrite were rejected (qualified R) and not reviewed. The raw result from the undiluted analysis for sulfate exceeded the calibration range and was not reported. The reported result from the diluted analysis for sulfate was accepted and reviewed.

X.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

X.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

X.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402587181

Analysis Method E180.1

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Turbidity	N	TURBIDITY	3.1	0.10	0.040	NTU			

Analysis Method E200.7

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	T	7440-38-2	ND	10	8.9	ug/L	U	U	
Barium	T	7440-39-3	0.024	0.010	0.0050	mg/L			
Beryllium	T	7440-41-7	ND	2.0	1.0	ug/L	U	U	
Boron	T	7440-42-8	0.056	0.050	0.025	mg/L			
Chromium	T	7440-47-3	ND	5.0	2.5	ug/L	U	U	
Cobalt	T	7440-48-4	ND	10	5.0	ug/L	U	U	
Iron	T	7439-89-6	0.082	0.10	0.050	mg/L	J,DX	J	DNQ
Manganese	T	7439-96-5	15	20	15	ug/L	J,DX	J	DNQ
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Vanadium	T	7440-62-2	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL002_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	D	7440-38-2	ND	10	8.9	ug/L	U	UJ	H
Barium	D	7440-39-3	0.028	0.010	0.0050	mg/L		J	H
Beryllium	D	7440-41-7	ND	2.0	1.0	ug/L	U	UJ	H
Boron	D	7440-42-8	0.051	0.050	0.025	mg/L		J	H
Chromium	D	7440-47-3	ND	5.0	2.5	ug/L	U	UJ	H
Cobalt	D	7440-48-4	ND	10	5.0	ug/L	U	UJ	H
Iron	D	7439-89-6	ND	0.10	0.050	mg/L	U	UJ	H
Manganese	D	7439-96-5	ND	20	15	ug/L	U	UJ	H
Nickel	D	7440-02-0	ND	10	5.0	ug/L	U	UJ	H
Vanadium	D	7440-62-2	ND	10	5.0	ug/L	U	UJ	H
Zinc	D	7440-66-6	ND	20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	ND	2.0	0.50	ug/L	U	U	
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	1.7	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	T	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U	
Silver	T	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	T	7440-28-0	ND	1.0	0.20	ug/L	U	U	

Sample Name OUTFALL002_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	ND	2.0	0.50	ug/L	U	UJ	H
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8	1.3	2.0	0.50	ug/L	J,DX	J	H, DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	H
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	UJ	H
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	H
Thallium	D	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	H

Analysis Method E218.6

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chromium VI (Hexavalent)	T	18540-29-9	ND	1.0	0.25	ug/L	U	U	

Analysis Method E245.1

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	ND	0.20	0.10	ug/L	U	U	

Analysis Method E245.1

Sample Name OUTFALL002_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6	ND	0.20	0.10	ug/L	U	UJ	H

Analysis Method E300

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	9.6	0.50	0.25	mg/L			
Chloride	N	16887-00-6	9.0	2.5	1.3	mg/L		R	D
Fluoride	N	16984-48-8	ND	2.5	1.3	mg/L	U	R	D
Fluoride	N	16984-48-8	ND	0.50	0.25	mg/L	U	U	
Nitrate (as N)	N	14797-55-8	1.3	0.55	0.28	mg/L		R	D
Nitrate (as N)	N	14797-55-8	1.3	0.11	0.055	mg/L			
Nitrite (as N)	N	14797-65-0	ND	0.75	0.13	mg/L	U	R	D
Nitrite (as N)	N	14797-65-0	0.035	0.15	0.025	mg/L	J,DX	J	DNQ
Nitrite/Nitrate	N	NO2NO3	1.3	0.15	0.055	mg/L			
Sulfate	N	14808-79-8	160	2.5	1.3	mg/L			

Analysis Method E314.0

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Perchlorate	N	14797-73-0	ND	4.0	0.95	ug/L	U	U	

Analysis Method E525.2M

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chlorpyrifos	N	2921-88-2	ND	10	6.9	ng/L	U	U	
Diazinon	N	333-41-5	ND	10	5.2	ng/L	U	UJ	H

Analysis Method E608.3

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8	ND	0.0052	0.0042	ug/L	U	U	
4,4'-DDE	N	72-55-9	ND	0.0052	0.0031	ug/L	U	U	
4,4'-DDT	N	50-29-3	ND	0.010	0.0042	ug/L	U	U	
Aldrin	N	309-00-2	ND	0.0052	0.0016	ug/L	U	U	
alpha-BHC	N	319-84-6	ND	0.0052	0.0026	ug/L	U	U	
Aroclor-1016 (PCB-1016)	N	12674-11-2	ND	0.52	0.26	ug/L	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2	ND	0.52	0.26	ug/L	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5	ND	0.52	0.26	ug/L	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9	ND	0.52	0.26	ug/L	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6	ND	0.52	0.26	ug/L	U	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1	ND	0.52	0.26	ug/L	U	U	
Aroclor-1260 (PCB-1260)	N	11096-82-5	ND	0.52	0.26	ug/L	U	U	
beta-BHC	N	319-85-7	ND	0.010	0.0042	ug/L	U	U	
Chlordane	N	57-74-9	ND	0.10	0.084	ug/L	U	U	
delta-BHC	N	319-86-8	ND	0.0052	0.0037	ug/L	U	U	
Dieldrin	N	60-57-1	ND	0.0052	0.0021	ug/L	U	U	
Endosulfan I	N	959-98-8	ND	0.0052	0.0031	ug/L	U	U	
Endosulfan II	N	33213-65-9	ND	0.0052	0.0021	ug/L	U	U	
Endosulfan sulfate	N	1031-07-8	ND	0.010	0.0031	ug/L	U	U	
Endrin	N	72-20-8	ND	0.0052	0.0021	ug/L	U	U	
Endrin aldehyde	N	7421-93-4	ND	0.010	0.0021	ug/L	U	U	
gamma-BHC (Lindane)	N	58-89-9	ND	0.010	0.0031	ug/L	U	U	
Heptachlor	N	76-44-8	ND	0.0094	0.0031	ug/L	U	U	
Heptachlor epoxide	N	1024-57-3	ND	0.0052	0.0026	ug/L	U	U	
Toxaphene	N	8001-35-2	ND	0.52	0.25	ug/L	U	U	

Analysis Method E625.1

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,4-Trichlorobenzene	N	120-82-1	ND	1.1	0.21	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.53	0.21	ug/L	U	U	
1,2-Diphenylhydrazine	N	122-66-7	ND	1.1	0.21	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.53	0.21	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	ND	0.53	0.21	ug/L	U	U	
2,2'-oxybis(1-Chloropropane)	N	108-60-1	ND	0.53	0.11	ug/L	U	U	

Analysis Method E625.1

2,4,6-Trichlorophenol	N	88-06-2	ND	1.1	0.11	ug/L	U	U	
2,4-Dichlorophenol	N	120-83-2	ND	2.1	0.21	ug/L	U	U	
2,4-Dimethylphenol	N	105-67-9	ND	2.1	0.53	ug/L	U	U	
2,4-Dinitrophenol	N	51-28-5	ND	5.3	1.1	ug/L	U	U	
2,4-Dinitrotoluene	N	121-14-2	ND	5.3	2.1	ug/L	U	U	
2,6-Dinitrotoluene	N	606-20-2	ND	5.3	2.1	ug/L	U	U	
2-Chloronaphthalene	N	91-58-7	ND	0.53	0.11	ug/L	U	U	
2-Chlorophenol	N	95-57-8	ND	1.1	0.11	ug/L	U	U	
2-Nitrophenol	N	88-75-5	ND	2.1	0.21	ug/L	U	U	
3,3'-Dichlorobenzidine	N	91-94-1	ND	5.3	1.1	ug/L	U	R	Q
4,6-Dinitro-2-methylphenol	N	534-52-1	ND	5.3	1.1	ug/L	U	U	
4-Bromophenyl phenyl ether	N	101-55-3	ND	1.1	0.11	ug/L	U	U	
4-Chloro-3-methylphenol	N	59-50-7	ND	2.1	0.21	ug/L	U	U	
4-Chlorophenyl phenyl ether	N	7005-72-3	ND	0.53	0.11	ug/L	U	U	
4-Nitrophenol	N	100-02-7	ND	5.3	2.1	ug/L	U	U	
Acenaphthene	N	83-32-9	ND	0.53	0.11	ug/L	U	U	
Acenaphthylene	N	208-96-8	ND	0.53	0.11	ug/L	U	U	
Anthracene	N	120-12-7	ND	0.53	0.11	ug/L	U	U	
Benzidine	N	92-87-5	ND	11	5.3	ug/L	U	R	L, Q
Benzo(a)anthracene	N	56-55-3	ND	5.3	1.1	ug/L	U	U	
Benzo(a)pyrene	N	50-32-8	ND	2.1	0.21	ug/L	U	U	
Benzo(b)fluoranthene	N	205-99-2	ND	2.1	0.32	ug/L	U	U	
Benzo(g,h,i)perylene	N	191-24-2	ND	5.3	1.1	ug/L	U	U	
Benzo(k)fluoranthene	N	207-08-9	ND	0.53	0.11	ug/L	U	U	
bis(2-Chloroethoxy)methane	N	111-91-1	ND	0.53	0.21	ug/L	U	U	
bis(2-Chloroethyl)ether	N	111-44-4	ND	0.53	0.053	ug/L	U	U	
bis(2-Ethylhexyl)phthalate	N	117-81-7	ND	5.3	2.1	ug/L	U	U	
Butyl benzylphthalate	N	85-68-7	ND	5.3	2.1	ug/L	U	U	
Chrysene	N	218-01-9	ND	0.53	0.11	ug/L	U	U	
Dibenz(a,h)anthracene	N	53-70-3	ND	0.53	0.21	ug/L	U	U	
Diethyl phthalate	N	84-66-2	ND	1.1	0.21	ug/L	U	U	
Dimethyl phthalate	N	131-11-3	ND	0.53	0.11	ug/L	U	U	
Di-n-butylphthalate	N	84-74-2	ND	2.1	0.53	ug/L	U	U	
Di-n-octyl phthalate	N	117-84-0	ND	5.3	1.1	ug/L	U	U	
Fluoranthene	N	206-44-0	ND	0.53	0.11	ug/L	U	U	
Fluorene	N	86-73-7	ND	0.53	0.11	ug/L	U	U	
Hexachlorobenzene	N	118-74-1	ND	1.1	0.11	ug/L	U	U	
Hexachlorobutadiene	N	87-68-3	ND	2.1	0.53	ug/L	U	U	
Hexachlorocyclopentadiene	N	77-47-4	ND	5.3	2.1	ug/L	ULR	UJ	L, Q
Hexachloroethane	N	67-72-1	ND	3.2	0.53	ug/L	U	U	
Indeno(1,2,3-cd)pyrene	N	193-39-5	ND	2.1	0.43	ug/L	U	U	
Isophorone	N	78-59-1	ND	1.1	0.21	ug/L	U	U	
Naphthalene	N	91-20-3	ND	1.1	0.053	ug/L	U	U	

Analysis Method E625.1

Nitrobenzene	N	98-95-3	ND	1.1	0.21	ug/L	U	U	
N-Nitrosodimethylamine	N	62-75-9	ND	2.1	0.32	ug/L	U	U	
N-Nitrosodi-n-propylamine	N	621-64-7	ND	2.1	0.21	ug/L	U	U	
N-Nitrosodiphenylamine	N	86-30-6	ND	1.1	0.21	ug/L	U	U	
Pentachlorophenol	N	87-86-5	1.3	2.1	1.1	ug/L	J,DX	J	DNQ
Phenanthrene	N	85-01-8	ND	0.53	0.11	ug/L	U	U	
Phenol	N	108-95-2	ND	1.1	0.11	ug/L	U	U	
Pyrene	N	129-00-0	ND	0.53	0.11	ug/L	U	U	

Analysis Method E8315M

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:**

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Monomethylhydrazine			ND	2.0		ug/L	U	R	H

Analysis Method EPA-821-R-02-013

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Selenastrum	N	CHRTOXSELENA	-80			% SURV			

Analysis Method SM2340

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	T	HARDNESSCACO3	140	0.33	0.17	mg/L			

Sample Name OUTFALL002_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	D	HARDNESSCACO3	140	0.33	0.17	mg/L		J	H

Analysis Method SM2540C

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	340	10	5.0	mg/L			

Analysis Method SM2540D

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	6.8	1.3	0.67	mg/L			

Analysis Method SM4500-CN-E

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cyanide	N	57-12-5	ND	5.0	2.5	ug/L	U	U	

Analysis Method SM4500-NH3G

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N	0.134	0.200	0.100	mg/L	J,DX	J	DNQ

Analysis Method SM5210B

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Biochemical Oxygen Demand	N	BOD	ND	2.0	2.0	mg/L	U	U	

Analysis Method SM5310B

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Organic Carbon (TOC)	N	TOC	5.2	1.0	0.65	mg/L			

Analysis Method SM5540

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Surfactants as MBAS	N	SURFASMBAS	0.073	0.10	0.050	mg/L	J,DX	J	DNQ

Analysis Method SW8260SIM

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,4-Dioxane	N	123-91-1	ND	2.0	0.50	ug/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258718-1
Client Project/Site: Annual Outfall 002 Comp
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
2/27/2020 12:52:20 PM
Tiffany Rivera, Project Management Assistant I
tiffany.rivera@testamericainc.com

Designee for

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Tiffany Rivera
Project Management Assistant I
2/27/2020 12:52:20 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258718-1	Outfall002_20200108_Comp	Water	01/08/20 10:55	01/08/20 17:05	
440-258718-2	Outfall002_20200108_Comp_F	Water	01/08/20 10:55	01/08/20 17:05	

Job ID: 440-258718-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258718-1

Comments
Report is being revised to exclude the following analytes: 1,1-dimethylhydrazine and Hydrazine.

Receipt
The samples were received on 1/8/2020 5:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3º C, 0.4º C, 0.5º C, 0.8º C, 1.3º C, 2.6º C and 3.3º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method 625.1: The laboratory control sample and the laboratory control sample duplicate (LCS/LCSD) for preparation batch 440-589710 and analytical batch 440-590150 recovered outside below control limits for the following analyte: Hexachlorocyclopentadiene. This analyte has been identified as poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. The reported results may be biased low for these analytes.

Method 625.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-589710 and analytical batch 440-590150 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20200108_Comp_F (440-258718-2), Outfall002_20200108_Comp_F (440-258718-2[MS]) and Outfall002_20200108_Comp_F (440-258718-2[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Client Sample ID: Outfall002_20200108_Comp
Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1
Matrix: Water

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			01/09/20 12:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*01/09/20 12:36*	*1*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Acenaphthylene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Anthracene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzidine	ND		11	5.3	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzo[a]anthracene	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzo[b]fluoranthene	ND		2.1	0.32	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzo[k]fluoranthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzo[a]pyrene	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Bis(2-chloroethoxy)methane	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Bis(2-chloroethyl)ether	ND		0.53	0.053	ug/L		01/09/20 06:35	01/13/20 12:26	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
4-Bromophenyl phenyl ether	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Butyl benzyl phthalate	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
4-Chloro-3-methylphenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
2-Chloronaphthalene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
2-Chlorophenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
4-Chlorophenyl phenyl ether	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Chrysene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Dibenz(a,h)anthracene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Di-n-butyl phthalate	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 12:26	1
1,2-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
1,3-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
1,4-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
3,3'-Dichlorobenzidine	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,4-Dichlorophenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Diethyl phthalate	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,4-Dimethylphenol	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 12:26	1
Dimethyl phthalate	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
4,6-Dinitro-2-methylphenol	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,4-Dinitrophenol	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,6-Dinitrotoluene	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
Di-n-octyl phthalate	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Fluoranthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Fluorene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Hexachlorobenzene	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Hexachlorobutadiene	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 12:26	1
Hexachloroethane	ND		3.2	0.53	ug/L		01/09/20 06:35	01/13/20 12:26	1
Hexachlorocyclopentadiene	ND	LR	5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.43	ug/L		01/09/20 06:35	01/13/20 12:26	1
Isophorone	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.1	0.053	ug/L		01/09/20 06:35	01/13/20 12:26	1
Nitrobenzene	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
2-Nitrophenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
4-Nitrophenol	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
N-Nitrosodimethylamine	ND		2.1	0.32	ug/L		01/09/20 06:35	01/13/20 12:26	1
N-Nitrosodiphenylamine	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
N-Nitrosodi-n-propylamine	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
Pentachlorophenol	**1.3**	**J,DX**	2.1	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
Phenanthrene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Phenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Pyrene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
1,2,4-Trichlorobenzene	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 12:26	1
2,4,6-Trichlorophenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1
Benzo[g,h,i]perylene	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 12:26	1
bis (2-chloroisopropyl) ether	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 12:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*93*		*60 - 140*	*01/09/20 06:35*	*01/13/20 12:26*	*1*
2-Fluorophenol	*85*		*60 - 140*	*01/09/20 06:35*	*01/13/20 12:26*	*1*
2,4,6-Tribromophenol	*95*		*60 - 140*	*01/09/20 06:35*	*01/13/20 12:26*	*1*
Nitrobenzene-d5	*92*		*15 - 314*	*01/09/20 06:35*	*01/13/20 12:26*	*1*
Terphenyl-d14	*98*		*60 - 140*	*01/09/20 06:35*	*01/13/20 12:26*	*1*
Phenol-d5	*85*		*8 - 424*	*01/09/20 06:35*	*01/13/20 12:26*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0052	0.0016	ug/L		01/09/20 05:38	01/09/20 14:22	1
alpha-BHC	ND		0.0052	0.0026	ug/L		01/09/20 05:38	01/09/20 14:22	1
beta-BHC	ND		0.010	0.0042	ug/L		01/09/20 05:38	01/09/20 14:22	1
delta-BHC	ND		0.0052	0.0037	ug/L		01/09/20 05:38	01/09/20 14:22	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		01/09/20 05:38	01/09/20 14:22	1
Chlordane (technical)	ND		0.10	0.084	ug/L		01/09/20 05:38	01/09/20 14:22	1
4,4'-DDD	ND		0.0052	0.0042	ug/L		01/09/20 05:38	01/09/20 14:22	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		01/09/20 05:38	01/09/20 14:22	1
4,4'-DDT	ND		0.010	0.0042	ug/L		01/09/20 05:38	01/09/20 14:22	1
Dieldrin	ND		0.0052	0.0021	ug/L		01/09/20 05:38	01/09/20 14:22	1
Endosulfan I	ND		0.0052	0.0031	ug/L		01/09/20 05:38	01/09/20 14:22	1
Endosulfan II	ND		0.0052	0.0021	ug/L		01/09/20 05:38	01/09/20 14:22	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		01/09/20 05:38	01/09/20 14:22	1
Endrin	ND		0.0052	0.0021	ug/L		01/09/20 05:38	01/09/20 14:22	1
Endrin aldehyde	ND		0.010	0.0021	ug/L		01/09/20 05:38	01/09/20 14:22	1
Heptachlor	ND		0.0094	0.0031	ug/L		01/09/20 05:38	01/09/20 14:22	1
Heptachlor epoxide	ND		0.0052	0.0026	ug/L		01/09/20 05:38	01/09/20 14:22	1
Toxaphene	ND		0.52	0.25	ug/L		01/09/20 05:38	01/09/20 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*49*		*10 - 104*	*01/09/20 05:38*	*01/09/20 14:22*	*1*

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1221	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1232	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1242	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1248	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1254	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1
Aroclor 1260	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*85*		*18 - 134*	*01/09/20 05:38*	*01/09/20 12:29*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			01/08/20 22:32	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.6**		0.50	0.25	mg/L			01/08/20 23:50	1
Nitrate as N	**1.3**		0.11	0.055	mg/L			01/08/20 23:50	1
Fluoride	ND		0.50	0.25	mg/L			01/08/20 23:50	1
Nitrite as N	**0.035**	**J,DX**	0.15	0.025	mg/L			01/08/20 23:50	1

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**160**		2.5	1.3	mg/L			01/09/20 00:05	5

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/16/20 12:20	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**1.3**		0.15	0.055	mg/L			01/20/20 10:28	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/09/20 09:22	01/09/20 16:51	1
Boron	**0.056**		0.050	0.025	mg/L		01/09/20 09:22	01/09/20 16:51	1
Barium	**0.024**		0.010	0.0050	mg/L		01/09/20 09:22	01/09/20 16:51	1
Beryllium	ND		2.0	1.0	ug/L		01/09/20 09:22	01/09/20 16:51	1
Cobalt	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:51	1
Chromium	ND		5.0	2.5	ug/L		01/09/20 09:22	01/09/20 16:51	1
Iron	**0.082**	**J,DX**	0.10	0.050	mg/L		01/09/20 09:22	01/09/20 16:51	1
Manganese	**15**	**J,DX**	20	15	ug/L		01/09/20 09:22	01/09/20 16:51	1
Nickel	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:51	1
Vanadium	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:51	1
Zinc	ND		20	12	ug/L		01/09/20 09:22	01/09/20 16:51	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 14:58	1

Client Sample ID: Outfall002_20200108_Comp

Lab Sample ID: 440-258718-1
Matrix: Water
Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Method: 200.8 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/10/20 07:49	01/10/20 14:58	1
Copper	**1.7**	**J,DX**	2.0	0.50	ug/L		01/10/20 07:49	01/10/20 14:58	1
Lead	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 14:58	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 14:58	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 14:58	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 07:49	01/10/20 14:58	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/09/20 13:42	01/09/20 19:59	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**140**		0.33	0.17	mg/L			01/13/20 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**3.1**		0.10	0.040	NTU			01/09/20 17:11	1
Total Dissolved Solids	**340**		10	5.0	mg/L			01/15/20 09:54	1
Total Suspended Solids	**6.8**		1.3	0.67	mg/L			01/09/20 14:56	1
Cyanide, Total	ND		5.0	2.5	ug/L		01/13/20 09:51	01/13/20 14:46	1
Ammonia (as N)	**0.134**	**J,DX**	0.200	0.100	mg/L			01/10/20 14:30	1
Total Organic Carbon	**5.2**		1.0	0.65	mg/L			01/09/20 06:25	1
Methylene Blue Active Substances	**0.073**	**J,DX**	0.10	0.050	mg/L			01/09/20 16:10	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/09/20 16:16	1

Client Sample ID: Outfall002_20200108_Comp_F

Lab Sample ID: 440-258718-2
Matrix: Water
Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/10/20 08:40	01/10/20 15:54	1
Boron	**0.051**		0.050	0.025	mg/L		01/10/20 08:40	01/10/20 15:54	1
Barium	**0.028**		0.010	0.0050	mg/L		01/10/20 08:40	01/10/20 15:54	1
Beryllium	ND		2.0	1.0	ug/L		01/10/20 08:40	01/10/20 15:54	1
Cobalt	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:54	1
Chromium	ND		5.0	2.5	ug/L		01/10/20 08:40	01/10/20 15:54	1
Iron	ND		0.10	0.050	mg/L		01/10/20 08:40	01/10/20 15:54	1
Manganese	ND		20	15	ug/L		01/10/20 08:40	01/10/20 15:54	1
Nickel	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:54	1
Vanadium	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:54	1
Zinc	ND		20	12	ug/L		01/10/20 08:40	01/10/20 15:54	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:45	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 08:45	01/10/20 14:45	1
Copper	**1.3**	**J,DX**	2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:45	1
Lead	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:45	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Client Sample ID: Outfall002_20200108_Comp_F
Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-2
Matrix: Water

Method: 200.8 - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:45	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:45	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 08:45	01/10/20 14:45	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/15/20 11:35	01/16/20 11:05	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**140**		0.33	0.17	mg/L			01/14/20 16:57	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Method	Method Description	Protocol	Laboratory
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
Subcontract	Weck- 525.2	None	Weck Lab
Subcontract	Weck-Hydrazine	None	Weck Lab
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	10 mL	10 mL	589748	01/09/20 12:36	TCN	TAL IRV
Total/NA	Prep	625			940 mL	2.0 mL	589710	01/09/20 06:35	NAM	TAL IRV
Total/NA	Analysis	625.1		1			590150	01/13/20 12:26	YCL	TAL IRV
Total/NA	Prep	608			955 mL	2 mL	589694	01/09/20 05:38	SAL	TAL IRV
Total/NA	Analysis	608.3		1			589779	01/09/20 14:22	D1D	TAL IRV
Total/NA	Prep	608			955 mL	2 mL	589694	01/09/20 05:38	SAL	TAL IRV
Total/NA	Analysis	608.3		1			589734	01/09/20 12:29	JM	TAL IRV
Total/NA	Analysis	218.6		1			589525	01/08/20 22:32	MN	TAL IRV
Total/NA	Analysis	300.0		1			589571	01/08/20 23:50	NTN	TAL IRV
Total/NA	Analysis	300.0		1			589572	01/08/20 23:50	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			589571	01/09/20 00:05	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			589572	01/09/20 00:05	NTN	TAL IRV
Total/NA	Analysis	314.0		1			590842	01/16/20 12:20	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			591362	01/20/20 10:28	NN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	589749	01/09/20 09:22	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			589862	01/09/20 16:51	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	589913	01/10/20 07:49	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			590047	01/10/20 14:58	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	589812	01/09/20 13:42	MEM	TAL IRV
Total/NA	Analysis	245.1		1			589909	01/09/20 19:59	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			589169	01/13/20 16:58	P1R	TAL IRV
Total/NA	Analysis	180.1		1			589846	01/09/20 17:11	ST	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	590629	01/15/20 09:54	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	750 mL	1000 mL	589829	01/09/20 14:56	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	590193	01/13/20 09:51	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			590274	01/13/20 14:46	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	590017	01/10/20 14:30	KMY	TAL IRV
Total/NA	Analysis	SM 5310B		1	100 mL	100 mL	589875	01/09/20 06:25	YZ	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	589838	01/09/20 16:10	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	589840	01/09/20 16:16	MMP	TAL IRV

Client Sample ID: Outfall002_20200108_Comp_F

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	589806	01/10/20 06:00	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	589923	01/10/20 08:40	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			590038	01/10/20 15:54	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	589806	01/10/20 06:00	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	589925	01/10/20 08:45	M1G	TAL IRV
Dissolved	Analysis	200.8		1			590021	01/10/20 14:45	MQP	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Client Sample ID: Outfall002_20200108_Comp_F

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			100 mL	100 mL	589977	01/10/20 11:30	EP	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	590663	01/15/20 11:35	MEM	TAL IRV
Dissolved	Analysis	245.1		1			590948	01/16/20 11:05	MEM	TAL IRV
Dissolved	Analysis	SM 2340B		1			589844	01/14/20 16:57	P1R	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589748/2
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			01/09/20 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*01/09/20 10:38*	*1*

Lab Sample ID: LCS 440-589748/3
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			10.0	10.2		ug/L		102	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*93*		*80 - 120*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		10.0	9.63		ug/L		96	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 120*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		10.0	10.3		ug/L		103	70 - 130	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 120*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Acenaphthylene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Anthracene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzidine	ND		10	5.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[a]anthracene	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[b]fluoranthene	ND		2.0	0.30	ug/L		01/09/20 06:35	01/13/20 11:37	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[a]pyrene	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-chloroethoxy)methane	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-chloroethyl)ether	ND		0.50	0.050	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Chloro-3-methylphenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Chloronaphthalene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Chlorophenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Chlorophenyl phenyl ether	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Chrysene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Dibenz(a,h)anthracene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Di-n-butyl phthalate	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,4-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dichlorophenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Diethyl phthalate	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dimethylphenol	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Dimethyl phthalate	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
4,6-Dinitro-2-methylphenol	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dinitrophenol	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,6-Dinitrotoluene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Di-n-octyl phthalate	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Fluoranthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Fluorene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachloroethane	ND		3.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		01/09/20 06:35	01/13/20 11:37	1
Isophorone	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Naphthalene	ND		1.0	0.050	ug/L		01/09/20 06:35	01/13/20 11:37	1
Nitrobenzene	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Nitrophenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Nitrophenol	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodimethylamine	ND		2.0	0.30	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodiphenylamine	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodi-n-propylamine	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Pentachlorophenol	ND		2.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Phenanthrene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Phenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Pyrene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[g,h,i]perylene	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
bis (2-chloroisopropyl) ether	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*97*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
2-Fluorophenol	*82*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
2,4,6-Tribromophenol	*94*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Nitrobenzene-d5	*91*		*15 - 314*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Terphenyl-d14	*107*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Phenol-d5	*86*		*8 - 424*	*01/09/20 06:35*	*01/13/20 11:37*	*1*

Lab Sample ID: LCS 440-589710/2-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	15.0	13.3		ug/L		89	60 - 132
Acenaphthylene	15.0	13.1		ug/L		88	54 - 126
Anthracene	15.0	13.3		ug/L		88	43 - 120
Benzidine	15.0	ND		ug/L		9	5 - 140
Benzo[a]anthracene	15.0	14.6		ug/L		97	42 - 133
Benzo[b]fluoranthene	15.0	15.4		ug/L		103	42 - 140
Benzo[k]fluoranthene	15.0	15.7		ug/L		104	25 - 146
Benzo[a]pyrene	15.0	14.7		ug/L		98	32 - 148
Bis(2-chloroethoxy)methane	15.0	13.7		ug/L		91	49 - 165
Bis(2-chloroethyl)ether	15.0	12.1		ug/L		81	43 - 126
Bis(2-ethylhexyl) phthalate	15.0	16.6		ug/L		110	29 - 137
4-Bromophenyl phenyl ether	15.0	13.0		ug/L		87	65 - 120
Butyl benzyl phthalate	15.0	16.0		ug/L		107	10 - 140
4-Chloro-3-methylphenol	15.0	16.5		ug/L		110	41 - 128
2-Chloronaphthalene	15.0	13.0		ug/L		87	65 - 120
2-Chlorophenol	15.0	12.1		ug/L		81	36 - 120
4-Chlorophenyl phenyl ether	15.0	13.6		ug/L		90	38 - 145
Chrysene	15.0	13.5		ug/L		90	44 - 140
Dibenz(a,h)anthracene	15.0	15.4		ug/L		103	10 - 200
Di-n-butyl phthalate	15.0	15.5		ug/L		103	8 - 120
1,2-Dichlorobenzene	15.0	11.1		ug/L		74	60 - 140
1,3-Dichlorobenzene	15.0	11.0		ug/L		74	60 - 140
1,4-Dichlorobenzene	15.0	11.2		ug/L		75	60 - 140
3,3'-Dichlorobenzidine	15.0	13.0		ug/L		87	8 - 213
2,4-Dichlorophenol	15.0	13.8		ug/L		92	53 - 122
Diethyl phthalate	15.0	16.2		ug/L		108	10 - 120
2,4-Dimethylphenol	15.0	13.2		ug/L		88	42 - 120
Dimethyl phthalate	15.0	14.6		ug/L		98	10 - 120
4,6-Dinitro-2-methylphenol	30.0	25.1		ug/L		84	53 - 130
2,4-Dinitrophenol	30.0	27.0		ug/L		90	10 - 173
2,4-Dinitrotoluene	15.0	15.1		ug/L		100	48 - 127

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-589710/2-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,6-Dinitrotoluene	15.0	14.6		ug/L		97	68 - 137
Di-n-octyl phthalate	15.0	17.4		ug/L		116	19 - 132
1,2-Diphenylhydrazine(as Azobenzene)	15.0	14.3		ug/L		95	60 - 140
Fluoranthene	15.0	15.1		ug/L		100	43 - 121
Fluorene	15.0	13.8		ug/L		92	70 - 120
Hexachlorobenzene	15.0	12.6		ug/L		84	8 - 142
Hexachlorobutadiene	15.0	11.0		ug/L		73	38 - 120
Hexachloroethane	15.0	10.7		ug/L		71	55 - 120
Hexachlorocyclopentadiene	15.0	8.04	LR	ug/L		54	60 - 140
Indeno[1,2,3-cd]pyrene	15.0	15.3		ug/L		102	10 - 151
Isophorone	15.0	15.6		ug/L		104	47 - 180
Naphthalene	15.0	12.6		ug/L		84	36 - 120
Nitrobenzene	15.0	12.7		ug/L		85	54 - 158
2-Nitrophenol	15.0	13.6		ug/L		91	45 - 167
4-Nitrophenol	30.0	29.1		ug/L		97	13 - 129
N-Nitrosodimethylamine	15.0	12.8		ug/L		86	60 - 140
N-Nitrosodiphenylamine	15.0	13.1		ug/L		87	60 - 140
N-Nitrosodi-n-propylamine	15.0	12.0		ug/L		80	14 - 198
Pentachlorophenol	30.0	25.9		ug/L		86	38 - 152
Phenanthrene	15.0	13.2		ug/L		88	65 - 120
Phenol	15.0	12.2		ug/L		81	17 - 120
Pyrene	15.0	16.7		ug/L		111	70 - 120
1,2,4-Trichlorobenzene	15.0	11.9		ug/L		79	57 - 130
2,4,6-Trichlorophenol	15.0	15.0		ug/L		100	52 - 129
Benzo[g,h,i]perylene	15.0	14.5		ug/L		97	10 - 195
bis (2-chloroisopropyl) ether	15.0	11.8		ug/L		79	63 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*84*		*60 - 140*
2-Fluorophenol	*80*		*60 - 140*
2,4,6-Tribromophenol	*90*		*60 - 140*
Nitrobenzene-d5	*86*		*15 - 314*
Terphenyl-d14	*100*		*60 - 140*
Phenol-d5	*76*		*8 - 424*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		16.1	14.0		ug/L		87	47 - 145
Acenaphthylene	ND		16.1	13.7		ug/L		85	33 - 145
Anthracene	ND		16.1	13.6		ug/L		84	27 - 133
Benzidine	ND		16.1	ND	LN	ug/L		0	5 - 140
Benzo[a]anthracene	ND		16.1	15.2		ug/L		94	33 - 143
Benzo[b]fluoranthene	ND		16.1	16.8		ug/L		104	24 - 159
Benzo[k]fluoranthene	ND		16.1	15.9		ug/L		98	11 - 162
Benzo[a]pyrene	ND		16.1	15.2		ug/L		94	17 - 163

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-chloroethoxy)methane	ND		16.1	14.6		ug/L		91	33 - 184
Bis(2-chloroethyl)ether	ND		16.1	13.6		ug/L		84	12 - 158
Bis(2-ethylhexyl) phthalate	ND		16.1	17.6		ug/L		109	8 - 158
4-Bromophenyl phenyl ether	ND		16.1	14.2		ug/L		88	53 - 127
Butyl benzyl phthalate	ND		16.1	16.7		ug/L		103	10 - 152
4-Chloro-3-methylphenol	ND		16.1	18.4		ug/L		114	22 - 147
2-Chloronaphthalene	ND		16.1	13.9		ug/L		86	60 - 120
2-Chlorophenol	ND		16.1	13.3		ug/L		82	23 - 134
4-Chlorophenyl phenyl ether	ND		16.1	14.2		ug/L		88	25 - 158
Chrysene	ND		16.1	14.2		ug/L		88	17 - 168
Dibenz(a,h)anthracene	ND		16.1	15.7		ug/L		97	10 - 227
Di-n-butyl phthalate	ND		16.1	16.7		ug/L		103	1 - 120
1,2-Dichlorobenzene	ND		16.1	11.4		ug/L		71	60 - 140
1,3-Dichlorobenzene	ND		16.1	10.9		ug/L		68	60 - 140
1,4-Dichlorobenzene	ND		16.1	11.2		ug/L		69	60 - 140
3,3'-Dichlorobenzidine	ND		16.1	ND	LN	ug/L		0	10 - 262
2,4-Dichlorophenol	ND		16.1	15.7		ug/L		97	39 - 135
Diethyl phthalate	ND		16.1	17.9		ug/L		111	10 - 120
2,4-Dimethylphenol	ND		16.1	15.8		ug/L		98	32 - 120
Dimethyl phthalate	ND		16.1	15.6		ug/L		97	10 - 120
4,6-Dinitro-2-methylphenol	ND		32.3	29.0		ug/L		90	10 - 181
2,4-Dinitrophenol	ND		32.3	34.0		ug/L		105	10 - 191
2,4-Dinitrotoluene	ND		16.1	16.4		ug/L		101	39 - 139
2,6-Dinitrotoluene	ND		16.1	16.0		ug/L		99	50 - 158
Di-n-octyl phthalate	ND		16.1	18.1		ug/L		112	4 - 146
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.1	13.6		ug/L		84	60 - 140
Fluoranthene	ND		16.1	16.4		ug/L		101	26 - 137
Fluorene	ND		16.1	14.6		ug/L		90	59 - 121
Hexachlorobenzene	ND		16.1	13.4		ug/L		83	10 - 152
Hexachlorobutadiene	ND		16.1	9.16		ug/L		57	24 - 120
Hexachloroethane	ND		16.1	9.31		ug/L		58	40 - 120
Hexachlorocyclopentadiene	ND	LR	16.1	8.18	LN	ug/L		51	60 - 140
Indeno[1,2,3-cd]pyrene	ND		16.1	17.0		ug/L		105	10 - 171
Isophorone	ND		16.1	18.1		ug/L		112	21 - 196
Naphthalene	ND		16.1	13.2		ug/L		82	21 - 133
Nitrobenzene	ND		16.1	16.1		ug/L		100	35 - 180
2-Nitrophenol	ND		16.1	15.6		ug/L		97	29 - 182
4-Nitrophenol	ND		32.3	32.4		ug/L		100	10 - 132
N-Nitrosodimethylamine	ND		16.1	15.4		ug/L		96	60 - 140
N-Nitrosodiphenylamine	ND		16.1	12.0		ug/L		75	60 - 140
N-Nitrosodi-n-propylamine	ND		16.1	14.8		ug/L		92	10 - 230
Pentachlorophenol	1.3	J,DX	32.3	33.9		ug/L		101	14 - 176
Phenanthrene	ND		16.1	14.2		ug/L		88	54 - 120
Phenol	ND		16.1	14.1		ug/L		87	5 - 120
Pyrene	ND		16.1	17.1		ug/L		106	52 - 120
1,2,4-Trichlorobenzene	ND		16.1	12.1		ug/L		75	44 - 142
2,4,6-Trichlorophenol	ND		16.1	16.8		ug/L		104	37 - 144
Benzo[g,h,i]perylene	ND		16.1	16.3		ug/L		101	10 - 219

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
bis (2-chloroisopropyl) ether	ND		16.1	14.1		ug/L		88	36 - 166

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*60 - 140*
2-Fluorophenol	*88*		*60 - 140*
2,4,6-Tribromophenol	*94*		*60 - 140*
Nitrobenzene-d5	*93*		*15 - 314*
Terphenyl-d14	*92*		*60 - 140*
Phenol-d5	*84*		*8 - 424*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		16.0	14.1		ug/L		89	47 - 145	1	48
Acenaphthylene	ND		16.0	13.0		ug/L		81	33 - 145	6	74
Anthracene	ND		16.0	13.2		ug/L		83	27 - 133	3	66
Benzidine	ND		16.0	ND	LN	ug/L		0	5 - 140	NC	35
Benzo[a]anthracene	ND		16.0	15.3		ug/L		96	33 - 143	0	53
Benzo[b]fluoranthene	ND		16.0	17.1		ug/L		107	24 - 159	2	71
Benzo[k]fluoranthene	ND		16.0	16.1		ug/L		101	11 - 162	2	63
Benzo[a]pyrene	ND		16.0	14.5		ug/L		91	17 - 163	4	72
Bis(2-chloroethoxy)methane	ND		16.0	13.1		ug/L		82	33 - 184	11	54
Bis(2-chloroethyl)ether	ND		16.0	13.7		ug/L		86	12 - 158	1	108
Bis(2-ethylhexyl) phthalate	ND		16.0	18.0		ug/L		113	8 - 158	2	82
4-Bromophenyl phenyl ether	ND		16.0	14.4		ug/L		90	53 - 127	2	43
Butyl benzyl phthalate	ND		16.0	18.1		ug/L		113	10 - 152	8	60
4-Chloro-3-methylphenol	ND		16.0	18.1		ug/L		114	22 - 147	1	73
2-Chloronaphthalene	ND		16.0	14.1		ug/L		88	60 - 120	2	24
2-Chlorophenol	ND		16.0	13.3		ug/L		83	23 - 134	0	61
4-Chlorophenyl phenyl ether	ND		16.0	14.6		ug/L		92	25 - 158	3	61
Chrysene	ND		16.0	14.0		ug/L		88	17 - 168	1	87
Dibenz(a,h)anthracene	ND		16.0	16.3		ug/L		102	10 - 227	4	126
Di-n-butyl phthalate	ND		16.0	16.8		ug/L		105	1 - 120	1	47
1,2-Dichlorobenzene	ND		16.0	11.1		ug/L		69	60 - 140	3	35
1,3-Dichlorobenzene	ND		16.0	10.7		ug/L		67	60 - 140	2	35
1,4-Dichlorobenzene	ND		16.0	11.0		ug/L		69	60 - 140	2	35
3,3'-Dichlorobenzidine	ND		16.0	ND	LN	ug/L		0	10 - 262	NC	108
2,4-Dichlorophenol	ND		16.0	15.8		ug/L		99	39 - 135	0	50
Diethyl phthalate	ND		16.0	18.0		ug/L		113	10 - 120	1	100
2,4-Dimethylphenol	ND		16.0	15.7		ug/L		98	32 - 120	0	58
Dimethyl phthalate	ND		16.0	15.8		ug/L		99	10 - 120	1	183
4,6-Dinitro-2-methylphenol	ND		31.9	28.9		ug/L		91	10 - 181	0	203
2,4-Dinitrophenol	ND		31.9	33.8		ug/L		106	10 - 191	1	132
2,4-Dinitrotoluene	ND		16.0	16.5		ug/L		104	39 - 139	1	42
2,6-Dinitrotoluene	ND		16.0	16.1		ug/L		101	50 - 158	1	48
Di-n-octyl phthalate	ND		16.0	18.1		ug/L		114	4 - 146	0	69

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.0	9.72		ug/L		61	60 - 140	33	35
Fluoranthene	ND		16.0	16.6		ug/L		104	26 - 137	1	66
Fluorene	ND		16.0	14.8		ug/L		93	59 - 121	2	38
Hexachlorobenzene	ND		16.0	13.5		ug/L		85	10 - 152	1	55
Hexachlorobutadiene	ND		16.0	9.70		ug/L		61	24 - 120	6	62
Hexachloroethane	ND		16.0	9.39		ug/L		59	40 - 120	1	52
Hexachlorocyclopentadiene	ND	LR	16.0	7.01	LN	ug/L		44	60 - 140	16	35
Indeno[1,2,3-cd]pyrene	ND		16.0	17.0		ug/L		106	10 - 171	0	99
Isophorone	ND		16.0	17.6		ug/L		110	21 - 196	3	93
Naphthalene	ND		16.0	12.8		ug/L		80	21 - 133	3	65
Nitrobenzene	ND		16.0	15.7		ug/L		99	35 - 180	2	62
2-Nitrophenol	ND		16.0	15.5		ug/L		97	29 - 182	1	55
4-Nitrophenol	ND		31.9	32.7		ug/L		102	10 - 132	1	131
N-Nitrosodimethylamine	ND		16.0	15.4		ug/L		97	60 - 140	0	35
N-Nitrosodiphenylamine	ND		16.0	11.7		ug/L		73	60 - 140	3	35
N-Nitrosodi-n-propylamine	ND		16.0	14.7		ug/L		92	10 - 230	1	87
Pentachlorophenol	1.3	J,DX	31.9	34.0		ug/L		102	14 - 176	0	86
Phenanthrene	ND		16.0	14.2		ug/L		89	54 - 120	0	39
Phenol	ND		16.0	14.3		ug/L		90	5 - 120	1	64
Pyrene	ND		16.0	17.2		ug/L		108	52 - 120	0	49
1,2,4-Trichlorobenzene	ND		16.0	11.4		ug/L		71	44 - 142	6	50
2,4,6-Trichlorophenol	ND		16.0	16.7		ug/L		105	37 - 144	1	58
Benzo[g,h,i]perylene	ND		16.0	16.1		ug/L		101	10 - 219	1	97
bis (2-chloroisopropyl) ether	ND		16.0	13.7		ug/L		86	36 - 166	3	76

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*60 - 140*
2-Fluorophenol	*89*		*60 - 140*
2,4,6-Tribromophenol	*96*		*60 - 140*
Nitrobenzene-d5	*92*		*15 - 314*
Terphenyl-d14	*94*		*60 - 140*
Phenol-d5	*84*		*8 - 424*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-589694/1-A
Matrix: Water
Analysis Batch: 589779

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589694

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		01/09/20 05:38	01/09/20 13:15	1
alpha-BHC	ND		0.0050	0.0025	ug/L		01/09/20 05:38	01/09/20 13:15	1
beta-BHC	ND		0.010	0.0040	ug/L		01/09/20 05:38	01/09/20 13:15	1
delta-BHC	ND		0.0050	0.0035	ug/L		01/09/20 05:38	01/09/20 13:15	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		01/09/20 05:38	01/09/20 13:15	1
Chlordane (technical)	ND		0.10	0.080	ug/L		01/09/20 05:38	01/09/20 13:15	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		01/09/20 05:38	01/09/20 13:15	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		01/09/20 05:38	01/09/20 13:15	1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 440-589694/1-A
Matrix: Water
Analysis Batch: 589779

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589694

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		0.010	0.0040	ug/L		01/09/20 05:38	01/09/20 13:15	1
Dieldrin	ND		0.0050	0.0020	ug/L		01/09/20 05:38	01/09/20 13:15	1
Endosulfan I	ND		0.0050	0.0030	ug/L		01/09/20 05:38	01/09/20 13:15	1
Endosulfan II	ND		0.0050	0.0020	ug/L		01/09/20 05:38	01/09/20 13:15	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		01/09/20 05:38	01/09/20 13:15	1
Endrin	ND		0.0050	0.0020	ug/L		01/09/20 05:38	01/09/20 13:15	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		01/09/20 05:38	01/09/20 13:15	1
Heptachlor	ND		0.0090	0.0030	ug/L		01/09/20 05:38	01/09/20 13:15	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		01/09/20 05:38	01/09/20 13:15	1
Toxaphene	ND		0.50	0.24	ug/L		01/09/20 05:38	01/09/20 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*50*		*10 - 104*	*01/09/20 05:38*	*01/09/20 13:15*	*1*

Lab Sample ID: LCS 440-589694/2-A
Matrix: Water
Analysis Batch: 589779

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.400	0.304		ug/L		76	42 - 140
alpha-BHC	0.400	0.319		ug/L		80	37 - 140
beta-BHC	0.400	0.321		ug/L		80	17 - 147
delta-BHC	0.400	0.318		ug/L		80	19 - 140
gamma-BHC (Lindane)	0.400	0.322		ug/L		80	32 - 140
4,4'-DDD	0.400	0.360		ug/L		90	31 - 141
4,4'-DDE	0.400	0.322		ug/L		81	30 - 145
4,4'-DDT	0.400	0.333		ug/L		83	25 - 160
Dieldrin	0.400	0.349		ug/L		87	36 - 146
Endosulfan I	0.400	0.338		ug/L		85	45 - 153
Endosulfan II	0.400	0.342		ug/L		86	10 - 202
Endosulfan sulfate	0.400	0.364		ug/L		91	26 - 144
Endrin	0.400	0.345		ug/L		86	30 - 147
Endrin aldehyde	0.400	0.311		ug/L		78	60 - 140
Heptachlor	0.400	0.319		ug/L		80	34 - 140
Heptachlor epoxide	0.400	0.333		ug/L		83	37 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*57*		*10 - 104*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589779

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		0.419	0.288		ug/L		69	42 - 140
alpha-BHC	ND		0.419	0.285		ug/L		68	37 - 140
beta-BHC	ND		0.419	0.271		ug/L		65	17 - 147
delta-BHC	ND		0.419	0.290		ug/L		69	19 - 140

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-258718-1 MS | **Client Sample ID: Outfall002_20200108_Comp**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 589779 | **Prep Batch: 589694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
gamma-BHC (Lindane)	ND		0.419	0.292		ug/L		70	32 - 140
4,4'-DDD	ND		0.419	0.324		ug/L		77	31 - 141
4,4'-DDE	ND		0.419	0.286		ug/L		68	30 - 145
4,4'-DDT	ND		0.419	0.298		ug/L		71	25 - 160
Dieldrin	ND		0.419	0.316		ug/L		75	36 - 146
Endosulfan I	ND		0.419	0.308		ug/L		74	45 - 153
Endosulfan II	ND		0.419	0.310		ug/L		74	10 - 202
Endosulfan sulfate	ND		0.419	0.334		ug/L		80	26 - 144
Endrin	ND		0.419	0.323		ug/L		77	30 - 147
Endrin aldehyde	ND		0.419	0.284		ug/L		68	60 - 140
Heptachlor	ND		0.419	0.307		ug/L		73	34 - 140
Heptachlor epoxide	ND		0.419	0.305		ug/L		73	37 - 142

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*56*		*10 - 104*

Lab Sample ID: 440-258718-1 MSD | **Client Sample ID: Outfall002_20200108_Comp**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 589779 | **Prep Batch: 589694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		0.412	0.305		ug/L		74	42 - 140	6	35
alpha-BHC	ND		0.412	0.297		ug/L		72	37 - 140	4	36
beta-BHC	ND		0.412	0.292		ug/L		71	17 - 147	7	44
delta-BHC	ND		0.412	0.306		ug/L		74	19 - 140	5	52
gamma-BHC (Lindane)	ND		0.412	0.311		ug/L		75	32 - 140	6	39
4,4'-DDD	ND		0.412	0.334		ug/L		81	31 - 141	3	39
4,4'-DDE	ND		0.412	0.299		ug/L		73	30 - 145	5	35
4,4'-DDT	ND		0.412	0.311		ug/L		75	25 - 160	4	42
Dieldrin	ND		0.412	0.327		ug/L		79	36 - 146	4	49
Endosulfan I	ND		0.412	0.325		ug/L		79	45 - 153	5	28
Endosulfan II	ND		0.412	0.319		ug/L		77	10 - 202	3	53
Endosulfan sulfate	ND		0.412	0.345		ug/L		84	26 - 144	3	38
Endrin	ND		0.412	0.336		ug/L		81	30 - 147	4	48
Endrin aldehyde	ND		0.412	0.293		ug/L		71	60 - 140	3	30
Heptachlor	ND		0.412	0.325		ug/L		79	34 - 140	6	43
Heptachlor epoxide	ND		0.412	0.324		ug/L		79	37 - 142	6	26

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*59*		*10 - 104*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-589694/1-A
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589694

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1221	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1232	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1242	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1248	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1254	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1260	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*82*		*18 - 134*	*01/09/20 05:38*	*01/09/20 14:29*	*1*

Lab Sample ID: LCS 440-589694/5-A
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589694

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor 1016			4.00	3.01		ug/L		75	50 - 140		
Aroclor 1260			4.00	2.99		ug/L		75	8 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*85*		*18 - 134*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor 1016	ND		4.37	3.39		ug/L		78	50 - 140		
Aroclor 1260	ND		4.37	3.24		ug/L		74	8 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*84*		*18 - 134*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	ND		4.15	3.58		ug/L		86	50 - 140	5	36
Aroclor 1260	ND		4.15	3.28		ug/L		79	8 - 140	1	38

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*86*		*18 - 134*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-589525/6
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			01/08/20 07:26	1

Lab Sample ID: LCS 440-589525/5
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	50.0	47.9		ug/L		96	90 - 110

Lab Sample ID: MRL 440-589525/4
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	1.00	1.03		ug/L		103	50 - 150

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		50.0	49.9		ug/L		100	90 - 110

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		50.0	49.7		ug/L		99	90 - 110	1	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-589571/41
Matrix: Water
Analysis Batch: 589571

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			01/08/20 22:21	1
Nitrite as N	ND		0.15	0.025	mg/L			01/08/20 22:21	1

Lab Sample ID: LCS 440-589571/42
Matrix: Water
Analysis Batch: 589571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.12		mg/L		99	90 - 110
Nitrite as N	1.52	1.46		mg/L		96	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-589572/41
Matrix: Water
Analysis Batch: 589572

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			01/08/20 22:21	1
Fluoride	ND		0.50	0.25	mg/L			01/08/20 22:21	1
Sulfate	ND		0.50	0.25	mg/L			01/08/20 22:21	1

Lab Sample ID: LCS 440-589572/42
Matrix: Water
Analysis Batch: 589572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.78		mg/L		96	90 - 110
Fluoride	5.00	4.88		mg/L		98	90 - 110
Sulfate	5.00	4.96		mg/L		99	90 - 110

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589571

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N - DL	1.3		5.65	6.82		mg/L		97	80 - 120
Nitrite as N - DL	ND		7.61	7.21		mg/L		95	80 - 120

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589571

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N - DL	1.3		5.65	6.83		mg/L		98	80 - 120	0	20
Nitrite as N - DL	ND		7.61	7.23		mg/L		95	80 - 120	0	20

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589572

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride - DL	9.0		25.0	33.0		mg/L		96	80 - 120
Fluoride - DL	ND		25.0	24.1		mg/L		97	80 - 120
Sulfate - DL	160		25.0	189	BB	mg/L		126	80 - 120

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589572

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride - DL	9.0		25.0	33.1		mg/L		97	80 - 120	0	20
Fluoride - DL	ND		25.0	24.3		mg/L		97	80 - 120	1	20
Sulfate - DL	160		25.0	190	BB	mg/L		131	80 - 120	1	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-590842/6
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/16/20 11:20	1

Lab Sample ID: LCS 440-590842/5
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	26.9		ug/L		108	85 - 115

Lab Sample ID: MRL 440-590842/4
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	0.982	J,DX	ug/L		98	75 - 125

Lab Sample ID: MRL 440-590842/8
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.37		ug/L		109	75 - 125

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	26.0		ug/L		104	80 - 120

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	26.5		ug/L		106	80 - 120	2	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-589749/1-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/09/20 09:22	01/09/20 16:46	1
Boron	ND		0.050	0.025	mg/L		01/09/20 09:22	01/09/20 16:46	1
Barium	ND		0.010	0.0050	mg/L		01/09/20 09:22	01/09/20 16:46	1
Beryllium	ND		2.0	1.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Cobalt	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Chromium	ND		5.0	2.5	ug/L		01/09/20 09:22	01/09/20 16:46	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 440-589749/1-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		01/09/20 09:22	01/09/20 16:46	1
Manganese	ND		20	15	ug/L		01/09/20 09:22	01/09/20 16:46	1
Nickel	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Vanadium	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Zinc	ND		20	12	ug/L		01/09/20 09:22	01/09/20 16:46	1

Lab Sample ID: LCS 440-589749/2-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	470		ug/L		94	85 - 115
Boron	0.500	0.471		mg/L		94	85 - 115
Barium	0.500	0.471		mg/L		94	85 - 115
Beryllium	500	476		ug/L		95	85 - 115
Calcium	2.50	2.43		mg/L		97	85 - 115
Cobalt	500	482		ug/L		96	85 - 115
Chromium	500	480		ug/L		96	85 - 115
Iron	0.500	0.454		mg/L		91	85 - 115
Magnesium	2.50	2.38		mg/L		95	85 - 115
Manganese	500	481		ug/L		96	85 - 115
Nickel	500	485		ug/L		97	85 - 115
Vanadium	500	478		ug/L		96	85 - 115
Zinc	500	480		ug/L		96	85 - 115

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	502		ug/L		100	70 - 130
Boron	0.056		0.500	0.542		mg/L		97	70 - 130
Barium	0.024		0.500	0.494		mg/L		94	70 - 130
Beryllium	ND		500	494		ug/L		99	70 - 130
Calcium	44		2.50	44.0	BB	mg/L		11	70 - 130
Cobalt	ND		500	488		ug/L		98	70 - 130
Chromium	ND		500	485		ug/L		97	70 - 130
Iron	0.082	J,DX	0.500	0.563		mg/L		96	70 - 130
Magnesium	7.8		2.50	9.79		mg/L		82	70 - 130
Manganese	15	J,DX	500	501		ug/L		97	70 - 130
Nickel	ND		500	487		ug/L		97	70 - 130
Vanadium	ND		500	498		ug/L		100	70 - 130
Zinc	ND		500	504		ug/L		101	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	488		ug/L		98	70 - 130	3	20
Boron	0.056		0.500	0.552		mg/L		99	70 - 130	2	20
Barium	0.024		0.500	0.498		mg/L		95	70 - 130	1	20
Beryllium	ND		500	499		ug/L		100	70 - 130	1	20
Calcium	44		2.50	46.9	BB	mg/L		127	70 - 130	6	20
Cobalt	ND		500	499		ug/L		100	70 - 130	2	20
Chromium	ND		500	489		ug/L		98	70 - 130	1	20
Iron	0.082	J,DX	0.500	0.564		mg/L		97	70 - 130	0	20
Magnesium	7.8		2.50	10.3		mg/L		101	70 - 130	5	20
Manganese	15	J,DX	500	508		ug/L		98	70 - 130	1	20
Nickel	ND		500	498		ug/L		100	70 - 130	2	20
Vanadium	ND		500	507		ug/L		101	70 - 130	2	20
Zinc	ND		500	505		ug/L		101	70 - 130	0	20

Lab Sample ID: MB 440-589806/1-C
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 589923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/10/20 08:40	01/10/20 15:47	1
Boron	ND		0.050	0.025	mg/L		01/10/20 08:40	01/10/20 15:47	1
Barium	ND		0.010	0.0050	mg/L		01/10/20 08:40	01/10/20 15:47	1
Beryllium	ND		2.0	1.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Cobalt	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Chromium	ND		5.0	2.5	ug/L		01/10/20 08:40	01/10/20 15:47	1
Iron	ND		0.10	0.050	mg/L		01/10/20 08:40	01/10/20 15:47	1
Manganese	ND		20	15	ug/L		01/10/20 08:40	01/10/20 15:47	1
Nickel	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Vanadium	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Zinc	ND		20	12	ug/L		01/10/20 08:40	01/10/20 15:47	1

Lab Sample ID: LCS 440-589806/2-C
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	514		ug/L		103	85 - 115
Boron	0.500	0.513		mg/L		103	85 - 115
Barium	0.500	0.526		mg/L		105	85 - 115
Beryllium	500	523		ug/L		105	85 - 115
Calcium	2.50	2.65		mg/L		106	85 - 115
Cobalt	500	532		ug/L		106	85 - 115
Chromium	500	530		ug/L		106	85 - 115
Iron	0.500	0.463		mg/L		93	85 - 115
Magnesium	2.50	2.67		mg/L		107	85 - 115
Manganese	500	529		ug/L		106	85 - 115
Nickel	500	535		ug/L		107	85 - 115
Vanadium	500	521		ug/L		104	85 - 115
Zinc	500	528		ug/L		106	85 - 115

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: 440-258718-2 MS
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	524		ug/L		105	70 - 130
Boron	0.051		0.500	0.570		mg/L		104	70 - 130
Barium	0.028		0.500	0.530		mg/L		100	70 - 130
Beryllium	ND		500	522		ug/L		104	70 - 130
Calcium	44		2.50	46.5	BB	mg/L		85	70 - 130
Cobalt	ND		500	516		ug/L		103	70 - 130
Chromium	ND		500	518		ug/L		104	70 - 130
Iron	ND		0.500	0.467		mg/L		93	70 - 130
Magnesium	8.1		2.50	10.6		mg/L		98	70 - 130
Manganese	ND		500	522		ug/L		104	70 - 130
Nickel	ND		500	517		ug/L		103	70 - 130
Vanadium	ND		500	524		ug/L		105	70 - 130
Zinc	ND		500	528		ug/L		106	70 - 130

Lab Sample ID: 440-258718-2 MSD
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	544		ug/L		109	70 - 130	4	20
Boron	0.051		0.500	0.590		mg/L		108	70 - 130	3	20
Barium	0.028		0.500	0.538		mg/L		102	70 - 130	1	20
Beryllium	ND		500	541		ug/L		108	70 - 130	4	20
Calcium	44		2.50	46.9	BB	mg/L		104	70 - 130	1	20
Cobalt	ND		500	541		ug/L		108	70 - 130	5	20
Chromium	ND		500	539		ug/L		108	70 - 130	4	20
Iron	ND		0.500	0.506		mg/L		101	70 - 130	8	20
Magnesium	8.1		2.50	10.5		mg/L		94	70 - 130	1	20
Manganese	ND		500	541		ug/L		108	70 - 130	4	20
Nickel	ND		500	537		ug/L		107	70 - 130	4	20
Vanadium	ND		500	544		ug/L		109	70 - 130	4	20
Zinc	ND		500	549		ug/L		110	70 - 130	4	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-589913/1-A
Matrix: Water
Analysis Batch: 590047

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 15:24	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 07:49	01/10/20 15:24	1
Copper	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 15:24	1
Lead	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 15:24	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 15:24	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 15:24	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 07:49	01/10/20 15:24	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-589913/2-A
Matrix: Water
Analysis Batch: 590047

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	82.6		ug/L		103	85 - 115
Cadmium	80.0	79.4		ug/L		99	85 - 115
Copper	80.0	79.6		ug/L		100	85 - 115
Lead	80.0	76.7		ug/L		96	85 - 115
Antimony	80.0	86.0		ug/L		107	85 - 115
Selenium	80.0	79.5		ug/L		99	85 - 115
Thallium	80.0	79.7		ug/L		100	85 - 115

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590047

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	83.1		ug/L		104	70 - 130
Cadmium	ND		80.0	79.9		ug/L		100	70 - 130
Copper	1.7	J,DX	80.0	80.9		ug/L		99	70 - 130
Lead	ND		80.0	77.7		ug/L		97	70 - 130
Antimony	ND		80.0	88.5		ug/L		111	70 - 130
Selenium	ND		80.0	78.9		ug/L		99	70 - 130
Thallium	ND		80.0	79.4		ug/L		99	70 - 130

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590047

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	83.1		ug/L		104	70 - 130	0	20
Cadmium	ND		80.0	81.0		ug/L		101	70 - 130	1	20
Copper	1.7	J,DX	80.0	79.9		ug/L		98	70 - 130	1	20
Lead	ND		80.0	77.9		ug/L		97	70 - 130	0	20
Antimony	ND		80.0	88.5		ug/L		111	70 - 130	0	20
Selenium	ND		80.0	76.5		ug/L		96	70 - 130	3	20
Thallium	ND		80.0	79.3		ug/L		99	70 - 130	0	20

Lab Sample ID: MB 440-589806/1-D
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 589925

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 08:45	01/10/20 14:40	1
Copper	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Lead	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 08:45	01/10/20 14:40	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-589806/2-D
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	84.0		ug/L		105	85 - 115
Cadmium	80.0	80.2		ug/L		100	85 - 115
Copper	80.0	78.9		ug/L		99	85 - 115
Lead	80.0	80.9		ug/L		101	85 - 115
Antimony	80.0	87.8		ug/L		110	85 - 115
Selenium	80.0	75.6		ug/L		95	85 - 115
Thallium	80.0	83.9		ug/L		105	85 - 115

Lab Sample ID: 440-258718-2 MS
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	81.6		ug/L		102	70 - 130
Cadmium	ND		80.0	79.1		ug/L		99	70 - 130
Copper	1.3	J,DX	80.0	78.8		ug/L		97	70 - 130
Lead	ND		80.0	80.1		ug/L		100	70 - 130
Antimony	ND		80.0	89.1		ug/L		111	70 - 130
Selenium	ND		80.0	75.4		ug/L		94	70 - 130
Thallium	ND		80.0	82.0		ug/L		102	70 - 130

Lab Sample ID: 440-258718-2 MSD
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	80.6		ug/L		101	70 - 130	1	20
Cadmium	ND		80.0	78.1		ug/L		98	70 - 130	1	20
Copper	1.3	J,DX	80.0	78.4		ug/L		96	70 - 130	1	20
Lead	ND		80.0	78.9		ug/L		99	70 - 130	2	20
Antimony	ND		80.0	88.0		ug/L		110	70 - 130	1	20
Selenium	ND		80.0	74.5		ug/L		93	70 - 130	1	20
Thallium	ND		80.0	80.2		ug/L		100	70 - 130	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-589812/1-A
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/09/20 13:42	01/09/20 19:50	1

Lab Sample ID: LCS 440-589812/2-A
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.01		ug/L		100	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.13		ug/L		103	75 - 125

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.01		ug/L		100	75 - 125	3	20

Lab Sample ID: MB 440-589977/1-C
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 590663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/15/20 11:35	01/16/20 11:00	1

Lab Sample ID: LCS 440-589977/2-C
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.98		ug/L		99	85 - 115

Lab Sample ID: 440-258718-2 MS
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.11		ug/L		103	75 - 125

Lab Sample ID: 440-258718-2 MSD
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Outfall002_20200108_Comp_F
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.97		ug/L		99	75 - 125	3	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-589846/5
Matrix: Water
Analysis Batch: 589846

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			01/09/20 17:11	1

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: 440-258701-F-1 DU
Matrix: Water
Analysis Batch: 589846

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.37		0.350		NTU		6	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-590629/1
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			01/15/20 09:54	1

Lab Sample ID: LCS 440-590629/2
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1040		mg/L		104	90 - 110

Lab Sample ID: 440-258718-1 DU
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	340		332		mg/L		1	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-589829/1
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			01/09/20 14:56	1

Lab Sample ID: LCS 440-589829/2
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	990		mg/L		99	85 - 115

Lab Sample ID: 440-258678-B-1 DU
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	180		178		mg/L		0	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-590193/1-A
Matrix: Water
Analysis Batch: 590274

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 590193

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		01/13/20 09:51	01/13/20 14:45	1

Lab Sample ID: LCS 440-590193/2-A
Matrix: Water
Analysis Batch: 590274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 590193

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	98.7		ug/L		99	80 - 120

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590274

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 590193

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	97.1		ug/L		97	75 - 125

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590274

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 590193

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	99.5		ug/L		99	75 - 125	2	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-590017/10
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			01/10/20 13:10	1

Lab Sample ID: LCS 440-590017/11
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.040		mg/L		101	90 - 110

Lab Sample ID: MRL 440-590017/9
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.2240		mg/L		112	50 - 150

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.134	J,DX	5.00	5.300		mg/L		103	90 - 110

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	0.134	J,DX	5.00	5.250		mg/L		102	90 - 110	1	15

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-589875/6
Matrix: Water
Analysis Batch: 589875

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.65	mg/L			01/09/20 05:49	1

Lab Sample ID: LCS 440-589875/5
Matrix: Water
Analysis Batch: 589875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.6		mg/L		106	85 - 115

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589875

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	5.2		5.00	10.6		mg/L		108	85 - 115

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589875

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	5.2		5.00	10.1		mg/L		98	85 - 115	5	20

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-589838/4
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			01/09/20 16:10	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCS 440-589838/5
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.230		mg/L		92	90 - 110

Lab Sample ID: MRL 440-589838/3
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.105		mg/L		105	50 - 150

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.073	J,DX	0.250	0.345		mg/L		109	50 - 125

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.073	J,DX	0.250	0.353		mg/L		112	50 - 125	2	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-589840/1
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/09/20 16:16	1

Lab Sample ID: LCS 440-589840/5
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	198		mg/L		100	85 - 115

Lab Sample ID: LCSD 440-589840/6
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	197		mg/L		99	85 - 115	1	20

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCSD 440-589840/7
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	203		mg/L		102	85 - 115	2	20

Lab Sample ID: 440-258678-A-1 DU
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	190			164		mg/L				15	20

GC/MS VOA

Analysis Batch: 589748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	8260B SIM	
MB 440-589748/2	Method Blank	Total/NA	Water	8260B SIM	
LCS 440-589748/3	Lab Control Sample	Total/NA	Water	8260B SIM	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	8260B SIM	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	8260B SIM	

GC/MS Semi VOA

Prep Batch: 589710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	625	
MB 440-589710/1-A	Method Blank	Total/NA	Water	625	
LCS 440-589710/2-A	Lab Control Sample	Total/NA	Water	625	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	625	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	625	

Analysis Batch: 590150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	625.1	589710
MB 440-589710/1-A	Method Blank	Total/NA	Water	625.1	589710
LCS 440-589710/2-A	Lab Control Sample	Total/NA	Water	625.1	589710
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	625.1	589710
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	625.1	589710

GC Semi VOA

Prep Batch: 589694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	608	
MB 440-589694/1-A	Method Blank	Total/NA	Water	608	
LCS 440-589694/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-589694/5-A	Lab Control Sample	Total/NA	Water	608	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	608	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	608	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	608	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	608	

Analysis Batch: 589734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694
MB 440-589694/1-A	Method Blank	Total/NA	Water	608.3	589694
LCS 440-589694/5-A	Lab Control Sample	Total/NA	Water	608.3	589694
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694

Analysis Batch: 589779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694
MB 440-589694/1-A	Method Blank	Total/NA	Water	608.3	589694
LCS 440-589694/2-A	Lab Control Sample	Total/NA	Water	608.3	589694
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	608.3	589694

HPLC/IC

Analysis Batch: 589525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	218.6	
MB 440-589525/6	Method Blank	Total/NA	Water	218.6	
LCS 440-589525/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-589525/4	Lab Control Sample	Total/NA	Water	218.6	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	218.6	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	218.6	

Analysis Batch: 589571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	300.0	
440-258718-1 - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	
MB 440-589571/41	Method Blank	Total/NA	Water	300.0	
LCS 440-589571/42	Lab Control Sample	Total/NA	Water	300.0	
440-258718-1 MS - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	
440-258718-1 MSD - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	

Analysis Batch: 589572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	300.0	
440-258718-1 - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	
MB 440-589572/41	Method Blank	Total/NA	Water	300.0	
LCS 440-589572/42	Lab Control Sample	Total/NA	Water	300.0	
440-258718-1 MS - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	
440-258718-1 MSD - DL	Outfall002_20200108_Comp	Total/NA	Water	300.0	

Analysis Batch: 590842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	314.0	
MB 440-590842/6	Method Blank	Total/NA	Water	314.0	
LCS 440-590842/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-590842/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-590842/8	Lab Control Sample	Total/NA	Water	314.0	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	314.0	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	314.0	

Analysis Batch: 591362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	NO3NO2 Calc	

Metals

Analysis Batch: 589169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total Recoverable	Water	SM 2340B	

Prep Batch: 589749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	
MB 440-589749/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-589749/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-258718-1 MS	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	

Metals (Continued)

Prep Batch: 589749 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1 MSD	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	

Filtration Batch: 589806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	
MB 440-589806/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-589806/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 589812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	245.1	
MB 440-589812/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-589812/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	245.1	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	245.1	

Analysis Batch: 589844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	SM 2340B	

Analysis Batch: 589862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total Recoverable	Water	200.7 Rev 4.4	589749
MB 440-589749/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	589749
LCS 440-589749/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	589749
440-258718-1 MS	Outfall002_20200108_Comp	Total Recoverable	Water	200.7 Rev 4.4	589749
440-258718-1 MSD	Outfall002_20200108_Comp	Total Recoverable	Water	200.7 Rev 4.4	589749

Analysis Batch: 589909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	245.1	589812
MB 440-589812/1-A	Method Blank	Total/NA	Water	245.1	589812
LCS 440-589812/2-A	Lab Control Sample	Total/NA	Water	245.1	589812
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	245.1	589812
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	245.1	589812

Prep Batch: 589913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	
MB 440-589913/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-589913/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-258718-1 MS	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	
440-258718-1 MSD	Outfall002_20200108_Comp	Total Recoverable	Water	200.2	

Prep Batch: 589923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806

Metals (Continued)

Prep Batch: 589923 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-589806/1-C	Method Blank	Dissolved	Water	200.2	589806
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	200.2	589806
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806

Prep Batch: 589925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806
MB 440-589806/1-D	Method Blank	Dissolved	Water	200.2	589806
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	200.2	589806
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	200.2	589806

Filtration Batch: 589977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	
MB 440-589977/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	FILTRATION	

Analysis Batch: 590021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	200.8	589925
MB 440-589806/1-D	Method Blank	Dissolved	Water	200.8	589925
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	200.8	589925
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	200.8	589925
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	200.8	589925

Analysis Batch: 590038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	200.7 Rev 4.4	589923
MB 440-589806/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	589923
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	589923
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	200.7 Rev 4.4	589923
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	200.7 Rev 4.4	589923

Analysis Batch: 590047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total Recoverable	Water	200.8	589913
MB 440-589913/1-A	Method Blank	Total Recoverable	Water	200.8	589913
LCS 440-589913/2-A	Lab Control Sample	Total Recoverable	Water	200.8	589913
440-258718-1 MS	Outfall002_20200108_Comp	Total Recoverable	Water	200.8	589913
440-258718-1 MSD	Outfall002_20200108_Comp	Total Recoverable	Water	200.8	589913

Prep Batch: 590663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	589977
MB 440-589977/1-C	Method Blank	Dissolved	Water	245.1	589977
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	245.1	589977
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	589977

Metals (Continued)

Prep Batch: 590663 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	589977

Analysis Batch: 590948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-2	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	590663
MB 440-589977/1-C	Method Blank	Dissolved	Water	245.1	590663
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	245.1	590663
440-258718-2 MS	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	590663
440-258718-2 MSD	Outfall002_20200108_Comp_F	Dissolved	Water	245.1	590663

General Chemistry

Analysis Batch: 589829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 2540D	
MB 440-589829/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-589829/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-258678-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 589838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 5540C	
MB 440-589838/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-589838/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-589838/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	SM 5540C	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 589840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM5210B	
USB 440-589840/1	Method Blank	Total/NA	Water	SM5210B	
LCS 440-589840/5	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-589840/6	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-589840/7	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-258678-A-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 589846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	180.1	
MB 440-589846/5	Method Blank	Total/NA	Water	180.1	
440-258701-F-1 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 589875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 5310B	
MB 440-589875/6	Method Blank	Total/NA	Water	SM 5310B	
LCS 440-589875/5	Lab Control Sample	Total/NA	Water	SM 5310B	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	SM 5310B	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	SM 5310B	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

General Chemistry

Analysis Batch: 590017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-590017/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-590017/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-590017/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 NH3 G	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 NH3 G	

Prep Batch: 590193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	Distill/CN	
MB 440-590193/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-590193/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	Distill/CN	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 590274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 CN E	590193
MB 440-590193/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	590193
LCS 440-590193/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	590193
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 CN E	590193
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	SM 4500 CN E	590193

Analysis Batch: 590629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	SM 2540C	
MB 440-590629/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-590629/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-258718-1 DU	Outfall002_20200108_Comp	Total/NA	Water	SM 2540C	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LR	LCS/LCSD recovery below method control limits

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258718-1
Project/Site: Annual Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
625.1	625	Water	1,2-Dichlorobenzene
625.1	625	Water	1,3-Dichlorobenzene
625.1	625	Water	1,4-Dichlorobenzene

WECK LABORATORIES, INC.

Certificate of Analysis

SUPPLEMENTAL REPORT

Work Orders: 0A09044

Project: Annual Outfall 002 Comp

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 2/26/2020
Received Date: 1/9/2020
Turnaround Time: 1 workday
Phones: (949) 261-1022
Fax: (949) 260-3297
P.O. #: 44009879
Billing Code:

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 1/09/20 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Case Narrative

This is a Supplement to the Certificate of Analysis previously issued for the above referenced Project to remove unnecessary analytes.

Sample Results

Sample: Outfall002_20200108_Comp (440-258718-1) — Sampled: 01/08/20 10:55 by Client

0A09044-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M **Batch ID:** W0A0447 **Instr:** GCMS13 **Prepared:** 01/10/20 09:43 **Analyst:** EFC							
Chlorpyrifos	ND	6.9	10	ng/l	1	01/16/20	
Diazinon	ND	5.2	10	ng/l	1	01/16/20	
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*99%*		*76-128*	*Conc: 497*		*01/16/20*	
Triphenyl phosphate	*125%*		*40-163*	*Conc: 626*		*01/16/20*	
Method: EPA 8315M **Batch ID:** W0A1547 **Instr:** LCMS03 **Prepared:** 01/31/20 10:30 **Analyst:** PJS							
Monomethylhydrazine (MMH)	ND		2.0	ug/l	1	01/31/20	

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Quality Control Results

Hydrazine by LCMS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W0A1547 - Microextraction										
Blank (W0A1547-BLK1)				**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	ND	2.0	ug/l							
Hydrazine	ND	1.0	ug/l							
Monomethylhydrazine (MMH)	ND	2.0	ug/l							
LCS (W0A1547-BS1)				**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	20.5	2.0	ug/l	20.0		102	50-150			
Hydrazine	19.1	1.0	ug/l	20.0		96	50-150			
Monomethylhydrazine (MMH)	20.9	2.0	ug/l	20.0		105	50-150			
Matrix Spike (W0A1547-MS1)	**Source: 0A16040-01**			**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	21.3	2.0	ug/l	20.0	*ND*	107	50-150			
Hydrazine	19.0	1.0	ug/l	20.0	*ND*	95	50-150			
Monomethylhydrazine (MMH)	21.6	2.0	ug/l	20.0	*ND*	108	50-150			
Matrix Spike Dup (W0A1547-MSD1)	**Source: 0A16040-01**			**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	21.6	2.0	ug/l	20.0	*ND*	108	50-150	1	30	
Hydrazine	21.6	1.0	ug/l	20.0	*ND*	108	50-150	13	30	
Monomethylhydrazine (MMH)	22.7	2.0	ug/l	20.0	*ND*	114	50-150	5	30	

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Blank (W0A0447-BLK1)					**Prepared: 01/10/20 Analyzed: 01/16/20**						
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*517*			*ng/l*	*500*		*103*	*76-128*			
Triphenyl phosphate	*482*			*ng/l*	*500*		*96*	*40-163*			
LCS (W0A0447-BS1)					**Prepared: 01/10/20 Analyzed: 01/16/20**						
Chlorpyrifos	84.8	6.9	10	ng/l	50.0		170	37-169			Q-08
Diazinon	61.8	5.2	10	ng/l	50.0		124	43-152			
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*513*			*ng/l*	*500*		*103*	*76-128*			
Triphenyl phosphate	*514*			*ng/l*	*500*		*103*	*40-163*			
LCS Dup (W0A0447-BSD1)					**Prepared: 01/10/20 Analyzed: 01/17/20**						
Chlorpyrifos	104	6.9	10	ng/l	50.0		208	37-169	20	30	Q-08
Diazinon	76.3	5.2	10	ng/l	50.0		153	43-152	21	30	Q-08
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*526*			*ng/l*	*500*		*105*	*76-128*			
Triphenyl phosphate	*555*			*ng/l*	*500*		*111*	*40-163*			

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Notes and Definitions

Item	Definition
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

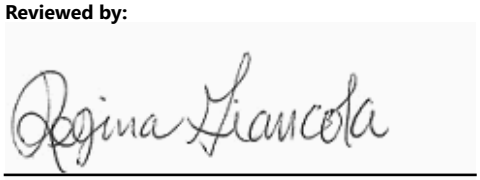
All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 8315M in Water			
Monomethylhydrazine (MMH)	60-34-4	✓	

Reviewed by:



Regina Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

est America

CHAIN OF CUSTODY FORM

lient Name/Address:
aley & Aldrich
333 Mission Center Rd Suite 300
an Diego, CA 92108

est America Contact: Christian Bondoc
7461 Derian Ave Suite #100
/ine CA 92614
el: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

stAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 19-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

ampler: Dan Smith

ANALYSIS REQUIRE

									R/A	R	R	R	R/A	R	R	R	A	A	R
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7); As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (180.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals, Mercury (E245.1)
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X
			WM	1 L Glass Amber	2	None	110	No		X									
			WM	1 L Poly	1	None	115	No			X								
			WM	500 mL Poly	5	None	120	Yes				X							
			WM	500 mL Poly	6	None	125	Yes					X						
			WM	500 mL Poly	1	None	150	No						X					
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X			
			WM	1 L Glass Amber	5	None	250	Yes									X		
			WM	1 L Glass Amber	5	None	175	Yes										X	
			WM	1 L Poly	1	None	185	No							X				
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H									
			WM	500 mL Poly	2	None	120	No				H							
			WM	500 mL Poly	2	None	125	No					H						
			WM	1 L Glass Amber	2	None	250	No									H		
			WM	1 L Glass Amber	2	None	175	No										H	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

	Relinquished By	Date/Time:	Company:	Received By	Date/Time:
1	Rachel Hohn	01/08/20 1445	H&A	Jonathan G	1/8/20 1445
2	Jonathan G.	1/8/20 1705	DCS		
3					
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74					
75					
76					
77					
78					
79					
80				80	1/8/20 1705 EC-IRV

Turn-around
24 Hour:
48 Hour:
Sample Inte
Intact:
Store sampl
Data Requir
No Level IV

1/8/20 LD

Test America

440-258718 Chain of Custody

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the TACs within Blanket Service Agreement# 2019-22 TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories Inc.

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager, Katherine Miller
520.289 8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Cyanide (SM4500-CN-E / E335.2) (R)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E906.0), K-40, CS-137 (E901.0 or E901.1) (R)	[illegible] (R)	1,4-Dioxane (E[illegible] (SW8260M_SIM)) (A)	Total Organic Carbon (415.2 (SM 5310B)) (A)	Monomethyl hydrazine (SW3315M DV WC-0077) (A)	Cr (VI) Total (E218.6) (A)	Total Dissolved Metals Mercury (E245.1) (R)		Comments
Outfall 002	Outfall002_20200108_Comp_F 1055	1/8/2020	WM	1 L Poly	2	None	190	Yes	X										Filter and preserve w/in 24hrs of receipt at lab. Outfall 014 analyze for Al
			WM	borosilicate vials	2	None	320	Yes									X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200108_Comp 1055	1/8/2020	WM	500 mL Poly	1	NaOH	220	Yes		X									
			WM	2.5 Gal Cube	3	None	225	Yes			X								Unfiltered and unpreserved analysis, Separate RAD onto another work order. Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber		None	230	Yes											
			WM	40 mL VOA	9	HCl	240	Yes					X						
			WM	1 L Glass Amber		HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	3	None	260	Yes								X			
	Outfall002_20200108_Comp_Extra 1055	1/8/2020	WM	40 mL VOA	1	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	H&A 01/08/20	1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			JD	1/8/20 1705 EC-IRV

Turn-around time (Check)
24 Hour ____ 12 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

0.8/0.8, 2.6/2.6, 0.4/0.4, 33/33, 0.3/0.3, 0.5/0.5, 1.3/1.3 IR-93

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's service under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 019-24-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories Inc.

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager Katherine Miller
520 289.8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	FOD5 (20 degrees C) (E405.1 (SM5210B_SODCalc)) (R)	Surfactants (MBAS) (SM5540C/E425.1) (R)	Cl, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N Perchlorate (E300) (R/A)	Turbidity, TDS (SM2540C/E 160.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia-N (E350.2) (R)	Priority Pollutants Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245.1) (R)	Chlorpyrifos and Diazinon (Method 525.2)			Comments
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X				Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	6	None	120	Yes				X											
			WM	500 mL Poly	6	None	125	Yes					X										48 hours Holding Time NO2 & NO3
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	2	H_2SO_4	160	Yes								X							
			WM	1 L Glass Amber	6	None	250	Yes									X						
			WM	1 L Glass Amber	6	None	175	Yes										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend. A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/08/20	H&A 1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			JD	1/8/20 1705 EC-IRV

Turn around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

2019 2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258718-1

Login Number: 258718
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes

440-258718 Field Sheet

Tracking # : 1119-9742-9063

SO / EO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+) / - 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☐	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☑

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WA-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258718-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258718-2

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200108 _COMP	440-258718-1	N/A	Water	1/8/20 10:55 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-258718-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (946 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

L. Calvin of MEC[X] reviewed the SDG on March 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were met. Following are findings associated with instrument performance:

III.2.1. *GC COLUMN PERFORMANCE*

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as <25%.

III.2.2. *MASS SPECTROMETER PERFORMANCE*

The mass spectrometer performance was acceptable with the static resolving power >10,000.

III.3. CALIBRATION

Calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals HxCDD, HxCDF, HpCDD and HpCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared peaks comprising the method blank totals to those in the sample totals. The retention times of peaks in the sample totals matched those in the method blank; therefore, results for totals HxCDD, HxCDF and HpCDD were

qualified as nondetects (U) at the level of contamination. The result for total HpCDF was qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.

III.7. COMPOUND IDENTIFICATION

Compound identification was verified. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not performed, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating a representative number of sample results. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 946 ml sample volume was available for extraction.

Isomers and total results previously qualified as method blank contamination were not further qualified as EMPCs. Isomer 1,2,3,7,8-PeCDF reported as an EMPC was qualified as an estimated nondetect (UJ) at the level of the EMPC. Total PeCDF consisted of the single isomer EMPC peak qualified in the sample and was therefore also qualified as an estimated nondetect (UJ).

Validated Sample Result Forms: 4402587182

Analysis Method E1613B

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000038	0.00011	0.0000011	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000043	0.00011	0.00000077	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000013	0.000053	0.00000062	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000063	0.000053	0.00000041	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	ND	0.000053	0.00000060	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	ND	0.000053	0.00000041	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000013	0.000053	0.00000058	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000053	0.00000044	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000053	0.00000061	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000012	0.000053	0.00000041	ug/L	J,DXqMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	ND	0.000053	0.00000054	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000011	0.000053	0.00000069	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000053	0.0000012	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	ND	0.000053	0.00000041	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000053	0.00000072	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000061	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.0000018	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000036	0.000053	0.00000060	ug/L	J,DXqMB	U	B
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000011	0.000053	0.00000041	ug/L	J,DXMB	U	B
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000012	0.000053	0.00000041	ug/L	J,DXqMB	U	B
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000013	0.000053	0.00000054	ug/L	J,DXqMB	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000011	0.000053	0.00000069	ug/L	J,DXq	UJ	*III

Analysis Method	*E1613B*							
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000053	0.0000012	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000061	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.0000018	ug/L	U	U

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258718-2
Client Project/Site: Annual Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/24/2020 5:29:23 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/24/2020 5:29:23 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258718-1	Outfall002_20200108_Comp	Water	01/08/20 10:55	01/08/20 17:05	

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Job ID: 440-258718-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258718-2

Comments
No additional comments.

Receipt
The samples were received on 1/8/2020 5:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3º C, 0.4º C, 0.5º C, 0.8º C, 1.3º C, 2.6º C and 3.3º C.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20200108_Comp (440-258718-1), (CCV 320-352632/2), (LCS 320-351765/2-A) and (MB 320-351765/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall002_20200108_Comp (440-258718-1) were provided in wide-mouth amber glass bottles.

preparation batch 320-351765
Method: 1613B_Sox_Sep_P
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000011	0.0000018	ug/L		01/20/20 08:35	01/23/20 17:13	1
2,3,7,8-TCDF	ND		0.000011	0.00000061	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,7,8-PeCDD	ND		0.000053	0.0000012	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,7,8-PeCDF	**0.0000011**	**J,DX q**	0.000053	0.00000069	ug/L		01/20/20 08:35	01/23/20 17:13	1
2,3,4,7,8-PeCDF	ND		0.000053	0.00000072	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,4,7,8-HxCDD	**0.0000013**	**J,DX q MB**	0.000053	0.00000058	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,6,7,8-HxCDD	ND		0.000053	0.00000061	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,7,8,9-HxCDD	ND		0.000053	0.00000054	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,4,7,8-HxCDF	ND		0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,6,7,8-HxCDF	ND		0.000053	0.00000044	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,7,8,9-HxCDF	**0.0000012**	**J,DX q MB**	0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
2,3,4,6,7,8-HxCDF	ND		0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,4,6,7,8-HpCDD	**0.0000063**	**J,DX MB**	0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,4,6,7,8-HpCDF	**0.0000013**	**J,DX q MB**	0.000053	0.00000062	ug/L		01/20/20 08:35	01/23/20 17:13	1
1,2,3,4,7,8,9-HpCDF	ND		0.000053	0.00000060	ug/L		01/20/20 08:35	01/23/20 17:13	1
OCDD	**0.000043**	**J,DX MB**	0.00011	0.00000077	ug/L		01/20/20 08:35	01/23/20 17:13	1
OCDF	**0.0000038**	**J,DX q MB**	0.00011	0.0000011	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total TCDD	ND		0.000011	0.0000018	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total TCDF	ND		0.000011	0.00000061	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total PeCDD	ND		0.000053	0.0000012	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total PeCDF	**0.0000011**	**J,DX q**	0.000053	0.00000069	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total HxCDD	**0.0000013**	**J,DX q MB**	0.000053	0.00000054	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total HxCDF	**0.0000012**	**J,DX q MB**	0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total HpCDD	**0.000011**	**J,DX MB**	0.000053	0.00000041	ug/L		01/20/20 08:35	01/23/20 17:13	1
Total HpCDF	**0.0000036**	**J,DX q MB**	0.000053	0.00000060	ug/L		01/20/20 08:35	01/23/20 17:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*52*		*25 - 164*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-2,3,7,8-TCDF	*53*		*24 - 169*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-2,3,4,7,8-PeCDF	*52*		*21 - 178*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*01/20/20 08:35*	*01/23/20 17:13*	*1*
13C-1,2,3,4,7,8-HxCDF	*53*		*26 - 152*	*01/20/20 08:35*	*01/23/20 17:13*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Client Sample ID: Outfall002_20200108_Comp
Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1
Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,6,7,8-HxCDF	51		26 - 123	01/20/20 08:35	01/23/20 17:13	1
13C-1,2,3,7,8,9-HxCDF	52		29 - 147	01/20/20 08:35	01/23/20 17:13	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136	01/20/20 08:35	01/23/20 17:13	1
13C-1,2,3,4,6,7,8-HpCDD	46		23 - 140	01/20/20 08:35	01/23/20 17:13	1
13C-1,2,3,4,6,7,8-HpCDF	47		28 - 143	01/20/20 08:35	01/23/20 17:13	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138	01/20/20 08:35	01/23/20 17:13	1
13C-OCDD	51		17 - 157	01/20/20 08:35	01/23/20 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	87		35 - 197	01/20/20 08:35	01/23/20 17:13	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			946.1 mL	20 uL	351765	01/20/20 08:35	RDR	TAL SAC
Total/NA	Analysis	1613B		1			352632	01/23/20 17:13	ALM	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-351765/1-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 351765

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000016	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,7,8-TCDF	ND		0.000010	0.00000049	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000096	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000054	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000055	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8-HxCDD	0.00000199	J,DX q	0.000050	0.00000037	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000035	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000026	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000026	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8,9-HxCDF	0.00000115	J,DX	0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,6,7,8-HpCDD	0.00000186	J,DX	0.000050	0.00000024	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,6,7,8-HpCDF	0.00000142	J,DX q	0.000050	0.00000042	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1
OCDD	0.00000692	J,DX	0.00010	0.00000047	ug/L		01/20/20 08:35	01/23/20 14:49	1
OCDF	0.00000444	J,DX	0.00010	0.00000086	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total TCDD	ND		0.000010	0.0000016	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total TCDF	ND		0.000010	0.00000049	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total PeCDD	ND		0.000050	0.00000096	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total PeCDF	ND		0.000050	0.00000054	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HxCDD	0.00000199	J,DX q	0.000050	0.00000035	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HxCDF	0.00000115	J,DX	0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HpCDD	0.00000319	J,DX q	0.000050	0.00000024	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HpCDF	0.00000142	J,DX q	0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-1,2,3,7,8-PeCDF	*58*		*24 - 185*	*01/20/20 08:35*	*01/23/20 14:49*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-351765/1-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 351765

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	62		21 - 178	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8-HxCDD	59		32 - 141	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8-HxCDF	61		26 - 152	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	01/20/20 08:35	01/23/20 14:49	1
13C-2,3,4,6,7,8-HxCDF	58		28 - 136	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,6,7,8-HpCDF	58		28 - 143	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8,9-HpCDF	64		26 - 138	01/20/20 08:35	01/23/20 14:49	1
13C-OCDD	61		17 - 157	01/20/20 08:35	01/23/20 14:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197	01/20/20 08:35	01/23/20 14:49	1

Lab Sample ID: LCS 320-351765/2-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 351765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000181		ug/L		90	67 - 158
2,3,7,8-TCDF	0.000200	0.000184		ug/L		92	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000892		ug/L		89	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000888		ug/L		89	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000840		ug/L		84	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000830	MB	ug/L		83	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000872		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000826		ug/L		83	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000803		ug/L		80	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000867		ug/L		87	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000856	MB	ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000875		ug/L		88	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000887	MB	ug/L		89	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000873	MB	ug/L		87	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000814		ug/L		81	78 - 138
OCDD	0.00200	0.00178	MB	ug/L		89	78 - 144
OCDF	0.00200	0.00193	MB	ug/L		96	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	52		20 - 175
13C-2,3,7,8-TCDF	54		22 - 152
13C-1,2,3,7,8-PeCDD	55		21 - 227
13C-1,2,3,7,8-PeCDF	59		21 - 192
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-1,2,3,4,7,8-HxCDD	58		21 - 193
13C-1,2,3,6,7,8-HxCDD	53		25 - 163
13C-1,2,3,4,7,8-HxCDF	61		19 - 202
13C-1,2,3,6,7,8-HxCDF	56		21 - 159

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-351765/2-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 351765

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,7,8,9-HxCDF	57		17 - 205
13C-2,3,4,6,7,8-HxCDF	57		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	51		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	54		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	60		20 - 186
13C-OCDD	56		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	87		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Specialty Organics

Prep Batch: 351765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	1613B	
MB 320-351765/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-351765/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 352632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	1613B	351765
MB 320-351765/1-A	Method Blank	Total/NA	Water	1613B	351765
LCS 320-351765/2-A	Lab Control Sample	Total/NA	Water	1613B	351765

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258718-2
Project/Site: Annual Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-20 *
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-29-20 *
Hawaii	State	<cert No.>	01-29-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20 *
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Michigan	State Program	9947	01-31-20
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20 *
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-29-20
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19 *
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

rst America

CHAIN OF CUSTODY FORM

lient Name/Address:
aley & Aldrich
333 Mission Center Rd Suite 300
an Diego, CA 92108

est America Contact: Christian Bondoc
7461 Derian Ave Suite #100
/ine CA 92614
el: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

eAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 10-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

ampler: Dan Smith

									R/A	R	R	R	R/A	R	R	R	A	A	R
									ANALYSIS REQUIRE										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7); As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (180.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals, Mercury (E245.1)
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X
			WM	1 L Glass Amber	2	None	110	No		X									
			WM	1 L Poly	1	None	115	No			X								
			WM	500 mL Poly	6	None	120	Yes				X							
			WM	500 mL Poly	6	None	125	Yes					X						
			WM	500 mL Poly	1	None	150	No						X					
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X			
			WM	1 L Glass Amber	6	None	250	Yes									X		
			WM	1 L Glass Amber	6	None	175	Yes										X	
			WM	1 L Poly	1	None	185	No							X				
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H									
			WM	500 mL Poly	2	None	120	No				H							
			WM	500 mL Poly	2	None	125	No					H						
			WM	1 L Glass Amber	2	None	250	No									H		
			WM	1 L Glass Amber	2	None	175	No										H	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

linquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	01/08/20 1445	H&A	Jonathan G	1/8/20 1445
linquished By	Date/Time:	Company:	Received By	Date/Time:
Jonathan G.	1/8/20 1705	DCS		
linquished By	Date/Time:	Company:	Received By	Date/Time:
			[illegible]	1/8/20 1705 EC-IRV

Turn-around
24 Hour: ___
48 Hour: ___
Sample Inte
Intact: ___
Store sampl
Data Requir
No Level IV

Test America

1/8/2020

CHAIN OF CUSTODY FORM

440-258718 Chain of Custody

Client Name/Address	Project	Analysis Required
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp	R/A R R R A A A A R
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22 TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc.	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)	
Sampler: Dan Smith		

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha/E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E013* 1) & Radium 228 (E*04.0), Uranium (E908.0) & K-40 CS-137 (E901.0 or E901.1)	[illegible]	1,4-Dioxane (E[illegible] / SW8260M, SIM)	Total Organic Carbon (415.2 / SM 5310B)	Bromomethyl by Jrazine (SW3015B/ SW 846-8011)	Cr (VI) Total (E218.6)	Total Dissolved Metals Mercury (E.245.1)		Comments
Outfall 002	Outfall002_20200108_Comp_F 10SS	1/8/2020	WM	1 L Poly	1	None	190	Yes	X										Filter and preserve within 24hrs of receipt at lab Outfall 011 analyze for Al
			WM	bnlicate vials	[illegible]	None	320	Yes									X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200108_Comp 10SS	1/8/2020	WM	500 mL Poly	1	NaOH	220	Yes		X									
			WM	2.5 Gal Cube	1	None	225	Yes			X								Unfiltered and unpreserved analysis. Separate RAD onto another work order. Analyze duplicate and MS/MSD
			WM	1 L Glass Amber		None	230	Yes											
			WM	40 mL VOA	6	HCl	240	Yes					X						
			WM	1 L Glass Amber		HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							y				
			WM	500 mL Poly	3	None	260	Yes								X			
	Outfall002_20200108_Comp_Extra 10SS	1/8/2020	WM	40 mL VOA	6	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/08/20	1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			Jonathan G	1/8/20 1705 EC-IRV

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months

Data Requirements (Check)
No Level IV _____ All Level IV ___X___

0.8/0.8, 2.6/2.6, 0.4/0.4, 33/33, 0.3/0.3, 0.5/0.5, 1.3/1.3 IR-93

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1/24/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's service under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 019-24-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories Inc.

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager Katherine Miller
520 289.8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	FOD5 (20 degrees C) (E405.1 (SM5210B_BOD Calc)) (R)	Surfactants (MBAS) (SM5540C/E425.1) (R)	Cl, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N Perchlorate (E300) (R/A)	Turbidity, TDS (SM2540C/E 160.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia-N (E350.2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245.1) (R)	Chlorpyrifos and Diazinon (Method 525.2)			Comments
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X				Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	6	None	120	Yes				X											
			WM	500 mL Poly	6	None	125	Yes					X										48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	2	H_2SO_4	160	Yes								X							
			WM	1 L Glass Amber	6	None	250	Yes									X						
			WM	1 L Glass Amber	6	None	175	Yes										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend. A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/08/20	H&A 1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			JD	1/8/20 1705 EC-IRV

Turn around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150941.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258718-1
Address: 880 Riverside Parkway,	Due Date Requested: 1/20/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Annual Outfall 002 Comp	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200108_Comp (440-258718-1)	1/8/20	10:55 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L, Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Rumley	1/9/2020 1700	EC-IRV	Juan Guzman	1/10/20 - 9:15	ETA SAC
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: OBS 0.3 Corr 0.8

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258718-2

Login Number: 258718
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258718-2

Login Number: 258718
List Number: 3
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 01/10/20 04:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 0.3 corr 0.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-258718-1	Outfall002_20200108_Comp	52	53	49	52	52	50	46	53
MB 320-351765/1-A	Method Blank	54	59	52	58	62	59	54	61

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-258718-1	Outfall002_20200108_Comp	51	52	50	46	47	53	51
MB 320-351765/1-A	Method Blank	58	58	58	55	58	64	61

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-351765/2-A	Lab Control Sample	52	54	55	59	62	58	53	61

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-351765/2-A	Lab Control Sample	56	57	57	51	54	60	56

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-2

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

440-258718 Field Sheet

Tracking # : 1119-9742-9063

SO / EO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+) / (-) 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☐	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☑

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WI-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258718-3

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

6 March 2020

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-258718-3

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200108_COMP	440-258718-1	N/A	Water	1/8/20 10:55 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, HASL-300 U Mod

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt forms and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-258718-3:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact.
- Field and laboratory personnel signed and dated the COCs.
- Some corrections to the original COCs were not dated. The cross-outs did not affect data quality.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. VARIOUS EPA METHODS —RADIONUCLIDES

E. Wessling of MEC[X] reviewed the SDG on March 6, 2020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *EPA Methods 900, 901.1, 903.0, 904.0, 905.0, 906.0 and HASL-300 U Mod,* and the *National Functional Guidelines for Superfund Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES:

According to the case narrative, the sample was received properly preserved.

III.2. CALIBRATION:

The detector efficiency for gross alpha was less than 20%; therefore, the detected result for gross alpha was qualified as an estimated nondetect (UJ). All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits. Calibration checks were verified as acceptable for all methods.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target isotopes were not detected in the method blanks above the MDC. However, a comparison normalized absolute difference of the sample results and the method blank results indicated the method blank and the sample results were not significantly different at the 1% level of confidence for total uranium. The detected sample result for total uranium was qualified as nondetect (U). The comparison normalized absolute difference of the sample results and the method blank results indicated the method blank and the sample results were not significantly different at the 5% level of confidence for gross beta. The detected sample result for gross beta was qualified as estimated (J+).

III.3.2. *LABORATORY CONTROL SAMPLES:*

The recoveries were within laboratory-established control limits.

III.3.3. *LABORATORY DUPLICATES:*

Laboratory duplicates were not performed on the sample from this SDG.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE:*

Matrix spike (MS)/MSD analyses were performed on the sample from this SDG for gross alpha, gross beta, radium-226, radium-228, strontium-90, tritium and total uranium. Recoveries were within the laboratory control limits and DERs were within laboratory control limits.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level IV review was performed on the sample in this data package. Calculations were verified from the raw data and were determined to be accurate within a reasonable margin of error attributable to differences in significant figures. Reported nondetects are valid to the MDC.

III.5. FIELD QC SAMPLES:

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. The following are findings associated with field QC samples:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

This SDG had no identified field blank or equipment blank samples.

III.5.2. *FIELD DUPLICATES:*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402587183

Analysis Method E900

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	0.439	1.18	3.00	2.16	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	2.44	0.787	4.00	0.972	pCi/L		J+	B

Analysis Method E901.1

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	-2.76	9.54	20.0	11.9	pCi/L	U	U	
Potassium-40	13966-00-2	-57.7	110	176	176	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0761	0.0607	1.00	0.0868	pCi/L	U	U	

Analysis Method E904.0

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.157	0.282	1.00	0.522	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	-0.0868	0.140	3.00	0.270	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	-60.8	183	500	343	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.291	0.163	1.00	0.138	pCi/L		U	B

Analysis Method RADIUM

Sample Name OUTFALL002_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 10:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-258718-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.522	0.288			pCi/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258718-3
Client Project/Site: Annual Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
2/7/2020 8:34:13 AM
Lena Davidkova, Project Manager II
(949)260-3229
lena.davidkova@testamericainc.com

Designee for

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Lena Davidkova
Project Manager II
2/7/2020 8:34:13 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258718-1	Outfall002_20200108_Comp	Water	01/08/20 10:55	01/08/20 17:05	

Job ID: 440-258718-3

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258718-3

Comments
No additional comments.

Receipt
The samples were received on 1/8/2020 5:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3º C, 0.4º C, 0.5º C, 0.8º C, 1.3º C, 2.6º C and 3.3º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-456711

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456711/2-A), (LCSB 160-456711/3-A), (MB 160-456711/1-A), (440-258718-Y-1-H MSBT) and (440-258718-Y-1-I MSBTD)

Method 901.1: Gamma Prep Batch 160-456597

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Outfall002_20200108_Comp (440-258718-1), (LCS 160-456597/2-A), (MB 160-456597/1-A), (440-258701-A-1-A) and (440-258701-A-1-B DU)

Method 903.0: Radium-226 Prep Batch 160-456626

Job ID: 440-258718-3 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456626/1-A) and (MB 160-456626/15-A)

Method 904.0: Radium-228 Prep Batch 160-456630
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456630/1-A) and (MB 160-456630/15-A)

Method 905: Strontium-90 Prep Batch 160-456576

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The absolute value of the negative result for the method blank associated with the following samples in batch 160-456576 is outside the three sigma uncertainty: Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456576/1-A) and (MB 160-456576/12-A). A recount was not possible due to the passing of a full decay cycle of yttrium-90 (Sr-90). The data has been qualified and reported.

Method 906.0: LSC Tritium Prep Batch 160-456611

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456611/2-A) and (MB 160-456611/1-A)

Method A-01-R: Isotopic Uranium Prep Batch 160-456651
The tracer resolution was greater than 100 keV. The analyte peaks were resolvable within the appropriate region(s) of interest, and no interferent peaks were seen. The laboratory does not believe this excursion adversely affects the data.Outfall002_20200108_Comp (440-258718-1[MS]) and (LCS 160-456651/2-A)

Method A-01-R: Isotopic Uranium Prep Batch 160-456651
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]), Outfall002_20200108_Comp (440-258718-1[MSD]), (LCS 160-456651/2-A) and (MB 160-456651/1-A)

Method ExtChrom: Uranium Prep Batch 160-456651

The following samples have a slight yellow discoloration and suspended solids. Outfall002_20200108_Comp (440-258718-1), Outfall002_20200108_Comp (440-258718-1[MS]) and Outfall002_20200108_Comp (440-258718-1[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.439	U	1.18	1.18	3.00	2.16	pCi/L	01/14/20 08:41	01/18/20 14:51	1
Gross Beta	**2.44**		0.748	0.787	4.00	0.972	pCi/L	01/14/20 08:41	01/18/20 14:51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.76	U	9.54	9.54	20.0	11.9	pCi/L	01/13/20 10:04	01/15/20 15:02	1
Potassium-40	-57.7	U	110	110		176	pCi/L	01/13/20 10:04	01/15/20 15:02	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0761	U	0.0604	0.0607	1.00	0.0868	pCi/L	01/13/20 12:03	02/04/20 12:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.1*		*40 - 110*	*01/13/20 12:03*	*02/04/20 12:13*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.157	U	0.281	0.282	1.00	0.522	pCi/L	01/13/20 13:08	01/16/20 16:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.1*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:21*	*1*
Y Carrier	*85.1*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:21*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0868	U	0.140	0.140	3.00	0.270	pCi/L	01/13/20 07:50	01/21/20 11:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*87.6*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*
Y Carrier	*94.6*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-60.8	U	183	183	500	343	pCi/L	01/13/20 11:44	01/14/20 15:15	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.291**		0.163	0.163	1.00	0.138	pCi/L	01/13/20 16:40	01/22/20 07:51	1

Client Sample ID: Outfall002_20200108_Comp
Lab Sample ID: 440-258718-1
Date Collected: 01/08/20 10:55
Matrix: Water
Date Received: 01/08/20 17:05

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	89.3		30 - 110	01/13/20 16:40	01/22/20 07:51	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-3

Client Sample ID: Outfall002_20200108_Comp

Date Collected: 01/08/20 10:55
Date Received: 01/08/20 17:05

Lab Sample ID: 440-258718-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.08 g	1.0 g	456711	01/14/20 08:41	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	457193	01/18/20 14:51	AJD	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	456597	01/13/20 10:04	LTC	TAL SL
Total/NA	Analysis	901.1		1			456810	01/15/20 15:02	AJD	TAL SL
Total/NA	Prep	PrecSep-21			999.6 mL	1.0 g	456626	01/13/20 12:03	MMO	TAL SL
Total/NA	Analysis	903.0		1			459158	02/04/20 12:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.6 mL	1.0 g	456630	01/13/20 13:08	MNH	TAL SL
Total/NA	Analysis	904.0		1			457020	01/16/20 16:21	KLS	TAL SL
Total/NA	Prep	PrecSep-7			999.9 mL	1.0 g	456576	01/13/20 07:50	MNH	TAL SL
Total/NA	Analysis	905		1			457492	01/21/20 11:19	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	456611	01/13/20 11:44	KNF	TAL SL
Total/NA	Analysis	906.0		1			456785	01/14/20 15:15	JS	TAL SL
Total/NA	Prep	ExtChrom			500.04 mL	1.0 mL	456651	01/13/20 16:40	KLH	TAL SL
Total/NA	Analysis	A-01-R		1			457589	01/22/20 07:51	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-456711/1-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456711

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.0000	U	0.610	0.610	3.00	1.20	pCi/L	01/14/20 08:41	01/18/20 14:49	1
Gross Beta	0.1550	U	0.511	0.511	4.00	0.890	pCi/L	01/14/20 08:41	01/18/20 14:49	1

Lab Sample ID: LCS 160-456711/2-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	49.78		7.41	3.00	1.89	pCi/L	100	75 - 125

Lab Sample ID: LCSB 160-456711/3-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	85.0	82.46		8.78	4.00	0.900	pCi/L	97	75 - 125

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	0.439	U	49.5	32.12		5.68	3.00	2.49	pCi/L	64	60 - 140

Lab Sample ID: 440-258718-1 MSBT
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	2.44		85.0	84.84		9.03	4.00	0.938	pCi/L	97	60 - 140

Lab Sample ID: 440-258718-1 MSBTD
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	2.44		84.9	84.68		9.00	4.00	0.937	pCi/L	97	60 - 140	0.01	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	0.439	U	49.5	30.19		5.41	3.00	2.47	pCi/L	60	60 - 140	0.17	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-456597/1-A
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456597

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.971	U	14.9	14.9	20.0	18.0	pCi/L	01/13/20 10:04	01/15/20 13:26	1
Potassium-40	32.75	U	83.8	83.9		145	pCi/L	01/13/20 10:04	01/15/20 13:26	1

Lab Sample ID: LCS 160-456597/2-A
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456597

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	132600		15300		422	pCi/L	98	90 - 111
Cesium-137	44000	43580		4370	20.0	134	pCi/L	99	90 - 111
Cobalt-60	27100	26460		2620		67.3	pCi/L	98	89 - 110

Lab Sample ID: 440-258701-A-1-B DU
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 456597

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	0.394	U	-2.589	U	10.5	20.0	13.2	pCi/L	0.14	1
Potassium-40	-51.6	U	-57.70	U	121		184	pCi/L	0.02	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-456626/15-A
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456626

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02711	U	0.0456	0.0457	1.00	0.102	pCi/L	01/13/20 12:03	02/04/20 12:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*01/13/20 12:03*	*02/04/20 12:14*	*1*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-456626/1-A
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456626

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	8.788		0.907	1.00	0.0772	pCi/L	77	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456626

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0761	U	11.4	9.953		1.02	1.00	0.0711	pCi/L	87	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*98.8*		*40 - 110*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456626

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0761	U	11.3	9.906		1.03	1.00	0.123	pCi/L	87	75 - 138	0.02	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-456630/15-A
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456630

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1136	U	0.208	0.209	1.00	0.354	pCi/L	01/13/20 13:08	01/16/20 16:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:22*	*1*
Y Carrier	*83.6*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:22*	*1*

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-456630/1-A
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456630

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.20	9.655		1.12	1.00	0.465	pCi/L	105	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*
Y Carrier	*83.0*		*40 - 110*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456630

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	-0.157	U	9.20	8.903		1.06	1.00	0.431	pCi/L	97	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*98.8*		*40 - 110*
Y Carrier	*83.6*		*40 - 110*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456630

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	-0.157	U	9.20	8.437		1.01	1.00	0.402	pCi/L	92	45 - 150	0.22	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*
Y Carrier	*84.5*		*40 - 110*

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-456576/12-A
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456576

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.2796	U	0.150	0.152	3.00	0.314	pCi/L	01/13/20 07:50	01/21/20 11:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*92.5*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*
Y Carrier	*91.2*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCS 160-456576/1-A
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456576

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.93	8.753		0.931	3.00	0.326	pCi/L	110	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*78.2*		*40 - 110*
Y Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456576

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	-0.0868	U	7.93	7.549		0.833	3.00	0.323	pCi/L	95	19 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Sr Carrier	*85.8*		*40 - 110*
Y Carrier	*85.2*		*40 - 110*

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456576

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	-0.0868	U	7.93	8.107		0.874	3.00	0.311	pCi/L	102	19 - 150	0.33	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Sr Carrier	*87.0*		*40 - 110*
Y Carrier	*84.1*		*40 - 110*

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-456611/1-A
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-92.34	U	177	177	500	335	pCi/L	01/13/20 11:44	01/14/20 14:07	1

Lab Sample ID: LCS 160-456611/2-A
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2510	2752		448	500	337	pCi/L	110	75 - 114		

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456611

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	-60.8	U	2510	2441		414	500	326	pCi/L	97	67 - 130

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456611

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-60.8	U	2500	2509		427	500	340	pCi/L	100	67 - 130	0.08	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-456651/1-A
Matrix: Water
Analysis Batch: 457582

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456651

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.06531	U	0.1016	0.1017	1.00	0.145	pCi/L	01/13/20 16:40	01/22/20 07:51	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*78.7*		*30 - 110*	*01/13/20 16:40*	*01/22/20 07:51*	*1*

Lab Sample ID: LCS 160-456651/2-A
Matrix: Water
Analysis Batch: 457584

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456651

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234			12.7	12.15		1.45	1.00	0.187	pCi/L	95	75 - 125
Uranium-238			13.0	12.57		1.49	1.00	0.147	pCi/L	97	75 - 125

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*61.3*		*30 - 110*

Lab Sample ID: 440-258718-1 MS
Matrix: Water
Analysis Batch: 457597

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456651

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	0.162		12.7	12.57		1.52	1.00	0.204	pCi/L	97	65 - 146
Uranium-238	0.118	U	13.0	13.02		1.56	1.00	0.134	pCi/L	99	68 - 143

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*57.5*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-258718-1 MSD
Matrix: Water
Analysis Batch: 457569

Client Sample ID: Outfall002_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456651

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.162		12.7	12.14		1.41	1.00	0.110	pCi/L	94	65 - 146	0.15	1
Uranium-238	0.118	U	13.0	13.38		1.52	1.00	0.0951	pCi/L	102	68 - 143	0.12	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*68.5*		*30 - 110*

Rad

Prep Batch: 456576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-7	
MB 160-456576/12-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-456576/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-7	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 456597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-456597/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-456597/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-258701-A-1-B DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 456611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-456611/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-456611/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	LSC_Dist_Susp	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 456626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-21	
MB 160-456626/15-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-456626/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-21	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 456630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	PrecSep_0	
MB 160-456630/15-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-456630/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	PrecSep_0	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 456651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	ExtChrom	
MB 160-456651/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-456651/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	ExtChrom	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 456711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1	Outfall002_20200108_Comp	Total/NA	Water	Evaporation	
MB 160-456711/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-456711/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-456711/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Rad (Continued)

Prep Batch: 456711 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-1 MS	Outfall002_20200108_Comp	Total/NA	Water	Evaporation	
440-258718-1 MSBT	Outfall002_20200108_Comp	Total/NA	Water	Evaporation	
440-258718-1 MSBTD	Outfall002_20200108_Comp	Total/NA	Water	Evaporation	
440-258718-1 MSD	Outfall002_20200108_Comp	Total/NA	Water	Evaporation	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-3

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258718-3
Project/Site: Annual Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19 *
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

rst America

CHAIN OF CUSTODY FORM

lient Name/Address:
aley & Aldrich
333 Mission Center Rd Suite 300
an Diego, CA 92108

est America Contact: Christian Bondoc
7461 Derian Ave Suite #100
/ine CA 92614
el: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

stAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 10-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

ampler: Dan Smith

									R/A	R	R	R	R/A	R	R	R	A	A	R
									ANALYSIS REQUIRE										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7); As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (180.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals, Mercury (E245.1)
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X
			WM	1 L Glass Amber	2	None	110	No		X									
			WM	1 L Poly	1	None	115	No			X								
			WM	500 mL Poly	6	None	120	Yes				X							
			WM	500 mL Poly	6	None	125	Yes					X						
			WM	500 mL Poly	1	None	150	No						X					
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X			
			WM	1 L Glass Amber	6	None	250	Yes									X		
			WM	1 L Glass Amber	6	None	175	Yes										X	
			WM	1 L Poly	1	None	185	No							X				
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H									
			WM	500 mL Poly	2	None	120	No				H							
			WM	500 mL Poly	2	None	125	No					H						
			WM	1 L Glass Amber	2	None	250	No									H		
			WM	1 L Glass Amber	2	None	175	No										H	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

linquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	01/08/20 1445	H&A	Jonathan G	1/8/20 1445
linquished By	Date/Time:	Company:	Received By	Date/Time:
Jonathan G.	1/8/20 1705	DCS		
linquished By	Date/Time:	Company:	Received By	Date/Time:
			[illegible]	1/8/20 1705 EC-IRV

Turn-around
24 Hour: ___
48 Hour: ___
Sample Inte
Intact: ___
Store sampl
Data Requir
No Level IV

1/8/2020

Test America

CHAIN OF CUSTODY FORM

440-258718 Chain of Custody

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22 TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED R/A: Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn; Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	R: Cyanide (SM4500-CN-E / E335.2)	R: Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E013* 1) & Radium 228 (E*04.0), Uranium (E908.0) K-40, CS-137 (E901.0 or E901.1)	R: [illegible]	A: 1,4-Dioxane (E[illegible] / SW8260M, SIM)	A: Total Organic Carbon (415.2 / SM 5310B)	A: Bromomethyl Hydrazine (SW3015M/ DW MAC-0007)	A: Cr (VI) Total (E218.6)	R: Total Dissolved Metals Mercury (E.245.1)		Comments
Outfall 002	Outfall002_20200108_Comp_F 10SS	1/8/2020	WM	1 L Poly	1	None	190	Yes	X										Filter and preserve within 24hrs of receipt at lab Outfall 011 analyze for Al
			WM	bnlicate vials	[illegible]	None	320	Yes										X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200108_Comp 10SS	1/8/2020	WM	500 mL Poly	1	NaOH	220	Yes		X									
			WM	2.5 Gal Cube	1	None	225	Yes			X								Unfiltered and unpreserved analysis. Separate RAD onto another work order. Analyze duplicate and MS/MSD
			WM	1 L Glass Amber		None	230	Yes											
			WM	40 mL VOA	6	HCl	240	Yes						X					
			WM	1 L Glass Amber		HCl	245	No							X				
			WM	1 L Glass Amber	2	None	255	No								y			
			WM	500 mL Poly	3	None	260	Yes									X		
	Outfall002_20200108_Comp_Extra 10SS	1/8/2020	WM	40 mL VOA	6	HCl	240	No						H					Hold
			WM	1 L Glass Amber	2	None	255	No								H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/08/20	1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			Jonathan G	1/8/20 1705 EC-IRV

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV ___X___

0.8/0.8, 2.6/2.6, 0.4/0.4, 33/33, 0.3/0.3, 0.5/0.5, 1.3/1.3 IR-93

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2/7/2020
2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's service under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 019-24-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories Inc

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager Katherine Miller
520 289.8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	TOD5 (20 degrees C) (E405.1 (SM5210B_BOD Calc)) (R)	Surfactants (MBAS) (SM5540C/E425.1) (R)	Cl, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N Perchlorate (E300) (R/A)	Turbidity, TDS (SM2540C/E 160.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia-N (E350.2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245.1) (R)	Chlorpyrifos and Diazinon (Method 525.2)			Comments
Outfall 002	Outfall002_20200108_Comp	1/8/2020 1055	WM	500 mL Poly	3	HNO_3	80	Yes	X										X				Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	6	None	120	Yes				X											
			WM	500 mL Poly	6	None	125	Yes					X										48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	2	H_2SO_4	160	Yes								X							
			WM	1 L Glass Amber	6	None	250	Yes									X						
			WM	1 L Glass Amber	6	None	175	Yes										X					
			WM	1 L Poly	1	None	185	No							X								
	Outfall002_20200108_Comp_Extra	1/8/2020 1055	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend. A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/08/20	H&A 1445	Jonathan G	1/8/20 1445
Jonathan G.	1/8/20	DCS 1705		
			JD	1/8/20 1705 EC-IRV

Turn around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150914.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258718-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/20/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fil_Geo_0 K-40 and Cesium-137	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200108_Comp (440-258718-1)	1/8/20	10:55 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200108_Comp (440-258718-1MS)	1/8/20	10:55 Pacific	MS	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200108_Comp (440-258718-1MSD)	1/8/20	10:55 Pacific	MSD	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Kennedy	1/9/2020 1700	EC-IRV		1/10/20 5:20	ETASR
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150934.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258718-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/20/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Annual Outfall 002 Comp	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200108_Comp (440-258718-1)	1/8/20	10:55 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200108_Comp (440-258718-1MS)	1/8/20	10:55 Pacific	MS	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200108_Comp (440-258718-1MSD)	1/8/20	10:55 Pacific	MSD	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Kenney	1/9/2020 1760	EC-IRV		1.10.20 5:20	ETAST
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258718-3

Login Number: 258718
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258718-3

Login Number: 258718
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 01/10/20 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

Job ID: 440-258718-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-258718-1	Outfall002_20200108_Comp	89.1
440-258718-1 MS	Outfall002_20200108_Comp	98.8
440-258718-1 MSD	Outfall002_20200108_Comp	99.1
LCS 160-456626/1-A	Lab Control Sample	106
MB 160-456626/15-A	Method Blank	109

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-258718-1	Outfall002_20200108_Comp	89.1	85.1
440-258718-1 MS	Outfall002_20200108_Comp	98.8	83.6
440-258718-1 MSD	Outfall002_20200108_Comp	99.1	84.5
LCS 160-456630/1-A	Lab Control Sample	106	83.0
MB 160-456630/15-A	Method Blank	109	83.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-258718-1	Outfall002_20200108_Comp	87.6	94.6
440-258718-1 MS	Outfall002_20200108_Comp	85.8	85.2
440-258718-1 MSD	Outfall002_20200108_Comp	87.0	84.1
LCS 160-456576/1-A	Lab Control Sample	78.2	92.0
MB 160-456576/12-A	Method Blank	92.5	91.2

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-258718-1	Outfall002_20200108_Comp	89.3
440-258718-1 MS	Outfall002_20200108_Comp	57.5
440-258718-1 MSD	Outfall002_20200108_Comp	68.5
LCS 160-456651/2-A	Lab Control Sample	61.3
MB 160-456651/1-A	Method Blank	78.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258718-3
Project/Site: Annual Outfall 002 Comp

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Sacramento Sample Receiving Notes

440-258718 Field Sheet

Tracking # : 1119-9742-9063

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other

Job:

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:

Therm. ID: AK-7 Corr. Factor: (+) / -) 0.5 °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☑

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W9-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259122-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

12 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259122-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200111_GRAB	440-259122-1	N/A	Water	1/11/20 8:55 AM	SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259122-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- The laboratory received the sample container intact and properly preserved. Although the subcontract laboratory recommends that the sample container be sealed in a plastic bag, the sample was not received in a plastic bag. No qualification was applied.
- Field and laboratory personnel signed and dated the original COC, but the transfer COC was not signed.
- According to the Login Sample Acceptance Checklist, custody seals were absent on the cooler; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHOD SM 9221F— *E. COLI*

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

III.1. HOLDING TIMES

The QAPP holding time for *E. Coli*, 6 hours, was met.

III.2. CALIBRATION

Biological controls were acceptable for *E. Coli* analysis.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

The negative control sample was acceptable for the *E. Coli* analysis.

III.3.2. *LABORATORY CONTROL SAMPLES*

The presumptive test was analyzed with the positive detects for *E. Coli*.

III.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis is not applicable for this method.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable for this method.

III.4. SAMPLE RESULT VERIFICATION

The sample result reported on the sample results summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

The sample was analyzed at 1×, 10× and 100× dilutions, as requested on the COC.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples are not applicable to this method.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402591221

Analysis Method SM9221F

Sample Name OUTFALL002_20200111_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2020 8:55:00 AM **Validation Level:** 8

Lab Sample Name: 440-259122-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	46	1	1	mpn/100			

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259122-1
Client Project/Site: Annual Outfall 002 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/20/2020 4:35:13 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/20/2020 4:35:13 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-259122-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259122-1	Outfall002_20200111_Grab	Water	01/11/20 08:55	01/11/20 11:35	

Job ID: 440-259122-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-259122-1

Comments
No additional comments.

Receipt
The sample was received on 1/11/2020 11:35 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3º C.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-259122-1

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

Job ID: 440-259122-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259122-1
Project/Site: Annual Outfall 002 Grab

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc

Lab Request:	423709
Report Date:	01/20/2020
Date Received:	01/11/2020
Client ID:	12194

Comments: Project: Boeing-SSFL NPDES Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 002 Grab, 440-259122

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423709-001	Outfall002_20200111_Grab (440-259122)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

The reports of the Enthalpy Analytical, Inc. are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.

Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/11/2020 08:55	**Site:**			
Sample #:	**423709-001**	**Client Sample #:**	Outfall002_20200111_Grab (440-259	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213451		
Coliform, E. Coli	**46**	1		MPN/100ml	01/11/20 13:04	01/14/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

423709

Test America

CHAIN OF CUSTODY FORM

A A R R R R/Q/A A A A

Client Name/Address:	Project:	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 002 Grab		Field Readings: (include units) Time of Readings:_____	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218			DO_____mg/L pH_____ pH unit Temp_____°C/°F	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		TRC_____mg/L	
Sampler: Neal Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field readings QC Checked by:_____ Date/Time:_____	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357) Source Molecular in Miami Lakes, FL	E. coli (SM9221)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Oil & Grease (E1664A-HEM)	VOCs + VOCs PP + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624)	VOCs - only A+A+2CVE (E624)	TPH: gas (GRO)(C4-C12)) (SW8015B)	TPH: diesel/jet fuel (DRO (C13-C28)) (SW8015B)				Comments
Outfall 002	Outfall002_20200111_Grab	8:55 1/11/2020	WM	125mL Sterile Poly	3	$Na_2S_2O_3$	10	No		X											Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	01/11/20 10:00	H&A	Robaire Gerges	01-11-20 10:00
Robaire Gerges	1-11-20 11:35		Leslie Hernandez	1/11/20 1135

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice:_____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV:___X_____

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1/20/2020

2019-2020 Rainy Season
Version 2

0.3/16.2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-259122

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving
Company: Enthalpy Analytical LLC
Address: 931 W. Barkley Ave, ,
City: Orange
State, Zip: CA, 92868
Phone:
Email:
Project Name: Annual Outfall 002 Grab
Site:

Sampler:
Phone:
Due Date Requested: 1/23/2020
TAT Requested (days):
PO #:
WO #:
Project #: 44009879
SSOW#:

Lab PM: Bondoc, Christian M
E-Mail: christian.bondoc@testamericainc.com
Accreditations Required (See note): State Program - California

Carrier Tracking No(s):
State of Origin: California

Analysis Requested

Sample Identification - Client ID (Lab ID)		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (9221F- E. Coli) 9221F- E. Coli	Total Number of containers
			Preservation Code:					
Outfall002_20200111_Grab (440-259122-1)	1/11/20	08:55 Pacific		Water			X	1

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not curren maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Empty Kit Relinquished by: Date: Time:

Relinquished by: Date/Time: Company Received by: Date/Time: Company

Relinquished by: Company Received by: Date/Time: Company

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America

Project: Boeing-SSFL NPDES

Date Received: 1/11/20

Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)

Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 0.2 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptonce range is < 10°C but not frozen). It is acceptable for samples collected the same day os sample receipt to have o higher temperature as long os there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.3 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓	✓	✓ 1/11/20
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)		✓	
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/11/20

423709

Test America

CHAIN OF CUSTODY FORM

| | | |

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Boeing-SSFL NPDES

Date Received: 1/11/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 0.2 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.3 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓	✓	
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)		✓	
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

1/11/20

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____ ☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/11/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259123-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

12 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259123-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OF_002_20200112	440-259123-1	N/A	Water	1/12/20 7:30 AM	SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259123-1:

- The laboratory received the samples in this SDG on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- The laboratory received the sample containers intact and properly preserved.
- Field and laboratory personnel signed and dated the original COC, but the transfer COC was not signed.
- According to the Login Sample Acceptance Checklist, custody seals were absent on the cooler; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHOD SM 9221F— *E. COLI*

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

III.1. HOLDING TIMES

The QAPP holding time for *E. Coli*, 6 hours, was met.

III.2. CALIBRATION

Biological controls were acceptable for *E. Coli* analysis.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

The negative control sample was acceptable for the *E. Coli* analysis.

III.3.2. *LABORATORY CONTROL SAMPLES*

The presumptive test was analyzed with the positive detects for *E. Coli*.

III.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis was not performed on the sample in this SDG.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable for this method.

III.4. SAMPLE RESULT VERIFICATION

The sample result reported on the sample results summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

The sample was analyzed at 1×, 10× and 100× dilutions, as requested on the COC

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples are not applicable to this method.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402591231

Analysis Method SM9221F

Sample Name OF_002_20200112 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/12/2020 7:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-259123-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	26	1	1	mpn/100			

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259123-1
Client Project/Site: Boeing-SSFL NPDES Outfall 002

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/20/2020 4:35:24 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/20/2020 4:35:24 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing-SSFL NPDES Outfall 002

Job ID: 440-259123-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259123-1	OF_002_20200112	Water	01/12/20 07:30	01/12/20 10:05	

Job ID: 440-259123-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-259123-1

Comments
No additional comments.

Receipt
The sample was received on 1/12/2020 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing-SSFL NPDES Outfall 002

Job ID: 440-259123-1

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Client: Haley & Aldrich, Inc.
Job ID: 440-259123-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259123-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc
Comments:	Haley & Aldrich, Inc. Boeing-SSFL NPDES Outfall 002, 440-259123

Lab Request:	423711
Report Date:	01/20/2020
Date Received:	01/12/2020
Client ID:	12194

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423711-001	OF_002_20200112 (440-259123)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

The reports of the Enthalpy Analytical, Inc. are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.

Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/12/2020 07:30	**Site:**			
Sample #:	**423711-001**	**Client Sample #:**	OF_002_20200112 (440-259123)	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213532		
Coliform, E. Coli	**26**	1		MPN/100ml	01/12/20 13:15	01/15/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM 423711

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Outfall 002
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200112	1/12/2020/0730	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-12-2020/0850	Robaire	1-12-20 8:50
Relinquished By	Date/Time:	Received By	Date/Time:
Robaire	1-12-20 / 10:00	[signature]	1/12/20 1005
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

1.3/4.2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-259123

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving
Company: Enthalpy Analytical LLC
Address: 931 W. Barkley Ave, ,
City: Orange
State, Zip: CA, 92868
Phone:
Email:
Project Name: Boeing-SSFL NPDES Outfall 002
Site:

Sampler:
Phone:
Due Date Requested: 1/23/2020
TAT Requested (days):
PO #:
WO #:
Project #: 44009879
SSOW#:

Lab PM: Bondoc, Christian M
E-Mail: christian.bondoc@testamericainc.com
Accreditations Required (See note): State Program - California

Carrier Tracking No(s):
State of Origin: California

Analysis Requested

Sample Identification - Client ID (Lab ID)		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (9221F- E. Coli) 9221F- E. Coli	Total Number of containers
			Preservation Code:					
OF_002_20200112 (440-259123-1)	1/12/20	07:30 Pacific		Water			X	1

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not curren maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Empty Kit Relinquished by: Date: Time:

Relinquished by: Date/Time: Company Received by: Date/Time: Company

Relinquished by: Company Received by: Date/Time: Company

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Haley + Aldrich – Boeing

Date Received: 1/12/20 Sampler's Name Present: [X] Yes [ ] No

Section 2

Sample(s) received in a cooler? [X] Yes, How many? 1 [ ] No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.2 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: [X] Ice [ ] Ice Packs [ ] Bubble Wrap [ ] Styrofoam [ ] Paper [ ] None [ ] Other _____

Cooler Temp (°C): #1: 1.3 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? [ ] Verbal PM Initials: _____ Date/Time _____

[ ] Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: [signature] Date: 1/12/20

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM 423711

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Outfall 002
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200112	1/12/2020/0730	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-12-2020/0850	Robaire	1-12-20 8:50
Relinquished By	Date/Time:	Received By	Date/Time:
Robaire	1-12-20 / 10:00	[signature]	1/12/20 1005
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity. (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

440-259123 Chain of Custody

1.3/4.2

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Haley + Aldrich – Boeing

Date Received: 1/12/20 Sampler's Name Present: [X] Yes [ ] No

Section 2

Sample(s) received in a cooler? [X] Yes, How many? 1 [ ] No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.2 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: [X] Ice [ ] Ice Packs [ ] Bubble Wrap [ ] Styrofoam [ ] Paper [ ] None [ ] Other _____

Cooler Temp (°C): #1: 1.3 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? [ ] Verbal PM Initials: _____ Date/Time _____

[ ] Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/12/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group, Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259125-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

March 12 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259125-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OF_002_20200113	440-259125-1	N/A	Water	1/13/20 7:10 AM	SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259125-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- The laboratory received the sample containers intact and properly preserved.
- Field and laboratory personnel signed and dated the original COC, but the transfer COC was not signed.
- According to the Login Sample Acceptance Checklist, custody seals were absent on the cooler; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHOD SM 9221F— *E. COLI*

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

III.1. HOLDING TIMES

The QAPP holding time for *E. Coli*, 6 hours, was not met. The sample was analyzed 47 minutes past the requirement; therefore, the result for *E. Coli* was qualified as estimated (J).

III.2. CALIBRATION

Calibration is not applicable to this method.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Quality control (QC) data was not provided in the laboratory report.

III.3.2. *LABORATORY CONTROL SAMPLES*

QC data was not provided in the laboratory report.

III.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis is not applicable for this method.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable for this method.

III.4. SAMPLE RESULT VERIFICATION

Raw data was not provided; therefore, reported results could not be verified.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples are not applicable to this method.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402591251

Analysis Method SM9221F

Sample Name OF_002_20200113 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/13/2020 7:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-259125-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	17	1	1	mpn/100		J	H

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259125-1
Client Project/Site: Boeing-SSFL NPDES Outfall 002

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/20/2020 4:35:34 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/20/2020 4:35:34 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing-SSFL NPDES Outfall 002

Job ID: 440-259125-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259125-1	OF_002_20200113	Water	01/13/20 07:10	01/13/20 10:24	

Job ID: 440-259125-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-259125-1

Comments
No additional comments.

Receipt
The sample was received on 1/13/2020 10:24 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7º C.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Job ID: 440-259125-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259125-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc
Comments:	Haley & Aldrich, Inc. Boeing-SSFL NPDES Outfall 002, 440-259125

Lab Request:	423713
Report Date:	01/20/2020
Date Received:	01/13/2020
Client ID:	12194

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423713-001	OF_002_20200113 (440-259125)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

The reports of the Enthalpy Analytical, Inc. are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.

Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/13/2020 07:10	**Site:**			
Sample #:	**423713-001**	**Client Sample #:**	OF_002_20200113 (440-259125)	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213531		
Coliform, E. Coli	**17**	1		MPN/100ml	01/13/20 13:57	01/16/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

423713

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Outfall 002
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200113	1/13/2020/0710	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-13-2020/0935	Ramy	8:55 1/13/2020
Ramy	1/13/2020 – 10:25	[signature]	1/13/2020
Relinquished By	Date/Time:	Received By	Date/Time: 1024

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____ 4.7/2.1
NPDES Level IV ____

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-259125

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving
Company: Enthalpy Analytical LLC
Address: 931 W. Barkley Ave, ,
City: Orange
State, Zip: CA, 92868
Phone:
Email:
Project Name: Boeing-SSFL NPDES Outfall 002
Site:

Sampler:
Phone:
Due Date Requested: 1/23/2020
TAT Requested (days):
PO #:
WO #:
Project #: 44009879
SSOW#:

Lab PM: Bondoc, Christian M
E-Mail: christian.bondoc@testamericainc.com
Accreditations Required (See note): State Program - California

Carrier Tracking No(s):
State of Origin: California

Analysis Requested

Sample Identification - Client ID (Lab ID)		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (9221F- E. Coli) 9221F- E. Coli	Total Number of containers
			Preservation Code:					
OF_002_20200113 (440-259125-1)	1/13/20	07:10 Pacific		Water			X	1

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not curren maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Empty Kit Relinquished by: Date: Time:

Relinquished by: Date/Time: Company Received by: Date/Time: Company

Relinquished by: Company Received by: Date/Time: Company

1/20/2020

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America

Date Received: 1/13/2020

Project: _____

Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)

Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 2.1 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____ ☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/13/2020

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

423713

Client Name/Address:	Project:	ANALYSIS REQUIRED
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Outfall 002	
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)	

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200113	1/13/2020/0710	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-13-2020/0835	Ramy	1/13/20 8:35
Relinquished By	Date/Time:	Received By	Date/Time:
Ramy	1/13/2020 - 10:25	[signature]	1/13/2020
Relinquished By	Date/Time:	Received By	Date/Time: 1024

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal __X__

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____ 4.7/2.1
NPDES Level IV ____

440-259125 Chain of Custody

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: _____

Date Received: 1/13/2020 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 2.1 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/13/2020

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259126-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

12 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259126-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OF_002_20200114	440-259126-1	N/A	Water	1/14/20 7:15 AM	SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259126-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- The laboratory received the sample containers intact and properly preserved.
- Field and laboratory personnel signed and dated the original COC, but the transfer COC was not signed.
- According to the Sample Acceptance Checklist, custody seals were absent on the cooler; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHOD SM 9221F— *E. COLI*

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

III.1. HOLDING TIMES

The QAPP holding time for *E. Coli*, 6 hours, was met.

III.2. CALIBRATION

Biological controls were acceptable for *E. Coli* analysis.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

The negative control for the *E. Coli* analysis was acceptable.

III.3.2. *LABORATORY CONTROL SAMPLES*

The presumptive test was analyzed with the positive detects for *E. Coli*.

III.3.1. *LABORATORY DUPLICATES*

Laboratory duplicate analysis was not performed on the sample in this SDG.

III.3.2. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable for this method.

III.4. SAMPLE RESULT VERIFICATION

The sample result reported on the sample results summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

The sample was analyzed at 1×, 10× and 100× dilutions, as requested on the COC.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples are not applicable to this method.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402591261

Analysis Method SM9221F

Sample Name OF_002_20200114 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/14/2020 7:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-259126-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	12	1	1	mpn/100			

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259126-1
Client Project/Site: Boeing-SSFL NPDES Outfall 002

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/20/2020 4:35:44 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/20/2020 4:35:44 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing-SSFL NPDES Outfall 002

Job ID: 440-259126-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259126-1	OF_002_20200114	Water	01/14/20 07:15	01/14/20 11:20	

Job ID: 440-259126-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-259126-1

Comments
No additional comments.

Receipt
The sample was received on 1/14/2020 11:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Job ID: 440-259126-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259126-1
Project/Site: Boeing-SSFL NPDES Outfall 002

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc
Comments:	Haley & Aldrich, Inc. Boeing-SSFL NPDES Outfall 002, 440-259126

Lab Request:	423776
Report Date:	01/20/2020
Date Received:	01/14/2020
Client ID:	12194

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423776-001	OF_002_20200114 (440-259126)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

The reports of the Enthalpy Analytical, Inc. are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.

Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/14/2020 07:15	**Site:**			
Sample #:	**423776-001**	**Client Sample #:**	OF_002_20200114 (440-259126)	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213533		
Coliform, E. Coli	**12**	1		MPN/100ml	01/14/20 12:36	01/17/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM

423776.

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Outfall 002 Sampler: Neal Smith
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269	Project Manager: Katherine Miller Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200114	1/14/2020/0715	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-14-2020 / 0830	Ramy/DCS	1-14-20 0830
Relinquished By	Date/Time:	Received By	Date/Time:
Ramy	1-14-220 / 11:20	[signature]	1-14-20 11:20
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

3.4 / 0.6

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-259126

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving
Company: Enthalpy Analytical LLC
Address: 931 W. Barkley Ave, ,
City: Orange
State, Zip: CA, 92868
Phone:
Email:
Project Name: Boeing-SSFL NPDES Outfall 002
Site:

Sampler:
Phone:
Due Date Requested: 1/24/2020
TAT Requested (days):
PO #:
WO #:
Project #: 44009879
SSOW#:

Lab PM: Bondoc, Christian M
E-Mail: christian.bondoc@testamericainc.com
Accreditations Required (See note): State Program - California

Carrier Tracking No(s):
State of Origin: California

Analysis Requested

Sample Identification - Client ID (Lab ID)		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (9221F- E. Coli) 9221F- E. Coli	Total Number of containers
			Preservation Code:					
OF_002_20200114 (440-259126-1)	1/14/20	07:15 Pacific		Water			X	1

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not curren maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Empty Kit Relinquished by: Date: Time:

Relinquished by: Date/Time: Company Received by: Date/Time: Company

Relinquished by: Company Received by: Date/Time: Company

1/20/2020

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Irvine Project: Haley & Aldritch, Inc

Date Received: 1/14/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 3.4 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as lang as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/14/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

423776.

Client Name/Address:	Project:	ANALYSIS REQUIRED
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Outfall 002 Sampler: Neal Smith	E. coli (SM9221)
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269	Project Manager: Katherine Miller Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)	

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	E. coli (SM9221)	Comments
OF 002	W	125mL Sterile Poly	3	OF_002_20200114	1/14/2020/0715	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	1-14-2020 / 0830	Ramy IDCS	1-14-20 0830
Ramy	1-14-220 / 11:20	[signature]	1-14-20 11:20
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

3.4 / 0.6

440-259126 Chain of Custody

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Irvine Project: Haley & Aldritch, Inc

Date Received: 1/14/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 3.4 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/14/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259354-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

09 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259354-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200117_GRAB	440-259354-1	Water	1/17/2020 8:30:00 AM	E120.1, E1664, E624.1, SM2540F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259354-1:

- The laboratory received the samples in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.
- The case narrative indicated that two of three vials for the VOC analysis of the trip blank were received with headspace. A third vial without headspace remained for analysis. No qualification was necessary.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

L. Calvin of MEC[X] reviewed the SDG on March 9, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes met the method abundance criteria. Samples were analyzed within 12 hours of the BFB injection time.

Calibration criteria were met. The initial calibration average RRFs and the ICV and continuing calibration RRFs were ≥0.05 for the applicable target compounds. The initial calibration %RSDs were ≤35%. The second source ICV and applicable CCV recoveries were within the method control limits.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC[X] evaluated method accuracy based on the associated LCS results.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200117 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the continuing calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

III.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for target compounds 1,1-dichloroethene, 1,2-dichloroethane and trichloroethene by Method 624.1. Review of the sample chromatogram, retention times and spectra indicated no issues with target compound identification.

III.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

III.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on March 12, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 28 days for specific conductance (Method 120.1) and Oil and Grease (HEM, Method 1664)
- 7 days for total settleable solids (2540F)

IV.2. CALIBRATION

No instrument calibration information was provided for specific conductance analysis. The initial and continuing calibration verification recoveries met laboratory control limits. Analytical balance calibration logs were not provided.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

The method blanks had no detections for Methods 120.1 and 1664. Method blanks do not apply to Method 2540C.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for applicable methods. Laboratory control sample analysis does not apply to Method 2540C.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

The sample results reported on the sample results summary were verified against the raw data for Method 1664. No transcription errors or calculation errors were noted. No raw data was provided for Methods 120.1 and 2540F. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402593541

Analysis Method E120.1

Sample Name OUTFALL002_20200117_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 8:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-259354-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	750	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL002_20200117_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 8:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-259354-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	5.3	1.5	mg/L	U	U	

Analysis Method E624.1

Sample Name OUTFALL002_20200117_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 8:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-259354-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	U	

Analysis Method SM2540F

Sample Name OUTFALL002_20200117_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 8:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-259354-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS	ND	0.10	0.10	ml/l/hr	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259354-1
Client Project/Site: Routine Outfall 002 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/27/2020 4:01:51 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/27/2020 4:01:51 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-259354-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259354-1	Outfall002_20200117_Grab	Water	01/17/20 08:30	01/17/20 16:20	
440-259354-3	TB-20200117	Water	01/17/20 08:30	01/17/20 16:20	

Job ID: 440-259354-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-259354-1

Comments
No additional comments.

Receipt
The samples were received on 1/17/2020 4:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 2.1º C, 2.4º C, 2.6º C and 2.7º C.

Receipt Exceptions
The following sample was received with headspace in the sample container: TB-20200117 (440-259354-3). Received two out of three voa vial HCL TB with headspace more than 6 mm. One remain.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-591221.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-592388 and analytical batch 440-592463. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200117_Grab
Lab Sample ID: 440-259354-1
Date Collected: 01/17/20 08:30
Matrix: Water
Date Received: 01/17/20 16:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/20/20 12:31	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/20/20 12:31	1
Trichloroethene	ND		0.50	0.25	ug/L			01/20/20 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*60 - 140*		*01/20/20 12:31*	*1*
Dibromofluoromethane (Surr)	*105*		*60 - 140*		*01/20/20 12:31*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*01/20/20 12:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		01/27/20 07:05	01/27/20 11:58	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**750**		1.0	1.0	umhos/cm			01/27/20 11:26	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			01/17/20 19:55	1

Client Sample ID: TB-20200117
Lab Sample ID: 440-259354-3
Date Collected: 01/17/20 08:30
Matrix: Water
Date Received: 01/17/20 16:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/20/20 12:54	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/20/20 12:54	1
Trichloroethene	ND		0.50	0.25	ug/L			01/20/20 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*60 - 140*		*01/20/20 12:54*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*01/20/20 12:54*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*01/20/20 12:54*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-259354-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-259354-1

Client Sample ID: Outfall002_20200117_Grab

Lab Sample ID: 440-259354-1

Date Collected: 01/17/20 08:30

Matrix: Water

Date Received: 01/17/20 16:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	591296	01/20/20 12:31	RM	TAL IRV
Total/NA	Analysis	120.1		1			592455	01/27/20 11:26	XL	TAL IRV
Total/NA	Prep	1664A			935 mL	1000 mL	592388	01/27/20 07:05	JC1	TAL IRV
Total/NA	Analysis	1664A		1			592463	01/27/20 11:58	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	591221	01/17/20 19:55	HZ	TAL IRV

Client Sample ID: TB-20200117

Lab Sample ID: 440-259354-3

Date Collected: 01/17/20 08:30

Matrix: Water

Date Received: 01/17/20 16:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	591296	01/20/20 12:54	RM	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-591296/4
Matrix: Water
Analysis Batch: 591296

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/20/20 08:12	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/20/20 08:12	1
Trichloroethene	ND		0.50	0.25	ug/L			01/20/20 08:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*60 - 140*		*01/20/20 08:12*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*01/20/20 08:12*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*01/20/20 08:12*	*1*

Lab Sample ID: LCS 440-591296/1002
Matrix: Water
Analysis Batch: 591296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	22.5		ug/L		90	19 - 212
1,2-Dichloroethane	25.0	23.5		ug/L		94	72 - 137
Trichloroethene	25.0	22.8		ug/L		91	75 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*60 - 140*
Dibromofluoromethane (Surr)	*98*		*60 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Lab Sample ID: 440-259387-A-7 MS
Matrix: Water
Analysis Batch: 591296

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		500	463		ug/L		93	10 - 234
1,2-Dichloroethane	ND		500	470		ug/L		94	49 - 155
Trichloroethene	ND		500	469		ug/L		94	70 - 157

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*
Dibromofluoromethane (Surr)	*101*		*60 - 140*
Toluene-d8 (Surr)	*102*		*60 - 140*

Lab Sample ID: 440-259387-A-7 MSD
Matrix: Water
Analysis Batch: 591296

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		500	445		ug/L		89	10 - 234	4	32
1,2-Dichloroethane	ND		500	494		ug/L		99	49 - 155	5	49
Trichloroethene	ND		500	457		ug/L		91	70 - 157	3	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-259387-A-7 MSD
Matrix: Water
Analysis Batch: 591296

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*60 - 140*
Dibromofluoromethane (Surr)	*105*		*60 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-592455/3
Matrix: Water
Analysis Batch: 592455

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/27/20 11:26	1

Lab Sample ID: LCS 440-592455/4
Matrix: Water
Analysis Batch: 592455

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	946	922		umhos/cm		97	90 - 110

Lab Sample ID: 440-259518-A-1 DU
Matrix: Water
Analysis Batch: 592455

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	1100		1110		umhos/cm		0.7	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-592388/1-A
Matrix: Water
Analysis Batch: 592463

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 592388

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		01/27/20 07:05	01/27/20 11:58	1

Lab Sample ID: LCS 440-592388/2-A
Matrix: Water
Analysis Batch: 592463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 592388

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	33.6		mg/L		84	78 - 114

Lab Sample ID: LCSD 440-592388/3-A
Matrix: Water
Analysis Batch: 592463

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 592388

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	33.2		mg/L		83	78 - 114	1	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-259354-1

GC/MS VOA

Analysis Batch: 591296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259354-1	Outfall002_20200117_Grab	Total/NA	Water	624.1	
440-259354-3	TB-20200117	Total/NA	Water	624.1	
MB 440-591296/4	Method Blank	Total/NA	Water	624.1	
LCS 440-591296/1002	Lab Control Sample	Total/NA	Water	624.1	
440-259387-A-7 MS	Matrix Spike	Total/NA	Water	624.1	
440-259387-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 591221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259354-1	Outfall002_20200117_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 592388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259354-1	Outfall002_20200117_Grab	Total/NA	Water	1664A	
MB 440-592388/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-592388/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-592388/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 592455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259354-1	Outfall002_20200117_Grab	Total/NA	Water	120.1	
MB 440-592455/3	Method Blank	Total/NA	Water	120.1	
LCS 440-592455/4	Lab Control Sample	Total/NA	Water	120.1	
440-259518-A-1 DU	Duplicate	Total/NA	Water	120.1	

Analysis Batch: 592463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259354-1	Outfall002_20200117_Grab	Total/NA	Water	1664A	592388
MB 440-592388/1-A	Method Blank	Total/NA	Water	1664A	592388
LCS 440-592388/2-A	Lab Control Sample	Total/NA	Water	1664A	592388
LCSD 440-592388/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	592388

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-259354-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259354-1
Project/Site: Routine Outfall 002 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

CHAIN OF CUSTODY FORM

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Grab

Project Manager: Katherine Miller
520 289.8606, 520.904.6944 (cell)

Field Manager. Mark Dominick
978.234.5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120 1)	Comments
Outfall 002	Outfall002_20200117_Grab	1/17/2020 0930	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall002_20200117_Grab_Extra	1/17/2020 0930	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			WM	500 mL Poly	1	None	75	No				H	Hold
Trip Blanks	TB-20200117	1/17/2020 0930	WQ	40 mL VOA	3	HCl	30	No		X			

440-259354 Chain of Custody

Field Readings | Meter serial #

Field Readings: (Include units) ~~VL3OU~~ RH
Time of Readings: 0930 VLJOUVKT
DO 9.23 mg/L
pH 6.90 pH unit
Temp 44.2 °C/°F

Field readings QC
Checked by: R Hohn
Date/Time: 1-17-2020 / 0930

LB 1/17/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/17/2020 1322	Haley & Aldrich	[illegible]	1:22
Lily Ponce	1/17 4:20	DCS	[illegible]	
			[illegible]	EC IRV 1/17/20 1620

Turn-around time: (Check)
24 Hour: ____ 72 Hour: ____ 10 Day: X
48 Hour ____ 5 Day: ____ Normal: ____

Sample Integrity (Check)
Intact. ____ On Ice. ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV: X

2.7/2.7 2.4/2.4 2.6/2.6 2.1/2.1 IR43

2019-2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-259354-1

Login Number: 259354
List Number: 1
Creator: Soderblom, Tim

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259373-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

09 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259373-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200117_COMP	440-259373-1	Water	1/17/20 11:00 AM	E180.1, E200.7, E200.8, E245.1, E300, E314.0, E608.3, E625.1, EPA-821-R-02-013, SM2540C/D, SM4500-CN-E, SM4500-NH3G, SM5210B, SM5540
OUTFALL002_20200117_COMP_F	440-259373-3	Water	1/17/20 11:00 AM	E200.7, E200.8, E245.1

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-259373-1:

- The laboratories received the samples in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- The sample was transferred from TA-Irvine to Aquatic Bioassay Consulting Laboratories (ABC) for Method EPA-821-R-02-013 chronic toxicity.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist for TA-Irvine, custody seals were absent on the coolers; however, no evidence of tampering was noted. In the absence of a sample receipt form from ABC, presence of custody seals in shipment to that laboratory is unknown.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHODS 200.7, 200.8 AND 245.1 — METALS AND MERCURY

M. Hilchey of MEC^X reviewed the SDG on March 13, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7,* 200.8 and 245.1 and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES

The analytical holding times, 28 days for mercury and six months for metals, were met. Sample OUTFALL002_20200117_COMP_F was filtered and preserved 53 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were qualified as estimated (J for detects, UJ for nondetects).

III.2. CALIBRATION

QAPP calibration criteria were met. A blank and two or three standards were used for calibration of ICP-AES target analytes, a blank and four standards were used for calibration of ICP-MS, and a blank and five standards were used for calibration of mercury. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES and mercury, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for all methods.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks with the following exception. Mercury was reported in the initial calibration blank at a negative value (-0.113 µg/L) greater than the absolute value of the MDL. Both associated sample results were nondetect and were qualified as estimated (UJ).

III.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. Zinc was detected in the ICSA associated with the dissolved metals analyses; however, the associated result was nondetect and was not qualified. No other non-spiked analytes were detected in the ICSAs; therefore, interference was not evaluated for the remaining analytes.

III.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

III.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

III.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the samples in this SDG for all methods. Results were not assessed when the parent sample concentration exceeded the spike amount by 4×. Recoveries and RPDs were within the QAPP control limits of 70-130% and ≤20%.

The laboratory did not perform post-digestion spike analyses.

III.4. SERIAL DILUTION

No serial dilution analyses were performed on a sample in this SDG.

III.5. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified, and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

The raw value for dissolved mercury was negative with absolute value greater than the MDL. The MDL for this result was changed by the reviewer to the absolute value of the negative result.

III.6. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.6.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.6.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

IV. EPA METHOD 608.3 –PESTICIDES (ALPHA-BHC)

L. Calvin of MEC^X reviewed the SDG on March 10, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608.3* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

IV.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

IV.2. CALIBRATION

The initial calibration %RSDs were ≤15% or r^2 ≥0.990. The initial calibration verification (ICV) recoveries were within the control limit of ±20%, and continuing calibration verification (CCV) %Ds met method criteria.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compound alpha-BHC was not detected in the method blank.

IV.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries and the RPD for alpha-BHC were within the laboratory control limits.

IV.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) was recovered within the laboratory control limits of 10-104% in the site sample.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG due to insufficient sample volume. MEC^X evaluated method accuracy and precision based on the LCS/LCSD results.

IV.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatograms and retention times indicated no issues with target compound identification. The laboratory analyzed for alpha-BHC by Method 608.3.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Alpha-BHC was not detected in the sample above the MDL. The reported nondetect is valid to the reporting limit.

The laboratory's extraction bench sheet for pesticides indicated the sample extract was cloudy grey with an emulsion.

V. EPA METHOD 314.0 — PERCHLORATE

M. Hilchey of MEC^X reviewed the SDG on March 13, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 314.0* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

V.1. HOLDING TIMES

The analytical holding time, 28 days, was met.

V.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 value was ≥0.995. The initial calibration recovery was within QAPP control limits of 75-125% and the continuing calibration recoveries were within QAPP control limits of 85-115%. The MRL was recovered within the QAPP control limits of 70-130%. Interference check sample recovery was within the QAPP control limits of 80-120%.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

Method blanks and calibration blanks had no detects.

V.3.2. *LABORATORY CONTROL SAMPLES*

The recovery was within the QAPP control limits of 85-115%.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample from this SDG.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Matrix spike/matrix spike duplicate analyses were performed on the sample in this SDG. Recoveries and the RPD met QAPP control limits of 80-120% and ≤15%, respectively.

V.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

V.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VI. EPA METHOD 625.1 — SEMIVOLATILE ORGANIC COMPOUNDS (SVOCS)

L. Calvin of MEC^X reviewed the SDG on March 9, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 625.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VI.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within seven days of collection and analyzed within 30 days of extraction.

VI.2. GC/MS TUNING AND CALIBRATION

The DFTPP tunes met the method abundance criteria. Samples were analyzed within 12 hours of the DFTPP injection time.

Calibration criteria were met. Initial calibration average relative response factors (RRFs) were within the method control limits, and the %RSDs were ≤35% or r^2 values ≥0.990. For applicable target compounds, ICV and CCV RRFs were within the method control limits and ICV recoveries and CCV %Ds were within method control limits.

VI.3. QUALITY CONTROL SAMPLES

VI.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank.

VI.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries were within the laboratory control limits, and RPDs were within the control limit of ≤35%.

VI.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within laboratory control limits.

VI.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC^X evaluated method accuracy and precision based on the LCS/LCSD results.

VI.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

VI.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

Field blank or equipment blank samples were not identified for this SDG.

VI.4.2. *FIELD DUPLICATES:*

Field duplicate samples were not identified in this SDG.

VI.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the midpoint of the initial calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

VI.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for four SVOC target compounds by EPA Method 625.1: 2,4,6-trichlorophenol, bis(2-ethylhexyl)phthalate, n-nitrosodimethylamine and pentachlorophenol. Review of the sample chromatogram, retention times and spectra indicated no issues with target compound identification.

VI.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. The sample did not require dilution.

The laboratory's preparation bench sheet indicated the sample extract was clear yellow.

VI.8. TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

The laboratory did not report TICs for this SDG.

VI.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

VII. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on March 13, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 180.1, 300.0 and EPA-821-R-02-213, Standard Methods for the Examination of Water and Wastewater 2540C, 2540D, 4500-CN-E, 5210B, 4500 NH3 G and 5540* and the *National Functional Guidelines for Inorganic Superfund Method Data Review* (2017).

VII.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 48 hours from collection for nitrate as N and nitrite as N (300.0); biological oxygen demand (5310B); turbidity (180.1); MBAS (5540C)
- 7 days for total dissolved solids (2540C); total suspended solids (2540D)
- 28 days for ammonia (4500-NH3-G); chloride, fluoride and sulfate (300.0)
- 14 days for total cyanide (4500-CN-E)
- 36 hours for chronic toxicity – *Selenastrum* (*EPA-821-R-02-213*)

VII.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values, as appropriate, were $\geq$0.995 and all initial calibration verification recoveries were within 95-105% for anions and 90-110% for the remaining analyses, as appropriate. All continuing calibration verification recoveries were within 90-110% for all appropriate analyses. The MRL recoveries for ammonia and MBAS were within the laboratory control limits of 50-150%. Analytical balance calibration logs were provided for TDS and TSS analyses. Instrument calibration information for BOD was not provided.

For chronic toxicity, instruments were calibrated as per the manufacturer requirements and standard reference toxicant testing was performed to verify culture health and sensitivity. Method Test Acceptability criteria (TAC) were met.

VII.3. QUALITY CONTROL SAMPLES

VII.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detections.

VII.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits.

VII.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were performed on the sample in this SDG for Methods 180.1, 2540C and 5210B. The RPDs met the laboratory acceptance limits. Laboratory duplicate analyses were not performed on the sample in this SDG for the remaining methods.

VII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for Methods 300.0, 4500-CN-E, and 5540. Recoveries and RPDs met laboratory acceptance limits. MS/MSD analyses were not performed on the sample in this SDG for the remaining methods.

VII.4. SAMPLE RESULT VERIFICATION

Calculations were verified, and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. It should be noted that raw data was not provided for Method 180.1; therefore, the sample result could not be verified. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Reported nondetects are valid to the MDL.

The sample in this SDG was diluted 20× for Method 300.0. The reported results from the undiluted analysis for nitrate, nitrite and nitrite/nitrate were accepted and reviewed. The reported results from the undiluted analysis for chloride and sulfate exceeded the calibration range and were rejected (qualified R). The reported results from the diluted analysis for chloride and sulfate were accepted and reviewed.

VII.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VII.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VII.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402593731

Analysis Method E180.1

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Turbidity	N	TURBIDITY	2.1	0.10	0.040	NTU			

Analysis Method E200.7

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	T	7439-89-6	0.060	0.10	0.050	mg/L	J,DX	J	DNQ
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL002_20200117_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	D	7439-89-6	ND	0.10	0.050	mg/L	U	UJ	H
Zinc	D	7440-66-6	ND	20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	0.86	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	T	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U	

Sample Name OUTFALL002_20200117_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8	0.76	2.0	0.50	ug/L	J,DX	J	H, DNQ

Analysis Method E200.8

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	H
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	UJ	H

Analysis Method E245.1

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	ND	0.20	0.10	ug/L	U	UJ	B

Sample Name OUTFALL002_20200117_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6	ND	0.20	0.141	ug/L	U	UJ	H, B

Analysis Method E300

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	31	10	5.0	mg/L			
Chloride	N	16887-00-6	38	0.50	0.25	mg/L	EY	R	D
Nitrate (as N)	N	14797-55-8	0.13	0.11	0.055	mg/L			
Nitrite (as N)	N	14797-65-0	ND	0.15	0.025	mg/L	U	U	
Nitrite/Nitrate	N	NO2NO3	0.13	0.15	0.055	mg/L	J,DX	J	DNQ
Sulfate	N	14808-79-8	250	0.50	0.25	mg/L	EY	R	D
Sulfate	N	14808-79-8	190	10	5.0	mg/L			

Analysis Method E314.0

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Perchlorate	N	14797-73-0	ND	4.0	0.95	ug/L	U	U	

Analysis Method E608.3

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
alpha-BHC	N	319-84-6	ND	0.10	0.021	ug/L	U	U	

Analysis Method E625.1

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
2,4,6-Trichlorophenol	N	88-06-2	ND	6.0	0.10	ug/L	U	U	
2,4-Dinitrotoluene	N	121-14-2	ND	5.0	2.0	ug/L	U	U	
bis(2-Ethylhexyl)phthalate	N	117-81-7	ND	5.0	2.0	ug/L	U	U	
N-Nitrosodimethylamine	N	62-75-9	ND	5.0	0.30	ug/L	U	U	
Pentachlorophenol	N	87-86-5	ND	5.0	1.0	ug/L	U	U	

Analysis Method EPA-821-R-02-013

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Selenastrum	N	CHRTOXSELENA	-60.49			% SURV			

Analysis Method SM2540C

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	560	10	5.0	mg/L			

Analysis Method SM2540D

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	2.6	1.0	0.50	mg/L			

Analysis Method SM4500-CN-E

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cyanide	N	57-12-5	ND	5.0	2.5	ug/L	U	U	

Analysis Method SM4500-NH3G

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N	ND	0.200	0.100	mg/L	U	U	

Analysis Method SM5210B

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Biochemical Oxygen Demand	N	BOD	2.0	2.0	2.0	mg/L			

Analysis Method SM5540

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Surfactants as MBAS	N	SURFASMBAS	0.085	0.10	0.050	mg/L	J,DX	J	DNQ

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259373-1
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/29/2020 5:57:32 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/29/2020 5:57:32 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259373-1	Outfall002_20200117_Comp	Water	01/17/20 11:00	01/17/20 16:20	
440-259373-3	Outfall002_20200117_Comp_F	Water	01/17/20 11:00	01/17/20 16:20	

Job ID: 440-259373-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-259373-1

Comments
No additional comments.

Receipt
The samples were received on 1/17/2020 4:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 2.1º C, 2.4º C, 2.6º C and 2.7º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-591386 and analytical batch 440-591588. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-591386/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20200117_Comp_F (440-259373-3). These samples were filtered and preserved upon receipt to the laboratory.

2.5mL of HNO3
Lot # 0000234822
01/20/20

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-591386. Method 8081-8082.

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 8270C preparation batch 440-591278. LCS was performed in duplicate to provide precision of data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Outfall002_20200117_Comp

Date Collected: 01/17/20 11:00
Date Received: 01/17/20 16:20

Lab Sample ID: 440-259373-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		01/19/20 07:57	01/21/20 14:41	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		01/19/20 07:57	01/21/20 14:41	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		01/19/20 07:57	01/21/20 14:41	1
Pentachlorophenol	ND		5.0	1.0	ug/L		01/19/20 07:57	01/21/20 14:41	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		01/19/20 07:57	01/21/20 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*96*		*60 - 140*	*01/19/20 07:57*	*01/21/20 14:41*	*1*
2-Fluorobiphenyl	*90*		*60 - 140*	*01/19/20 07:57*	*01/21/20 14:41*	*1*
2-Fluorophenol	*89*		*60 - 140*	*01/19/20 07:57*	*01/21/20 14:41*	*1*
Nitrobenzene-d5	*92*		*15 - 314*	*01/19/20 07:57*	*01/21/20 14:41*	*1*
Phenol-d5	*85*		*8 - 424*	*01/19/20 07:57*	*01/21/20 14:41*	*1*
Terphenyl-d14	*112*		*60 - 140*	*01/19/20 07:57*	*01/21/20 14:41*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.021	ug/L		01/20/20 12:12	01/21/20 13:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*47*		*10 - 104*	*01/20/20 12:12*	*01/21/20 13:24*	*1*
DCB Decachlorobiphenyl (Surr)	*58*		*18 - 134*	*01/20/20 12:12*	*01/21/20 13:24*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.13**		0.11	0.055	mg/L			01/17/20 18:09	1
Nitrite as N	ND		0.15	0.025	mg/L			01/17/20 18:09	1

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31**		10	5.0	mg/L			01/17/20 18:54	20
Sulfate	**190**		10	5.0	mg/L			01/17/20 18:54	20

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/28/20 11:15	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.13**	**J,DX**	0.15	0.055	mg/L			01/22/20 14:34	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.060**	**J,DX**	0.10	0.050	mg/L		01/20/20 05:35	01/20/20 14:15	1
Zinc	ND		20	12	ug/L		01/20/20 05:35	01/20/20 14:15	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/20/20 05:41	01/20/20 14:45	1
Copper	**0.86**	**J,DX**	2.0	0.50	ug/L		01/20/20 05:41	01/20/20 14:45	1
Lead	ND		1.0	0.50	ug/L		01/20/20 05:41	01/20/20 14:45	1
Selenium	ND		2.0	0.50	ug/L		01/20/20 05:41	01/20/20 14:45	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

Client Sample ID: Outfall002_20200117_Comp

Lab Sample ID: 440-259373-1
Date Collected: 01/17/20 11:00
Matrix: Water
Date Received: 01/17/20 16:20

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/20/20 12:38	01/21/20 13:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**2.1**		0.10	0.040	NTU			01/17/20 20:05	1
Total Dissolved Solids	**560**		10	5.0	mg/L			01/22/20 15:19	1
Total Suspended Solids	**2.6**		1.0	0.50	mg/L			01/22/20 15:04	1
Cyanide, Total	ND		5.0	2.5	ug/L		01/23/20 09:36	01/23/20 14:56	1
Ammonia (as N)	ND		0.200	0.100	mg/L			01/28/20 13:11	1
Methylene Blue Active Substances	**0.085**	**J,DX**	0.10	0.050	mg/L			01/17/20 17:55	1
Biochemical Oxygen Demand	**2.0**		2.0	2.0	mg/L			01/18/20 09:34	1

Client Sample ID: Outfall002_20200117_Comp_F

Lab Sample ID: 440-259373-3
Date Collected: 01/17/20 11:00
Matrix: Water
Date Received: 01/17/20 16:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		01/20/20 15:34	01/20/20 19:39	1
Zinc	ND		20	12	ug/L		01/20/20 15:34	01/20/20 19:39	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/20/20 15:44	01/20/20 18:07	1
Copper	**0.76**	**J,DX**	2.0	0.50	ug/L		01/20/20 15:44	01/20/20 18:07	1
Lead	ND		1.0	0.50	ug/L		01/20/20 15:44	01/20/20 18:07	1
Selenium	ND		2.0	0.50	ug/L		01/20/20 15:44	01/20/20 18:07	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/22/20 14:16	01/23/20 00:02	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

Client Sample ID: Outfall002_20200117_Comp

Lab Sample ID: 440-259373-1

Date Collected: 01/17/20 11:00

Matrix: Water

Date Received: 01/17/20 16:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1005 mL	2.0 mL	591278	01/19/20 07:57	ACT	TAL IRV
Total/NA	Analysis	625.1		1			591529	01/21/20 14:41	YCL	TAL IRV
Total/NA	Prep	608			970 mL	2 mL	591386	01/20/20 12:12	SAL	TAL IRV
Total/NA	Analysis	608.3		1			591588	01/21/20 13:24	D1D	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	591067	01/17/20 18:09	NTN	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	591068	01/17/20 18:09	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	20			591068	01/17/20 18:54	NTN	TAL IRV
Total/NA	Analysis	314.0		1			592594	01/28/20 11:15	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			591863	01/22/20 14:34	NN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	591290	01/20/20 05:35	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			591439	01/20/20 14:15	KE	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	591292	01/20/20 05:41	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			591424	01/20/20 14:45	EMS	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	591394	01/20/20 12:38	EMS	TAL IRV
Total/NA	Analysis	245.1		1			591637	01/21/20 13:20	MEM	TAL IRV
Total/NA	Analysis	180.1		1			591213	01/17/20 20:05	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	591872	01/22/20 15:19	HTL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	591870	01/22/20 15:04	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	592007	01/23/20 09:36	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			592070	01/23/20 14:56	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	592694	01/28/20 13:11	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	591201	01/17/20 17:55	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	591255	01/18/20 09:34	MMP	TAL IRV

Client Sample ID: Outfall002_20200117_Comp_F

Lab Sample ID: 440-259373-3

Date Collected: 01/17/20 11:00

Matrix: Water

Date Received: 01/17/20 16:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	591404	01/20/20 12:59	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	591427	01/20/20 15:34	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			591492	01/20/20 19:39	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	591404	01/20/20 12:59	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	591436	01/20/20 15:44	M1G	TAL IRV
Dissolved	Analysis	200.8		1			591487	01/20/20 18:07	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			100 mL	100 mL	591404	01/20/20 12:59	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	591851	01/22/20 14:16	DB	TAL IRV
Dissolved	Analysis	245.1		1			592032	01/23/20 00:02	MEM	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-591278/1-A
Matrix: Water
Analysis Batch: 591529

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591278

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		01/19/20 07:57	01/21/20 09:26	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		01/19/20 07:57	01/21/20 09:26	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		01/19/20 07:57	01/21/20 09:26	1
Pentachlorophenol	ND		5.0	1.0	ug/L		01/19/20 07:57	01/21/20 09:26	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		01/19/20 07:57	01/21/20 09:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*60 - 140*	*01/19/20 07:57*	*01/21/20 09:26*	*1*
2-Fluorobiphenyl	*91*		*60 - 140*	*01/19/20 07:57*	*01/21/20 09:26*	*1*
2-Fluorophenol	*84*		*60 - 140*	*01/19/20 07:57*	*01/21/20 09:26*	*1*
Nitrobenzene-d5	*88*		*15 - 314*	*01/19/20 07:57*	*01/21/20 09:26*	*1*
Phenol-d5	*75*		*8 - 424*	*01/19/20 07:57*	*01/21/20 09:26*	*1*
Terphenyl-d14	*102*		*60 - 140*	*01/19/20 07:57*	*01/21/20 09:26*	*1*

Lab Sample ID: LCS 440-591278/2-A
Matrix: Water
Analysis Batch: 591529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591278

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	14.9	16.4		ug/L		110	52 - 129
Bis(2-ethylhexyl) phthalate	14.9	15.8		ug/L		106	29 - 137
N-Nitrosodimethylamine	14.9	14.3		ug/L		96	60 - 140
Pentachlorophenol	29.9	28.3		ug/L		95	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*90*		*60 - 140*
2-Fluorobiphenyl	*86*		*60 - 140*
2-Fluorophenol	*83*		*60 - 140*
Nitrobenzene-d5	*90*		*15 - 314*
Phenol-d5	*81*		*8 - 424*
Terphenyl-d14	*95*		*60 - 140*

Lab Sample ID: LCSD 440-591278/3-A
Matrix: Water
Analysis Batch: 591529

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 591278

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	14.9	16.0		ug/L		107	52 - 129	3	35
Bis(2-ethylhexyl) phthalate	14.9	15.3		ug/L		102	29 - 137	4	35
N-Nitrosodimethylamine	14.9	14.9		ug/L		100	60 - 140	4	35
Pentachlorophenol	29.9	28.2		ug/L		94	38 - 152	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*91*		*60 - 140*
2-Fluorobiphenyl	*87*		*60 - 140*
2-Fluorophenol	*87*		*60 - 140*
Nitrobenzene-d5	*93*		*15 - 314*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-591278/3-A
Matrix: Water
Analysis Batch: 591529

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 591278

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5	*87*		*8 - 424*
Terphenyl-d14	*97*		*60 - 140*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-591386/1-A
Matrix: Water
Analysis Batch: 591588

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591386

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		01/20/20 12:12	01/21/20 13:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*36*		*10 - 104*	*01/20/20 12:12*	*01/21/20 13:41*	*1*
DCB Decachlorobiphenyl (Surr)	*39*		*18 - 134*	*01/20/20 12:12*	*01/21/20 13:41*	*1*

Lab Sample ID: LCS 440-591386/2-A
Matrix: Water
Analysis Batch: 591588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591386

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC			0.400	0.252		ug/L		63	37 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*57*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*59*		*18 - 134*

Lab Sample ID: LCSD 440-591386/3-A
Matrix: Water
Analysis Batch: 591588

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 591386

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC			0.400	0.265		ug/L		66	37 - 140	5	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*59*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*63*		*18 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-591067/6
Matrix: Water
Analysis Batch: 591067

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			01/17/20 12:10	1
Nitrite as N	ND		0.15	0.025	mg/L			01/17/20 12:10	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-591067/5
Matrix: Water
Analysis Batch: 591067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			1.13	1.10		mg/L		97	90 - 110		
Nitrite as N			1.52	1.44		mg/L		95	90 - 110		

Lab Sample ID: 440-259373-1 MS
Matrix: Water
Analysis Batch: 591067

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	0.13		1.13	1.24		mg/L		99	80 - 120		
Nitrite as N	ND		1.52	1.59		mg/L		105	80 - 120		

Lab Sample ID: 440-259373-1 MSD
Matrix: Water
Analysis Batch: 591067

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.13		1.13	1.24		mg/L		99	80 - 120	0	20
Nitrite as N	ND		1.52	1.59		mg/L		105	80 - 120	0	20

Lab Sample ID: MB 440-591068/6
Matrix: Water
Analysis Batch: 591068

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			01/17/20 12:10	1
Sulfate	ND		0.50	0.25	mg/L			01/17/20 12:10	1

Lab Sample ID: LCS 440-591068/5
Matrix: Water
Analysis Batch: 591068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	4.83		mg/L		97	90 - 110		
Sulfate			5.00	5.03		mg/L		101	90 - 110		

Lab Sample ID: 440-259373-1 MS
Matrix: Water
Analysis Batch: 591068

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	38	EY	5.00	44.6	EY BB	mg/L		123	80 - 120		
Sulfate	250	EY	5.00	255	EY BB	mg/L		117	80 - 120		

Lab Sample ID: 440-259373-1 MSD
Matrix: Water
Analysis Batch: 591068

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	38	EY	5.00	44.7	EY BB	mg/L		124	80 - 120	0	20
Sulfate	250	EY	5.00	255	EY BB	mg/L		116	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-592594/6
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/28/20 10:16	1

Lab Sample ID: LCS 440-592594/5
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	24.4		ug/L		98	85 - 115

Lab Sample ID: MRL 440-592594/4
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	0.998	J,DX	ug/L		100	75 - 125

Lab Sample ID: MRL 440-592594/8
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.70	J,DX	ug/L		93	75 - 125

Lab Sample ID: 440-259373-1 MS
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	23.8		ug/L		95	80 - 120

Lab Sample ID: 440-259373-1 MSD
Matrix: Water
Analysis Batch: 592594

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	23.7		ug/L		95	80 - 120	1	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-591290/1-A
Matrix: Water
Analysis Batch: 591439

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 591290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		01/20/20 05:35	01/20/20 13:41	1
Zinc	ND		20	12	ug/L		01/20/20 05:35	01/20/20 13:41	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-591290/2-A
Matrix: Water
Analysis Batch: 591439

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 591290

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			0.500	0.434		mg/L		87	85 - 115		
Zinc			500	486		ug/L		97	85 - 115		

Lab Sample ID: 720-96978-B-1-B MS
Matrix: Water
Analysis Batch: 591439

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 591290

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	6.0		0.500	6.26	BB	mg/L		57	70 - 130		
Zinc	170		500	644		ug/L		95	70 - 130		

Lab Sample ID: 720-96978-B-1-C MSD
Matrix: Water
Analysis Batch: 591439

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 591290

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	6.0		0.500	6.14	BB	mg/L		33	70 - 130	2	20
Zinc	170		500	656		ug/L		97	70 - 130	2	20

Lab Sample ID: MB 440-591404/1-B
Matrix: Water
Analysis Batch: 591492

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 591427

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		01/20/20 15:34	01/20/20 19:15	1
Zinc	ND		20	12	ug/L		01/20/20 15:34	01/20/20 19:15	1

Lab Sample ID: LCS 440-591404/2-B
Matrix: Water
Analysis Batch: 591492

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 591427

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			0.500	0.445		mg/L		89	85 - 115		
Zinc			500	481		ug/L		96	85 - 115		

Lab Sample ID: 720-96991-C-1-C MS
Matrix: Water
Analysis Batch: 591492

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 591427

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	ND		0.500	0.512		mg/L		102	70 - 130		
Zinc	ND		500	515		ug/L		103	70 - 130		

Lab Sample ID: 720-96991-C-1-D MSD
Matrix: Water
Analysis Batch: 591492

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 591427

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	ND		0.500	0.511		mg/L		102	70 - 130	0	20
Zinc	ND		500	509		ug/L		102	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-591292/1-A
Matrix: Water
Analysis Batch: 591424

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 591292

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/20/20 05:41	01/20/20 13:45	1
Copper	ND		2.0	0.50	ug/L		01/20/20 05:41	01/20/20 13:45	1
Lead	ND		1.0	0.50	ug/L		01/20/20 05:41	01/20/20 13:45	1
Selenium	ND		2.0	0.50	ug/L		01/20/20 05:41	01/20/20 13:45	1

Lab Sample ID: LCS 440-591292/2-A
Matrix: Water
Analysis Batch: 591424

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 591292

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	81.4		ug/L		102	85 - 115
Copper	80.0	80.4		ug/L		100	85 - 115
Lead	80.0	79.4		ug/L		99	85 - 115
Selenium	80.0	78.2		ug/L		98	85 - 115

Lab Sample ID: 720-96977-C-3-B MS
Matrix: Water
Analysis Batch: 591424

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 591292

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	83.5		ug/L		104	70 - 130
Copper	17		80.0	98.6		ug/L		102	70 - 130
Lead	5.8		80.0	88.3		ug/L		103	70 - 130
Selenium	ND		80.0	77.1		ug/L		96	70 - 130

Lab Sample ID: 720-96977-C-3-C MSD
Matrix: Water
Analysis Batch: 591424

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 591292

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	81.1		ug/L		101	70 - 130	3	20
Copper	17		80.0	95.5		ug/L		98	70 - 130	3	20
Lead	5.8		80.0	87.7		ug/L		102	70 - 130	1	20
Selenium	ND		80.0	77.5		ug/L		97	70 - 130	1	20

Lab Sample ID: MB 440-591404/1-D
Matrix: Water
Analysis Batch: 591487

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 591436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/20/20 15:44	01/20/20 17:52	1
Copper	ND		2.0	0.50	ug/L		01/20/20 15:44	01/20/20 17:52	1
Lead	ND		1.0	0.50	ug/L		01/20/20 15:44	01/20/20 17:52	1
Selenium	ND		2.0	0.50	ug/L		01/20/20 15:44	01/20/20 17:52	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-591404/2-D
Matrix: Water
Analysis Batch: 591487

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 591436

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium			80.0	79.5		ug/L		99	85 - 115		
Copper			80.0	78.6		ug/L		98	85 - 115		
Lead			80.0	79.4		ug/L		99	85 - 115		
Selenium			80.0	77.2		ug/L		96	85 - 115		

Lab Sample ID: 720-96991-C-2-D MS
Matrix: Water
Analysis Batch: 591487

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 591436

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium	ND		80.0	81.1		ug/L		101	70 - 130		
Copper	18		80.0	98.3		ug/L		100	70 - 130		
Lead	ND		80.0	79.3		ug/L		99	70 - 130		
Selenium	ND		80.0	77.2		ug/L		96	70 - 130		

Lab Sample ID: 720-96991-C-2-E MSD
Matrix: Water
Analysis Batch: 591487

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 591436

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	78.9		ug/L		99	70 - 130	3	20
Copper	18		80.0	97.3		ug/L		99	70 - 130	1	20
Lead	ND		80.0	78.6		ug/L		98	70 - 130	1	20
Selenium	ND		80.0	76.8		ug/L		96	70 - 130	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-591394/1-A
Matrix: Water
Analysis Batch: 591637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591394

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/20/20 12:38	01/21/20 12:21	1

Lab Sample ID: LCS 440-591394/2-A
Matrix: Water
Analysis Batch: 591637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591394

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			4.00	3.85		ug/L		96	85 - 115		

Lab Sample ID: 440-259362-A-1-B MS
Matrix: Water
Analysis Batch: 591637

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 591394

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		4.00	3.83		ug/L		96	75 - 125		

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-259362-A-1-C MSD
Matrix: Water
Analysis Batch: 591637

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 591394

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.77		ug/L		94	75 - 125	1	20

Lab Sample ID: MB 440-591404/1-E
Matrix: Water
Analysis Batch: 592032

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 591851

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/22/20 14:16	01/22/20 23:58	1

Lab Sample ID: LCS 440-591404/2-E
Matrix: Water
Analysis Batch: 592032

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 591851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.74		ug/L		93	85 - 115

Lab Sample ID: 440-259373-3 MS
Matrix: Water
Analysis Batch: 592032

Client Sample ID: Outfall002_20200117_Comp_F
Prep Type: Dissolved
Prep Batch: 591851

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.74		ug/L		93	75 - 125

Lab Sample ID: 440-259373-3 MSD
Matrix: Water
Analysis Batch: 592032

Client Sample ID: Outfall002_20200117_Comp_F
Prep Type: Dissolved
Prep Batch: 591851

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.91		ug/L		98	75 - 125	4	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-591213/5
Matrix: Water
Analysis Batch: 591213

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			01/17/20 20:05	1

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 591213

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	2.1		2.08		NTU		3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-591872/1
Matrix: Water
Analysis Batch: 591872

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			01/22/20 15:19	1

Lab Sample ID: LCS 440-591872/2
Matrix: Water
Analysis Batch: 591872

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	1010		mg/L		101	90 - 110		

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 591872

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	560			557		mg/L				0.4	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-591870/1
Matrix: Water
Analysis Batch: 591870

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			01/22/20 15:04	1

Lab Sample ID: LCS 440-591870/2
Matrix: Water
Analysis Batch: 591870

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	1020		mg/L		102	85 - 115		

Lab Sample ID: 440-259550-B-2 DU
Matrix: Water
Analysis Batch: 591870

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	33			32.0		mg/L				3	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-592007/1-A
Matrix: Water
Analysis Batch: 592070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 592007

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		01/23/20 09:36	01/23/20 14:56	1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCS 440-592007/2-A
Matrix: Water
Analysis Batch: 592070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 592007

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	98.0		ug/L		98	80 - 120		

Lab Sample ID: 440-259373-1 MS
Matrix: Water
Analysis Batch: 592070

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA
Prep Batch: 592007

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND		100	94.1		ug/L		94	75 - 125		

Lab Sample ID: 440-259373-1 MSD
Matrix: Water
Analysis Batch: 592070

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA
Prep Batch: 592007

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	92.4		ug/L		92	75 - 125	2	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-592694/10
Matrix: Water
Analysis Batch: 592694

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			01/28/20 12:03	1

Lab Sample ID: LCS 440-592694/11
Matrix: Water
Analysis Batch: 592694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			5.00	5.320		mg/L		106	90 - 110		

Lab Sample ID: MRL 440-592694/9
Matrix: Water
Analysis Batch: 592694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			0.200	0.1290	J,DX	mg/L		65	50 - 150		

Lab Sample ID: 440-259547-B-3 MS
Matrix: Water
Analysis Batch: 592694

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	ND		5.00	5.360		mg/L		107	90 - 110		

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-259547-B-3 MSD
Matrix: Water
Analysis Batch: 592694

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND		5.00	5.060		mg/L		101	90 - 110	6	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-591201/4
Matrix: Water
Analysis Batch: 591201

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			01/17/20 17:55	1

Lab Sample ID: LCS 440-591201/5
Matrix: Water
Analysis Batch: 591201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.271		mg/L		108	90 - 110

Lab Sample ID: MRL 440-591201/3
Matrix: Water
Analysis Batch: 591201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.107		mg/L		107	50 - 150

Lab Sample ID: 440-259373-1 MS
Matrix: Water
Analysis Batch: 591201

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.085	J,DX	0.250	0.375		mg/L		116	50 - 125

Lab Sample ID: 440-259373-1 MSD
Matrix: Water
Analysis Batch: 591201

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.085	J,DX	0.250	0.378		mg/L		117	50 - 125	1	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-591255/1
Matrix: Water
Analysis Batch: 591255

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/18/20 09:34	1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-591255/5
Matrix: Water
Analysis Batch: 591255

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			199	201		mg/L		101	85 - 115		

Lab Sample ID: LCSD 440-591255/6
Matrix: Water
Analysis Batch: 591255

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	198		mg/L		100	85 - 115	2	20

Lab Sample ID: LCSD 440-591255/7
Matrix: Water
Analysis Batch: 591255

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	209		mg/L		105	85 - 115	4	20

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 591255

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	2.0			2.04		mg/L				0.5	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

GC/MS Semi VOA

Prep Batch: 591278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	625	
MB 440-591278/1-A	Method Blank	Total/NA	Water	625	
LCS 440-591278/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-591278/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 591529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	625.1	591278
MB 440-591278/1-A	Method Blank	Total/NA	Water	625.1	591278
LCS 440-591278/2-A	Lab Control Sample	Total/NA	Water	625.1	591278
LCSD 440-591278/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	591278

GC Semi VOA

Prep Batch: 591386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	608	
MB 440-591386/1-A	Method Blank	Total/NA	Water	608	
LCS 440-591386/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-591386/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 591588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	608.3	591386
MB 440-591386/1-A	Method Blank	Total/NA	Water	608.3	591386
LCS 440-591386/2-A	Lab Control Sample	Total/NA	Water	608.3	591386
LCSD 440-591386/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	591386

HPLC/IC

Analysis Batch: 591067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	300.0	
MB 440-591067/6	Method Blank	Total/NA	Water	300.0	
LCS 440-591067/5	Lab Control Sample	Total/NA	Water	300.0	
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	300.0	
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	300.0	

Analysis Batch: 591068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	300.0	
440-259373-1 - DL	Outfall002_20200117_Comp	Total/NA	Water	300.0	
MB 440-591068/6	Method Blank	Total/NA	Water	300.0	
LCS 440-591068/5	Lab Control Sample	Total/NA	Water	300.0	
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	300.0	
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	300.0	

Analysis Batch: 591863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	NO3NO2 Calc	

HPLC/IC

Analysis Batch: 592594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	314.0	
MB 440-592594/6	Method Blank	Total/NA	Water	314.0	
LCS 440-592594/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-592594/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-592594/8	Lab Control Sample	Total/NA	Water	314.0	
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	314.0	
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	314.0	

Metals

Prep Batch: 591290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total Recoverable	Water	200.2	
MB 440-591290/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-591290/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
720-96978-B-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
720-96978-B-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 591292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total Recoverable	Water	200.2	
MB 440-591292/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-591292/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
720-96977-C-3-B MS	Matrix Spike	Total Recoverable	Water	200.2	
720-96977-C-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 591394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	245.1	
MB 440-591394/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-591394/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-259362-A-1-B MS	Matrix Spike	Total/NA	Water	245.1	
440-259362-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 591404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	FILTRATION	
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	FILTRATION	
MB 440-591404/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-591404/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 440-591404/1-E	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-591404/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-591404/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-591404/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
440-259373-3 MS	Outfall002_20200117_Comp_F	Dissolved	Water	FILTRATION	
440-259373-3 MSD	Outfall002_20200117_Comp_F	Dissolved	Water	FILTRATION	
720-96991-C-1-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
720-96991-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
720-96991-C-2-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
720-96991-C-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Metals

Analysis Batch: 591424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total Recoverable	Water	200.8	591292
MB 440-591292/1-A	Method Blank	Total Recoverable	Water	200.8	591292
LCS 440-591292/2-A	Lab Control Sample	Total Recoverable	Water	200.8	591292
720-96977-C-3-B MS	Matrix Spike	Total Recoverable	Water	200.8	591292
720-96977-C-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	591292

Prep Batch: 591427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	200.2	591404
MB 440-591404/1-B	Method Blank	Dissolved	Water	200.2	591404
LCS 440-591404/2-B	Lab Control Sample	Dissolved	Water	200.2	591404
720-96991-C-1-C MS	Matrix Spike	Dissolved	Water	200.2	591404
720-96991-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	591404

Prep Batch: 591436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	200.2	591404
MB 440-591404/1-D	Method Blank	Dissolved	Water	200.2	591404
LCS 440-591404/2-D	Lab Control Sample	Dissolved	Water	200.2	591404
720-96991-C-2-D MS	Matrix Spike	Dissolved	Water	200.2	591404
720-96991-C-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	591404

Analysis Batch: 591439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total Recoverable	Water	200.7 Rev 4.4	591290
MB 440-591290/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	591290
LCS 440-591290/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	591290
720-96978-B-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	591290
720-96978-B-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	591290

Analysis Batch: 591487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	200.8	591436
MB 440-591404/1-D	Method Blank	Dissolved	Water	200.8	591436
LCS 440-591404/2-D	Lab Control Sample	Dissolved	Water	200.8	591436
720-96991-C-2-D MS	Matrix Spike	Dissolved	Water	200.8	591436
720-96991-C-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	591436

Analysis Batch: 591492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	200.7 Rev 4.4	591427
MB 440-591404/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	591427
LCS 440-591404/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	591427
720-96991-C-1-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	591427
720-96991-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	591427

Analysis Batch: 591637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	245.1	591394
MB 440-591394/1-A	Method Blank	Total/NA	Water	245.1	591394
LCS 440-591394/2-A	Lab Control Sample	Total/NA	Water	245.1	591394

Metals (Continued)

Analysis Batch: 591637 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259362-A-1-B MS	Matrix Spike	Total/NA	Water	245.1	591394
440-259362-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	591394

Prep Batch: 591851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591404
MB 440-591404/1-E	Method Blank	Dissolved	Water	245.1	591404
LCS 440-591404/2-E	Lab Control Sample	Dissolved	Water	245.1	591404
440-259373-3 MS	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591404
440-259373-3 MSD	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591404

Analysis Batch: 592032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-3	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591851
MB 440-591404/1-E	Method Blank	Dissolved	Water	245.1	591851
LCS 440-591404/2-E	Lab Control Sample	Dissolved	Water	245.1	591851
440-259373-3 MS	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591851
440-259373-3 MSD	Outfall002_20200117_Comp_F	Dissolved	Water	245.1	591851

General Chemistry

Analysis Batch: 591201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM 5540C	
MB 440-591201/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-591201/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-591201/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	SM 5540C	
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 591213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	180.1	
MB 440-591213/5	Method Blank	Total/NA	Water	180.1	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	180.1	

Analysis Batch: 591255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM5210B	
USB 440-591255/1	Method Blank	Total/NA	Water	SM5210B	
LCS 440-591255/5	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-591255/6	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-591255/7	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 591870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM 2540D	
MB 440-591870/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-591870/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-259550-B-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

General Chemistry

Analysis Batch: 591872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM 2540C	
MB 440-591872/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-591872/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	SM 2540C	

Prep Batch: 592007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	Distill/CN	
MB 440-592007/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-592007/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	Distill/CN	
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 592070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM 4500 CN E	592007
MB 440-592007/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	592007
LCS 440-592007/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	592007
440-259373-1 MS	Outfall002_20200117_Comp	Total/NA	Water	SM 4500 CN E	592007
440-259373-1 MSD	Outfall002_20200117_Comp	Total/NA	Water	SM 4500 CN E	592007

Analysis Batch: 592694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-592694/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-592694/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-592694/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-259547-B-3 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-259547-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259373-1
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
314.0		Water	Perchlorate
NO3NO2 Calc		Water	Nitrate Nitrite as N

aquatic bioassay & consulting laboratories, inc

January 28, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall002_20200117_Comp (440-259373-1)
DATE RECEIVED:	17 Jan - 2020
ABC LAB. NO.:	CSE0120.115

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = -60.49 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-1887-6784	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Jan-20 14:55	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	19-2151-0427	**Code:**	CSE0120.115	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	17 Jan-20 11:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	17 Jan-20 14:00	**CAS (PC):**		**Station:**	Outfall002_20200117_Comp (440-259
Sample Age:	4h (2.8 °C)	**Client:**	Calscience Environmental Laboratories, Inc		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
10-4654-1859	Cell Density	TST-Welch's t Test	<1.0E-37	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
10-4654-1859	Cell Density	Control CV	0.04425	<<	0.2	Yes	Passes Criteria
10-4654-1859	Cell Density	Control Resp	1.15E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.145E+6	1.103E+6	1.188E+6	1.052E+6	1.208E+6	1.792E+4	5.068E+4	4.42%	0.00%
100		8	1.838E+6	1.766E+6	1.910E+6	1.739E+6	1.949E+6	3.043E+4	8.606E+4	4.68%	-60.49%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.195E+6	1.208E+6	1.118E+6	1.052E+6	1.131E+6	1.144E+6	1.129E+6	1.186E+6
100		1.949E+6	1.941E+6	1.739E+6	1.791E+6	1.806E+6	1.783E+6	1.928E+6	1.769E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-4654-1859	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	27 Jan-20 15:43	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	05-1887-6784	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Jan-20 14:55	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	19-2151-0427	**Code:**	CSE0120.115	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	17 Jan-20 11:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	17 Jan-20 14:00	**CAS (PC):**		**Station:**	Outfall002_20200117_Comp (440-259
Sample Age:	4h (2.8 °C)	**Client:**	Calscience Environmental Laboratories, Inc		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	29.44	0.7027	9	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.04425	<<	0.2	Yes	Passes Criteria
Control Resp	1.15E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.920E+12	1.920E+12	1	385	<1.0E-37	Significant Effect
Error	6.983E+10	4.988E+09	14			
Total	1.990E+12		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	6.507	8.862	0.0231	Equal Variances
	Mod Levene Equality of Variance Test	1.437	8.862	0.2504	Equal Variances
	Variance Ratio F Test	2.884	8.885	0.1857	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.3788	3.878	0.4106	Normal Distribution
	D'Agostino Skewness Test	0.5116	2.576	0.6089	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1459	0.2471	0.5048	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9427	0.8408	0.3837	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.145E+6	1.103E+6	1.188E+6	1.138E+6	1.052E+6	1.208E+6	1.792E+4	4.42%	0.00%
100		8	1.838E+6	1.766E+6	1.910E+6	1.798E+6	1.739E+6	1.949E+6	3.043E+4	4.68%	-60.49%

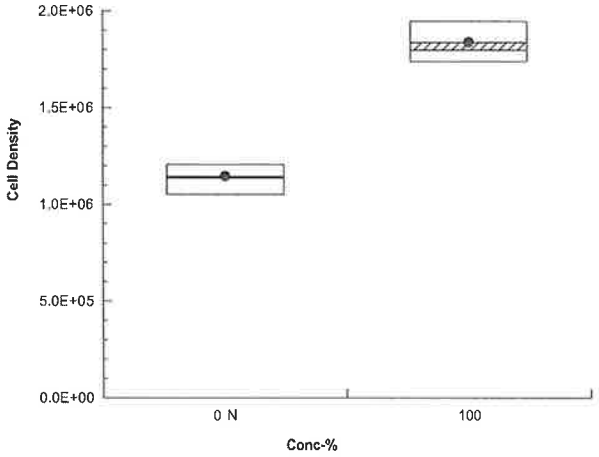
Cell Density Detail

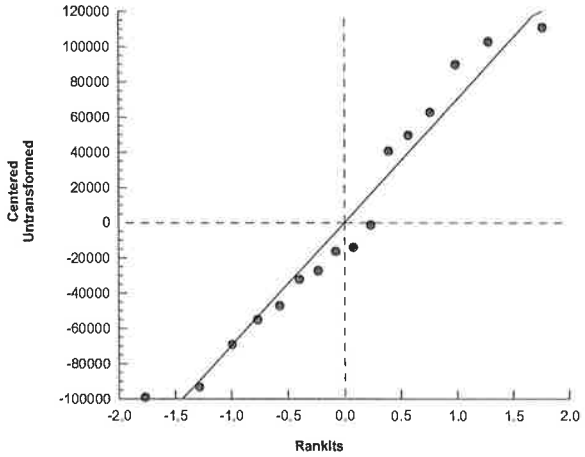
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.195E+6	1.208E+6	1.118E+6	1.052E+6	1.131E+6	1.144E+6	1.129E+6	1.186E+6
100		1.949E+6	1.941E+6	1.739E+6	1.791E+6	1.806E+6	1.783E+6	1.928E+6	1.769E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-4654-1859	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	27 Jan-20 15:43	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-1887-6784	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Jan-20 14:55	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water		
Ending Date:	21 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	

Sample ID:	19-2151-0427	**Code:**	CSE0120.115	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	17 Jan-20 11:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	17 Jan-20 14:00	**CAS (PC):**		**Station:**	Outfall002_20200117_Comp (440-259
Sample Age:	4h (2.8 °C)	**Client:**	Calscience Environmental Laboratories, Inc		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	63			63	63	0	0	0.0%	0
100		1	207			207	207	0	0	0.0%	0
Overall		2	135	-779.8	1050	63	207	72	101.8	75.42%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	459.4	446.1	472.7	446	472	4.792	10.71	2.33%	0
100		5	927.2	923.5	930.9	925	932	1.319	2.95	0.32%	0
Overall		10	693.3	516.8	869.8	446	932	78	246.7	35.58%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	106			106	106	0	0	0.0%	0
100		1	116			116	116	0	0	0.0%	0
Overall		2	111	47.47	174.5	106	116	5	7.071	6.37%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	8.06	7.918	8.202	7.9	8.2	0.05099	0.114	1.42%	0
100		5	8.16	7.952	8.368	7.9	8.3	0.07483	0.1673	2.05%	0
Overall		10	8.11	8.006	8.214	7.9	8.3	0.04583	0.1449	1.79%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0
100		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0
Overall		10	24.04	24	24.08	24	24.1	0.01633	0.05164	0.21%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		63					
100				207					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		446					
100				925					
0	N	2		451					
100				925					
0	N	3		462					
100				928					
0	N	4		466					
100				932					
0	N	5		472					
100				926					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		106					
100				116					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8					
100				7.9					
0	N	2		8.1					
100				8.2					
0	N	3		8.1					
100				8.1					
0	N	4		8.2					
100				8.3					
0	N	5		7.9					
100				8.3					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.1					
100				24.1					
0	N	2		24					
100				24					
0	N	3		24.1					
100				24.1					
0	N	4		24					
100				24					
0	N	5		24					
100				24					

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-259373

eurofins : Calscience

1/29/2020

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-151384.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Aquatic Bioassay		Accreditations Required (See note): State Program - California		Job #: 440-259373-1
Address: 29 North Olive Street,	Due Date Requested: 1/29/2020			
City: Ventura	TAT Requested (days):			
State, Zip: CA, 93001				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Chronic-Selenestrum)/ Chronic-Selenestrum	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200117_Comp (440-259373-1)	1/17/20	11:00 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				1-17-20 / 1600	Aquatic Bioassay
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Test America

CHAIN OF CUSTODY FORM

Temp. deg. C .115 = 2.8°C

Chlorine (mg/L) = <0.1

NH3 (mg/L) = <0.1

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335.2) (R)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura, CA (R)	Total Dissolved Metals: Mercury (E245.1) (R)	Total Dissolved Metals (E200.7): ~~Al, Ag, Mn~~ Fe (C)						Comments
Outfall 002	Outfall002_20200117_Comp_F	1/17/2020 1100	WM	1L Poly	1	None	200	No	X					X						Filter and preserve w/in 24hrs of receipt at lab. ~~Outfall 001 analyze for Fe~~ Sus Outfall 002 analyze for Fe. ~~Outfall 011 analyze for Ag, Mn and Fe~~ Q ~~Outfall 018 analyze for Al~~ Q
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2.5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No				X								Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	01/17/2020 / 1400	Haley & Aldrich	[signature]	1-17-20 / 1400
MARK DOMINICK				

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

*Chron tox only delivered to ABC labs directly by H&A on this copy of COC

Test America

CHAIN OF CUSTODY FORM

1/29/2020

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	R TCDD (and all congeners) (E1613B)	R BOD5 (20 degrees C) (E405.1(SM5210B_BODCalc))	R Surfactants (MBAS) (SM5540C/E425.1)	R Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	R Turbidity, TDS (SM2540C/E160.1)	R TSS (160.2 (SM2540D))	R Ammonia-N (350.2)	R alpha-BHC (E608)	R 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R Total Recoverable Metals: Mercury (E245.1)	C Total Recoverable Metals (E200.7) Al, As, Mn, Fe		Comments
Outfall 002	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	HNO_3	90	No	X										X	X	~~Outfall 001 analyze for Fe.~~ RH Outfall 002 analyze for Fe. ~~Outfall 011 analyze for Sb, Ni, and Fe~~ ~~Outfall 018 analyze for Al.~~ RH RH
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	130	No					X								48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	170	No									X				
			WM	1 L Glass Amber	2	None	180	No										X			
			WM	1L Poly	1	None	185	No							X						
	Outfall002_20200117_Comp_Extra	1/17/2020 1100	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	130	No					H								Hold
			WM	1 L Glass Amber	2	None	170	No									H				Hold
			WM	1 L Glass Amber	2	None	180	No										H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hoan	01/17/2020 1400	Haley&Aldrich		1/17/20 1400
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
MARK DOMINICK	/			
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

*Chromic Hexavalent only delivered to ABC Labs directly by H.A on this copy of COC

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 9 January - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 80.00 ug/l

IC25 = 108.50 ug/l
IC50 = 137.00 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

29 north olive st. ventura, ca 93001 (805) 643 5621 aquabio.org

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX		
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
19-2114-5898	Cell Density	Dunnett Multiple Comparison Test		80	140	105.8		11.4%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	TU	S
18-5076-8423	Cell Density	Linear Interpolation (ICPIN)		IC5	85.7	62.45	86.08		1
				IC10	91.4	80.77	92.17		
				IC15	97.1	88	98.25		
				IC20	102.8	95.23	104.4		
				IC25	108.5	102.3	110.4		
				IC40	125.6	121.6	128.8		
				IC50	137	132.9	141.2		

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
18-5076-8423	Cell Density	Control CV	0.0486	<<	0.2	Yes	Passes Criteria
19-2114-5898	Cell Density	Control CV	0.0486	<<	0.2	Yes	Passes Criteria
18-5076-8423	Cell Density	Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria
19-2114-5898	Cell Density	Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.066E+6	9.833E+5	1.148E+6	1.017E+6	1.112E+6	2.590E+4	5.179E+4	4.86%	0.00%
20		4	1.031E+6	9.726E+5	1.089E+6	1.001E+6	1.083E+6	1.836E+4	3.672E+4	3.56%	3.26%
40		4	1.531E+6	1.352E+6	1.710E+6	1.380E+6	1.621E+6	5.617E+4	1.123E+5	7.34%	-43.65%
80		4	1.237E+6	1.059E+6	1.415E+6	1.075E+6	1.330E+6	5.597E+4	1.119E+5	9.05%	-16.05%
140		4	5.760E+5	5.306E+5	6.214E+5	5.450E+5	6.130E+5	1.428E+4	2.855E+4	4.96%	45.95%
180		4	2.715E+5	2.404E+5	3.026E+5	2.460E+5	2.900E+5	9.768E+3	1.954E+4	7.20%	74.52%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	19-2114-5898	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	80	140	105.8		11.36%

Dunnett Multiple Comparison Test

Control vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	20	0.6906	2.407	1E+05	6	CDF	0.5623	Non-Significant Effect
	40	-9.246	2.407	1E+05	6	CDF	1.0000	Non-Significant Effect
	80	-3.398	2.407	1E+05	6	CDF	1.0000	Non-Significant Effect
	140*	9.733	2.407	1E+05	6	CDF	2.7E-05	Significant Effect
	180*	15.79	2.407	1E+05	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.0486	<<	0.2	Yes	Passes Criteria
Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.16E+12	8.32E+11	5	164.3	<1.0E-37	Significant Effect
Error	9.114E+10	5.063E+09	18			
Total	4.251E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.08	15.09	0.0337	Equal Variances
	Levene Equality of Variance Test	3.072	4.248	0.0354	Equal Variances
	Mod Levene Equality of Variance Test	1.595	4.248	0.2120	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.7214	3.878	0.0597	Normal Distribution
	D'Agostino Kurtosis Test	1.627	2.576	0.1038	Normal Distribution
	D'Agostino Skewness Test	2.109	2.576	0.0349	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	7.096	9.21	0.0288	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1445	0.2056	0.2154	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9093	0.884	0.0340	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.066E+6	9.833E+5	1.148E+6	1.067E+6	1.017E+6	1.112E+6	2.590E+4	4.86%	0.00%
20		4	1.031E+6	9.726E+5	1.089E+6	1.020E+6	1.001E+6	1.083E+6	1.836E+4	3.56%	3.26%
40		4	1.531E+6	1.352E+6	1.710E+6	1.562E+6	1.380E+6	1.621E+6	5.617E+4	7.34%	-43.65%
80		4	1.237E+6	1.059E+6	1.415E+6	1.271E+6	1.075E+6	1.330E+6	5.597E+4	9.05%	-16.05%
140		4	5.760E+5	5.306E+5	6.214E+5	5.730E+5	5.450E+5	6.130E+5	1.428E+4	4.96%	45.95%
180		4	2.715E+5	2.404E+5	3.026E+5	2.750E+5	2.460E+5	2.900E+5	9.768E+3	7.20%	74.52%

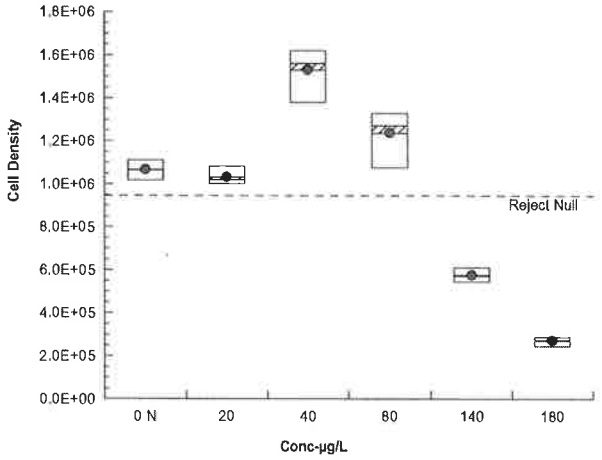
Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

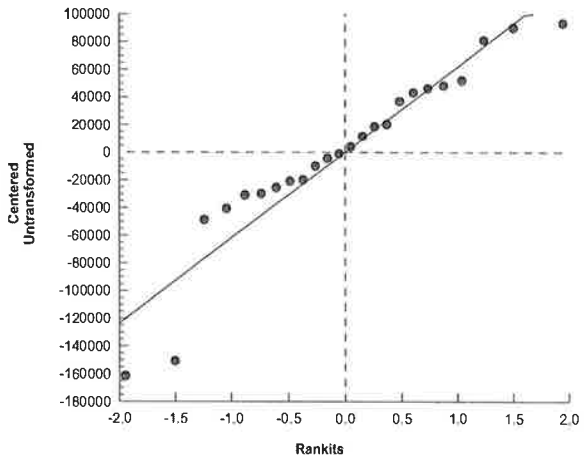
Analysis ID: 19-2114-5898 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.5
Analyzed: 22 Jan-20 9:45 **Analysis:** Parametric-Control vs Treatments **Status Level:** 1

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	18-5076-8423	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.0486	<<	0.2	Yes	Passes Criteria
Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	85.7	62.45	86.08
IC10	91.4	80.77	92.17
IC15	97.1	88	98.25
IC20	102.8	95.23	104.4
IC25	108.5	102.3	110.4
IC40	125.6	121.6	128.8
IC50	137	132.9	141.2

Cell Density Summary

			Calculated Variate						Isotonic Variate	
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	N	4	1.066E+6	1.017E+6	1.112E+6	5.179E+4	4.86%	0.0%	1216000	0.0%
20		4	1.031E+6	1.001E+6	1.083E+6	3.672E+4	3.56%	3.26%	1216000	0.0%
40		4	1.531E+6	1.380E+6	1.621E+6	1.123E+5	7.34%	-43.65%	1216000	0.0%
80		4	1.237E+6	1.075E+6	1.330E+6	1.119E+5	9.05%	-16.05%	1216000	0.0%
140		4	5.760E+5	5.450E+5	6.130E+5	2.855E+4	4.96%	45.95%	576000	52.64%
180		4	2.715E+5	2.460E+5	2.900E+5	1.954E+4	7.20%	74.52%	271500	77.67%

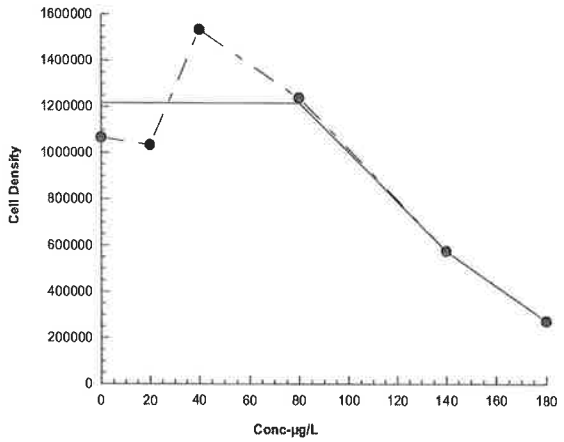
Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-5076-8423	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**		
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water	
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable	
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**

Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	75			75	75	0	0	0.0%	0
20		1	66			66	66	0	0	0.0%	0
40		1	66			66	66	0	0	0.0%	0
80		1	56			56	56	0	0	0.0%	0
140		1	56			56	56	0	0	0.0%	0
180		1	73			73	73	0	0	0.0%	0
Overall		6	65.33	56.84	73.82	56	75	3.303	8.091	12.38%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	435.6	426.6	444.6	430	448	3.234	7.232	1.66%	0
20		5	449.2	421.6	476.8	421	475	9.952	22.25	4.95%	0
40		5	415.2	407.3	423.1	407	423	2.835	6.34	1.53%	0
80		5	393.6	390.6	396.6	391	397	1.077	2.408	0.61%	0
140		5	371.8	365.1	378.5	365	379	2.417	5.404	1.45%	0
180		5	367.6	352.4	382.8	352	380	5.492	12.28	3.34%	0
Overall		30	405.5	393.2	417.8	352	475	5.99	32.81	8.09%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	114			114	114	0	0	0.0%	0
20		1	108			108	108	0	0	0.0%	0
40		1	107			107	107	0	0	0.0%	0
80		1	106			106	106	0	0	0.0%	0
140		1	107			107	107	0	0	0.0%	0
180		1	130			130	130	0	0	0.0%	0
Overall		6	112	102.3	121.7	106	130	3.786	9.274	8.28%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.681	8.159	7.6	8.1	0.08602	0.1924	2.43%	0
20		5	7.9	7.704	8.096	7.7	8.1	0.07071	0.1581	2.0%	0
40		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
80		5	7.94	7.732	8.148	7.7	8.1	0.07483	0.1673	2.11%	0
140		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
180		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
Overall		30	7.92	7.865	7.975	7.6	8.1	0.02687	0.1472	1.86%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
20		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
40		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
80		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
140		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
180		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
Overall		30	24.42	24.34	24.5	24	24.6	0.03965	0.2172	0.89%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		75					
20				66					
40				66					
80				56					
140				56					
180				73					

Conductivity-µmhos

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		435					
20				421					
40				407					
80				391					
140				365					
180				352					
0	N	2		431					
20				435					
40				411					
80				392					
140				369					
180				358					
0	N	3		430					
20				448					
40				416					
80				393					
140				371					
180				370					
0	N	4		434					
20				467					
40				419					
80				395					
140				375					
180				378					
0	N	5		448					
20				475					
40				423					
80				397					
140				379					
180				380					

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		114					
20				108					
40				107					
80				106					
140				107					
180				130					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.6					
20				7.7					
40				7.7					
80				7.7					
140				7.7					
180				7.7					
0	N	2		8					
20				7.8					
40				7.9					
80				7.9					
140				7.9					
180				7.9					
0	N	3		7.9					
20				7.9					
40				7.9					
80				7.9					
140				7.9					
180				7.9					
0	N	4		8					
20				8.1					
40				8.1					
80				8.1					
140				8					
180				8					
0	N	5		8.1					
20				8					
40				8					
80				8.1					
140				8.1					
180				8.1					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	2		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	3		24.6					
20				24.6					
40				24.6					
80				24.6					
140				24.6					
180				24.6					
0	N	4		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	5		24					
20				24					
40				24					
80				24					
140				24					
180				24					

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)	
Sampler: Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	R TCDD (and all congeners) (E1613B)	R BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	R Surfactants (MBAS) (SM5540C/E425.1)	R Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	R Turbidity, TDS (SM2540C/E180.1)	R TSS (160.2 (SM2540D))	R Ammonia-N (350.2)	R alpha-BHC (E608)	R 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R Total Recoverable Metals Mercury (E245.1)	C		Comments
Outfall 002	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	HNO_3	90	No	X										X	X	
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	130	No					X								48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	170	No									X				
			WM	1 L Glass Amber	2	None	180	No										X			
			WM	1L Poly	1	None	185	No							X						
	Outfall002_20200117_Comp_Extra	1/17/2020 1100	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	130	No					H								Hold
			WM	1 L Glass Amber	2	None	170	No									H				Hold
			WM	1 L Glass Amber	2	None	180	No										H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/17/2020 1322	Haley&Aldrich	[illegible]	1322
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible] Ponce	1/17 4:20	DES		
Relinquished By	Date/Time	Company	Received By	Date/Time
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day ___X___
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV ___X___

IR93

1/17/20 LD

27/2.7 24/2.1 · 2.6/2.6 21/2.1

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler. Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	[illegible] (C)						Comments
Outfall 002	Outfall002_20200117_Comp_F	1/17/2020 1100	WM	1L Poly	1	None	200	No	X					X						[illegible]
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second rain event [illegible] Deliver to ABC Labs in Ventura CA *

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/17/2020 1322	Haley & Aldrich	[illegible]	1 22
Yely Ponce	1/17 4:20	DCS	[signature]	
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

* Chron tox only delivered to ABC labs directly by H&A

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-151369.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-259373-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/29/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200117_Comp (440-259373-1)	1/17/20	11:00 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Kennedy	1/20/2020 1700	EC-IRV		1-21-20 9:15	EA SRC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-151369.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-259373-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/29/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200117_Comp (440-259373-1)	1/17/20	11:00 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Kennedy	1/20/2020 1700	EC-IRV		1-21-20 9:15	GTA SLC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-259373-1

Login Number: 259373
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-259373 Field Sheet

Job: _____

Tracking # : 1540 4106 0373

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.4 °C Corrected: 0.4 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: PK Date: 1/21/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 1/21/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W21A ~~W14A~~ PK 1/21/20

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259373-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

28 February 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-259373-2

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200117_COMP	440-259373-1	N/A	Water	1/17/20 11:00 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-259373-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (931 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

L. Calvin of MEC^X reviewed the SDG on March 9, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were met. Following are findings associated with instrument performance:

III.2.1. *GC COLUMN PERFORMANCE*

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as <25%.

III.2.2. *MASS SPECTROMETER PERFORMANCE*

The mass spectrometer performance was acceptable with the static resolving power >10,000.

III.3. CALIBRATION

Calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for all isomers except 2,3,7,8-TCDD and 2,3,7,8-TCDF, and detects for all totals. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared peaks comprising the method blank totals to those in the sample totals. The retention times of peaks in the sample totals matched those in the method blank; therefore, results for all totals were qualified as nondetects (U) at the level of contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.

III.7. COMPOUND IDENTIFICATION

Compound identification was verified. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. The second-column confirmation analysis for isomer 2,3,7,8-TCDF detected in the initial analysis of did not confirmthe initial result. As the confirmation column is more specific for the detection of 2,3,7,8-TCDF, the initial result was rejected (R) in favor of the confirmation result.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating a representative number of sample results. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit; however, all initial detects were subsequently qualified as nondetects for method blank contamination. Reported nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 931 ml sample volume was available for extraction

Several results were initially reported as isomer EMPCs or as totals containing EMPC peaks; however, all isomers and totals were previously qualified as method blank contamination were not further qualified as EMPCs.

Validated Sample Result Forms: 4402593732

Analysis Method E1613B

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000062	0.00011	0.0000010	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000012	0.00011	0.00000094	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000019	0.000054	0.0000013	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000028	0.000054	0.00000048	ug/L	J,DXqMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000020	0.000054	0.0000016	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000016	0.000054	0.00000046	ug/L	J,DXqMB	U	B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000035	0.000054	0.00000067	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000013	0.000054	0.00000044	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000016	0.000054	0.00000065	ug/L	J,DXqMB	U	B
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000021	0.000054	0.00000034	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000022	0.000054	0.00000062	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000021	0.000054	0.00000085	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000025	0.000054	0.0000010	ug/L	J,DXMB	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000017	0.000054	0.00000036	ug/L	J,DXqMB	U	B
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000020	0.000054	0.00000084	ug/L	J,DXMB	U	B
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.00000071	0.000011	0.00000033	ug/L	J,DXqMB	R	D
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000058	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.00000048	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000039	0.000054	0.0000013	ug/L	J,DXqMB	U	B
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000050	0.000054	0.00000048	ug/L	J,DXqMB	U	B
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000068	0.000054	0.00000034	ug/L	J,DXqMB	U	B
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000012	0.000054	0.00000062	ug/L	J,DXqMB	U	B

Analysis Method	*E1613B*							
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000041	0.000054	0.00000084	ug/L	J,DXMB	**U**	**B**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000035	0.000054	0.0000010	ug/L	J,DXqMB	**U**	**B**
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.00000071	0.000011	0.00000033	ug/L	J,DXqMB	**U**	**B**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.00000086	0.000011	0.00000048	ug/L	J,DXqMB	**U**	**B**

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259373-2
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
2/12/2020 1:15:56 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
2/12/2020 1:15:56 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259373-1	Outfall002_20200117_Comp	Water	01/17/20 11:00	01/17/20 16:20	

Job ID: 440-259373-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-259373-2

Comments
No additional comments.

Receipt
The samples were received on 1/17/2020 4:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 2.1º C, 2.4º C, 2.6º C and 2.7º C.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and/or 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 3D5 exceeded this criteria: Outfall002_20200117_Comp (440-259373-1), (CCV 320-355716/1), (LCS 320-354846/2-A) and (MB 320-354846/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall002_20200117_Comp (440-259373-1) was provided in a wide-mouth amber glass bottle.

preparation batch 320-354846
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200117_Comp
Lab Sample ID: 440-259373-1

Date Collected: 01/17/20 11:00
Matrix: Water
Date Received: 01/17/20 16:20

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000011	0.00000048	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,7,8-PeCDD	0.0000025	J,DX MB	0.000054	0.0000010	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,7,8-PeCDF	0.0000021	J,DX MB	0.000054	0.00000085	ug/L		02/04/20 07:50	02/06/20 23:53	1
2,3,4,7,8-PeCDF	0.0000020	J,DX MB	0.000054	0.00000084	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,4,7,8-HxCDD	0.0000035	J,DX MB	0.000054	0.00000067	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,6,7,8-HxCDD	0.0000016	J,DX q MB	0.000054	0.00000065	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,7,8,9-HxCDD	0.0000022	J,DX MB	0.000054	0.00000062	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,4,7,8-HxCDF	0.0000016	J,DX q MB	0.000054	0.00000046	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,6,7,8-HxCDF	0.0000013	J,DX q MB	0.000054	0.00000044	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,7,8,9-HxCDF	0.0000021	J,DX MB	0.000054	0.00000034	ug/L		02/04/20 07:50	02/06/20 23:53	1
2,3,4,6,7,8-HxCDF	0.0000017	J,DX q MB	0.000054	0.00000036	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,4,6,7,8-HpCDD	0.0000028	J,DX q MB	0.000054	0.00000048	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,4,6,7,8-HpCDF	0.0000019	J,DX q MB	0.000054	0.0000013	ug/L		02/04/20 07:50	02/06/20 23:53	1
1,2,3,4,7,8,9-HpCDF	0.0000020	J,DX MB	0.000054	0.0000016	ug/L		02/04/20 07:50	02/06/20 23:53	1
OCDD	0.000012	J,DX MB	0.00011	0.00000094	ug/L		02/04/20 07:50	02/06/20 23:53	1
OCDF	0.0000062	J,DX MB	0.00011	0.0000010	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total TCDD	0.00000086	J,DX q MB	0.000011	0.00000048	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total TCDF	0.00000071	J,DX q MB	0.000011	0.00000033	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total PeCDD	0.0000035	J,DX q MB	0.000054	0.0000010	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total PeCDF	0.0000041	J,DX MB	0.000054	0.00000084	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total HxCDD	0.000012	J,DX q MB	0.000054	0.00000062	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total HxCDF	0.0000068	J,DX q MB	0.000054	0.00000034	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total HpCDD	0.0000050	J,DX q MB	0.000054	0.00000048	ug/L		02/04/20 07:50	02/06/20 23:53	1
Total HpCDF	0.0000039	J,DX q MB	0.000054	0.0000013	ug/L		02/04/20 07:50	02/06/20 23:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*79*		*25 - 164*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-2,3,7,8-TCDF	*82*		*24 - 169*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,7,8-PeCDD	*79*		*25 - 181*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,7,8-PeCDF	*75*		*24 - 185*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-2,3,4,7,8-PeCDF	*78*		*21 - 178*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,4,7,8-HxCDD	*78*		*32 - 141*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,6,7,8-HxCDD	*74*		*28 - 130*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,4,7,8-HxCDF	*81*		*26 - 152*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,6,7,8-HxCDF	*77*		*26 - 123*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,7,8,9-HxCDF	*79*		*29 - 147*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-2,3,4,6,7,8-HxCDF	*79*		*28 - 136*	*02/04/20 07:50*	*02/06/20 23:53*	*1*

Client Sample ID: Outfall002_20200117_Comp
Lab Sample ID: 440-259373-1
Date Collected: 01/17/20 11:00
Matrix: Water
Date Received: 01/17/20 16:20

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*79*		*23 - 140*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*76*		*28 - 143*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*80*		*26 - 138*	*02/04/20 07:50*	*02/06/20 23:53*	*1*
13C-OCDD	*67*		*17 - 157*	*02/04/20 07:50*	*02/06/20 23:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*95*		*35 - 197*	*02/04/20 07:50*	*02/06/20 23:53*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.000011	0.00000058	ug/L		02/04/20 07:50	02/07/20 16:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*78*		*24 - 169*	*02/04/20 07:50*	*02/07/20 16:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*92*		*35 - 197*	*02/04/20 07:50*	*02/07/20 16:10*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Client Sample ID: Outfall002_20200117_Comp

Date Collected: 01/17/20 11:00
Date Received: 01/17/20 16:20

Lab Sample ID: 440-259373-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		931 mL	20 uL	354846	02/04/20 07:50	RDR	TAL SAC
Total/NA	Analysis	1613B	RA	1			355913	02/07/20 16:10	AS	TAL SAC
Total/NA	Prep	1613B			931 mL	20 uL	354846	02/04/20 07:50	RDR	TAL SAC
Total/NA	Analysis	1613B		1			355716	02/06/20 23:53	AS	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-354846/1-A
Matrix: Water
Analysis Batch: 355716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354846

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,7,8-PeCDD	0.00000241	J,DX q	0.000050	0.0000013	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,7,8-PeCDF	0.00000220	J,DX	0.000050	0.00000077	ug/L		02/04/20 07:50	02/06/20 22:18	1
2,3,4,7,8-PeCDF	0.00000236	J,DX	0.000050	0.00000085	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,4,7,8-HxCDD	0.00000467	J,DX	0.000050	0.00000068	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,6,7,8-HxCDD	0.00000333	J,DX	0.000050	0.00000070	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,7,8,9-HxCDD	0.00000398	J,DX	0.000050	0.00000064	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,4,7,8-HxCDF	0.00000252	J,DX	0.000050	0.00000058	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,6,7,8-HxCDF	0.00000214	J,DX q	0.000050	0.00000054	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,7,8,9-HxCDF	0.00000307	J,DX	0.000050	0.00000040	ug/L		02/04/20 07:50	02/06/20 22:18	1
2,3,4,6,7,8-HxCDF	0.00000255	J,DX	0.000050	0.00000044	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,4,6,7,8-HpCDD	0.00000440	J,DX	0.000050	0.00000046	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,4,6,7,8-HpCDF	0.00000614	J,DX	0.000050	0.0000014	ug/L		02/04/20 07:50	02/06/20 22:18	1
1,2,3,4,7,8,9-HpCDF	0.00000411	J,DX q	0.000050	0.0000018	ug/L		02/04/20 07:50	02/06/20 22:18	1
OCDD	0.0000149	J,DX	0.00010	0.0000010	ug/L		02/04/20 07:50	02/06/20 22:18	1
OCDF	0.0000134	J,DX	0.00010	0.0000015	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total TCDD	0.00000102	J,DX q	0.000010	0.00000053	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total TCDF	0.000000653	J,DX q	0.000010	0.00000033	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total PeCDD	0.00000241	J,DX q	0.000050	0.0000013	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total PeCDF	0.00000457	J,DX	0.000050	0.00000077	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total HxCDD	0.0000143	J,DX q	0.000050	0.00000064	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total HxCDF	0.0000103	J,DX q	0.000050	0.00000040	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total HpCDD	0.00000628	J,DX q	0.000050	0.00000046	ug/L		02/04/20 07:50	02/06/20 22:18	1
Total HpCDF	0.0000102	J,DX q	0.000050	0.0000014	ug/L		02/04/20 07:50	02/06/20 22:18	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*69*		*25 - 164*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-2,3,7,8-TCDF	*73*		*24 - 169*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,7,8-PeCDD	*66*		*25 - 181*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,7,8-PeCDF	*67*		*24 - 185*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-2,3,4,7,8-PeCDF	*67*		*21 - 178*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,4,7,8-HxCDD	*66*		*32 - 141*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,6,7,8-HxCDD	*60*		*28 - 130*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,4,7,8-HxCDF	*68*		*26 - 152*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,6,7,8-HxCDF	*66*		*26 - 123*	*02/04/20 07:50*	*02/06/20 22:18*	*1*
13C-1,2,3,7,8,9-HxCDF	*66*		*29 - 147*	*02/04/20 07:50*	*02/06/20 22:18*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-354846/1-A
Matrix: Water
Analysis Batch: 355716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354846

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,6,7,8-HxCDF	66		28 - 136	02/04/20 07:50	02/06/20 22:18	1
13C-1,2,3,4,6,7,8-HpCDD	64		23 - 140	02/04/20 07:50	02/06/20 22:18	1
13C-1,2,3,4,6,7,8-HpCDF	65		28 - 143	02/04/20 07:50	02/06/20 22:18	1
13C-1,2,3,4,7,8,9-HpCDF	66		26 - 138	02/04/20 07:50	02/06/20 22:18	1
13C-OCDD	56		17 - 157	02/04/20 07:50	02/06/20 22:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	91		35 - 197	02/04/20 07:50	02/06/20 22:18	1

Lab Sample ID: LCS 320-354846/2-A
Matrix: Water
Analysis Batch: 355716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 354846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000251		ug/L		126	67 - 158
2,3,7,8-TCDF	0.000200	0.000239	MB	ug/L		120	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00120	MB	ug/L		120	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00119	MB	ug/L		119	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00122	MB	ug/L		122	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00115	MB	ug/L		115	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00117	MB	ug/L		117	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00126	MB	ug/L		126	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00111	MB	ug/L		111	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00110	MB	ug/L		110	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00112	MB	ug/L		112	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00113	MB	ug/L		113	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00115	MB	ug/L		115	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00112	MB	ug/L		112	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00113	MB	ug/L		113	78 - 138
OCDD	0.00200	0.00220	MB	ug/L		110	78 - 144
OCDF	0.00200	0.00240	MB	ug/L		120	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	55		20 - 175
13C-2,3,7,8-TCDF	58		22 - 152
13C-1,2,3,7,8-PeCDD	53		21 - 227
13C-1,2,3,7,8-PeCDF	53		21 - 192
13C-2,3,4,7,8-PeCDF	54		13 - 328
13C-1,2,3,4,7,8-HxCDD	51		21 - 193
13C-1,2,3,6,7,8-HxCDD	46		25 - 163
13C-1,2,3,4,7,8-HxCDF	52		19 - 202
13C-1,2,3,6,7,8-HxCDF	50		21 - 159
13C-1,2,3,7,8,9-HxCDF	51		17 - 205
13C-2,3,4,6,7,8-HxCDF	52		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	47		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	48		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	49		20 - 186
13C-OCDD	39		13 - 199

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-354846/2-A
Matrix: Water
Analysis Batch: 355716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 354846

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*90*		*31 - 191*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-354846/1-A
Matrix: Water
Analysis Batch: 355913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354846

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF - RA	ND		0.000010	0.00000050	ug/L		02/04/20 07:50	02/07/20 15:32	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF - RA	*73*		*24 - 169*	*02/04/20 07:50*	*02/07/20 15:32*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD - RA	*88*		*35 - 197*	*02/04/20 07:50*	*02/07/20 15:32*	*1*

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Specialty Organics

Prep Batch: 354846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1 - RA	Outfall002_20200117_Comp	Total/NA	Water	1613B	
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	1613B	
MB 320-354846/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-354846/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-354846/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 355716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	1613B	354846
MB 320-354846/1-A	Method Blank	Total/NA	Water	1613B	354846
LCS 320-354846/2-A	Lab Control Sample	Total/NA	Water	1613B	354846

Analysis Batch: 355913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1 - RA	Outfall002_20200117_Comp	Total/NA	Water	1613B	354846
MB 320-354846/1-A - RA	Method Blank	Total/NA	Water	1613B	354846

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259373-2
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-20 *
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-20 *
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20 *
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-29-20
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19 *
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)	
Sampler: Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	R TCDD (and all congeners) (E1613B)	R BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	R Surfactants (MBAS) (SM5540C/E425.1)	R Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	R Turbidity, TDS (SM2540C/E180.1)	R TSS (160.2 (SM2540D))	R Ammonia-N (350.2)	R alpha-BHC (E608)	R 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R Total Recoverable Metals Mercury (E245.1)	C		Comments
Outfall 002	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	HNO_3	90	No	X										X	X	
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	130	No					X								48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	170	No									X				
			WM	1 L Glass Amber	2	None	180	No										X			
			WM	1L Poly	1	None	185	No							X						
	Outfall002_20200117_Comp_Extra	1/17/2020 1100	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	130	No					H								Hold
			WM	1 L Glass Amber	2	None	170	No									H				Hold
			WM	1 L Glass Amber	2	None	180	No										H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/17/2020 1322	Haley&Aldrich	[illegible]	1322
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible] Ponce	1/17 4:20	DES		
Relinquished By	Date/Time	Company	Received By	Date/Time
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day ___X___
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV ___X___

IR93
1/17/20 LD
27/2.7 24/2.4 · 2.6/2.6 21/2.1

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2/12/2020
2019-2020 Rainy Season
Version 2

440-259373 Chain of Custody

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	[illegible] (C)						Comments
Outfall 002	Outfall002_20200117_Comp_F	1/17/2020 1100	WM	1L Poly	1	None	200	No	X					X						[illegible]
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second rain event [illegible] Deliver to ABC Labs in Ventura CA *

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/17/2020 1322	Haley & Aldrich	[illegible]	1 22
Yely Ponce	1/17 4:20	DCS	[signature]	
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

* Chron tox only delivered to ABC labs directly by H&A

2019-2020 Rainy Season
Version 2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-151368.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-259373-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 1/29/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200117_Comp (440-259373-1)	1/17/20	11:00 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L, Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A Kenney	1/20/2020 1700	EC-IRV		1/21/20 930	ETA-SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ● Yes △ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 0.4°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-259373-2

Login Number: 259373
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-259373-1	Outfall002_20200117_Comp	79	82	79	75	78	78	74	81
440-259373-1 - RA	Outfall002_20200117_Comp		78						
MB 320-354846/1-A	Method Blank	69	73	66	67	67	66	60	68
MB 320-354846/1-A - RA	Method Blank		73						

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-259373-1	Outfall002_20200117_Comp	77	79	79	79	76	80	67
440-259373-1 - RA	Outfall002_20200117_Comp							
MB 320-354846/1-A	Method Blank	66	66	66	64	65	66	56
MB 320-354846/1-A - RA	Method Blank							

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-354846/2-A	Lab Control Sample	55	58	53	53	54	51	46	52

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-354846/2-A	Lab Control Sample	50	51	52	47	48	49	39

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-2

HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes

440-259373 Field Sheet

Job: _____

Tracking # : 1540 4106 0373

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.4 °C Corrected: 0.4 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: PK Date: 1/21/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 1/21/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W21A ~~W14A~~ PK 1/21/20

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-259373-3

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

6 March 2020

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-259373-3

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200117_COMP	440-259373-1	N/A	Water	1/17/20 11:00 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, HASL-300 U Mod

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt forms and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-259373-3:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact.
- Field and laboratory personnel signed and dated the COCs.
- Some corrections to the original COCs were not dated. The cross-outs did not affect data quality.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. VARIOUS EPA METHODS —RADIONUCLIDES

E. Wessling of MEC[X] reviewed the SDG on January 21, 202020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *EPA Methods 900, 901.1, 903.0, 904.0, 905.0, 906.0 and HASL-300 U Mod* and the *National Functional Guidelines for Superfund Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES:

According to the case narrative, the sample was received properly preserved.

III.2. CALIBRATION:

The detector efficiency for gross alpha was less than 20%; therefore, the detected result for gross alpha was qualified as an estimated nondetect (UJ). All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits. Calibration checks were verified as acceptable for all methods.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target isotopes were not detected in the method blanks above the MDC. However, a comparison normalized absolute difference of the sample results and the method blank results indicated the method blank and the sample results were not significantly different at the 5% level of confidence for gross beta. The detected sample result for gross beta was qualified as estimated (J+).

III.3.2. *LABORATORY CONTROL SAMPLES:*

The recoveries and RPDs were within laboratory-established control limits. RERs, as applicable, were <1.

III.3.3. *LABORATORY DUPLICATES:*

Laboratory duplicates were performed on the sample from this SDG for cesium-137, potassium-40, total uranium and tritium. DERs were <1 with the exception of total tritium. The result for total uranium was qualified as estimated (J).

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE:*

Matrix spike (MS)/MSD analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level IV review was performed on the sample in this data package. Calculations were verified from the raw data and were determined to be accurate within a reasonable margin of error attributable to differences in significant figures. Reported nondetects are valid to the MDC.

III.5. FIELD QC SAMPLES:

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. The following are findings associated with field QC samples:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

This SDG had no identified field blank or equipment blank samples.

III.5.2. *FIELD DUPLICATES:*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402593733

Analysis Method E900

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	1.57	2.44	3.00	4.19	pCi/L	U G	UJ	*III
Gross Beta Analytes	GROSSBETA	3.87	1.46	4.00	1.97	pCi/L		J+	B

Analysis Method E901.1

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	0.604	5.46	20.0	9.56	pCi/L	U	U	
Potassium-40	13966-00-2	-3.96	103	135	135	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0780	0.0997	1.00	0.165	pCi/L	U	U	

Analysis Method E904.0

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.459	0.333	1.00	0.666	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.0485	0.200	3.00	0.350	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	39.6	171	500	303	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	2.78	0.484	1.00	0.128	pCi/L		J	E

Analysis Method RADIUM

Sample Name OUTFALL002_20200117_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/17/2020 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-259373-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.666	0.348			pCi/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-259373-3
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
2/24/2020 9:52:40 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
2/24/2020 9:52:40 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-259373-1	Outfall002_20200117_Comp	Water	01/17/20 11:00	01/17/20 16:20	

Job ID: 440-259373-3

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-259373-3

Comments
No additional comments.

Receipt
The samples were received on 1/17/2020 4:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 2.1° C, 2.4° C, 2.6° C and 2.7° C.

RAD
Method 900.0: Gross Alpha-Beta, Total Dissolution Prep Batch 160-458760
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
(LCS 160-458760/2-A), (LCSB 160-458760/3-A) and (MB 160-458760/1-A)

Method 901.1: Gamma Prep Batch 160-458534
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Outfall002_20200117_Comp (440-259373-1), (LCS 160-458534/2-A), (MB 160-458534/1-A) and (440-259373-R-1-B DU)

Methods 903.0, 9315: Radium-226 Prep Batch 160-458653

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Job ID: 440-259373-3 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200117_Comp (440-259373-1), (LCS 160-458653/1-A), (LCSD 160-458653/2-A) and (MB 160-458653/10-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-458654

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200117_Comp (440-259373-1), (LCS 160-458654/1-A), (LCSD 160-458654/2-A) and (MB 160-458654/10-A)

Method 905: Strontium-90 Prep Batch 160-458666
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200117_Comp (440-259373-1), (LCS 160-458666/1-A), (LCSD 160-458666/2-A) and (MB 160-458666/4-A)

Method 906.0: Tritium Prep Batch 160-458507
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200117_Comp (440-259373-1), (LCS 160-458507/2-A), (MB 160-458507/1-A), (440-259373-Q-1-B DU), (440-259786-A-1-A) and (440-259786-A-1-B MS)

Methods A-01-R, U-02-RC: Isotopic Uranium Prep Batch 160-458790
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200117_Comp (440-259373-1), (LCS 160-458790/2-A), (MB 160-458790/1-A) and (440-259373-R-1-H DU)

Method ExtChrom: Uranium Prep Batch 160-458789

The following samples 440-259373-1 and 440-259373-1DU have a slight yellow discoloration. Sample 680-179752-1 has a slight yellow discoloration with sediment and suspended solids. Outfall002_20200117_Comp (440-259373-1) and (440-259373-R-1 DU)

Method PrecSep_0: Radium 228 Prep Batch 160-458654:

The following samples were prepared at a reduced aliquot due to discoloration: Outfall002_20200117_Comp (440-259373-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.Sample 440-259373-1 has a slight yellow appearance, 310-174510-1 has a yellow and cloudy appearance, 310-174526-1 has a yellow appearance and sample 310-174526-2 has a yellow brown appearance.

Method PrecSep_0: Radium 228 Prep Batch 160-458654:

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20200117_Comp (440-259373-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-458653:

Job ID: 440-259373-3 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20200117_Comp (440-259373-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision

Method PrecSep-21: Radium 226 Prep Batch 160-458653:

The following samples were prepared at a reduced aliquot due to discoloration: Outfall002_20200117_Comp (440-259373-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.Sample 440-259373-1 has a slight yellow appearance, 310-174510-1 has a yellow and cloudy appearance, 310-174526-1 has a yellow appearance and sample 310-174526-2 has a yellow brown appearance.

Method PrecSep-7: Strontium 90 Prep Batch 160-458666:

Insufficient sample volume was available to perform a sample duplicate for the following sample: Outfall002_20200117_Comp (440-259373-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200117_Comp

Date Collected: 01/17/20 11:00
Date Received: 01/17/20 16:20

Lab Sample ID: 440-259373-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.57	U G	2.43	2.44	3.00	4.19	pCi/L	01/31/20 08:37	02/08/20 10:47	1
Gross Beta	**3.87**		1.41	1.46	4.00	1.97	pCi/L	01/31/20 08:37	02/08/20 10:47	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.604	U	5.46	5.46	20.0	9.56	pCi/L	01/29/20 17:42	01/30/20 12:55	1
Potassium-40	-3.96	U	103	103		135	pCi/L	01/29/20 17:42	01/30/20 12:55	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0780	U	0.0994	0.0997	1.00	0.165	pCi/L	01/30/20 10:08	02/21/20 10:55	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.0*		*40 - 110*	*01/30/20 10:08*	*02/21/20 10:55*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.459	U	0.330	0.333	1.00	0.666	pCi/L	01/30/20 10:31	02/11/20 17:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.0*		*40 - 110*	*01/30/20 10:31*	*02/11/20 17:20*	*1*
Y Carrier	*86.3*		*40 - 110*	*01/30/20 10:31*	*02/11/20 17:20*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0485	U	0.200	0.200	3.00	0.350	pCi/L	01/30/20 12:26	02/07/20 10:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*74.6*		*40 - 110*	*01/30/20 12:26*	*02/07/20 10:56*	*1*
Y Carrier	*93.8*		*40 - 110*	*01/30/20 12:26*	*02/07/20 10:56*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	39.6	U	171	171	500	303	pCi/L	01/29/20 10:15	01/30/20 09:39	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**2.78**		0.455	0.484	1.00	0.128	pCi/L	01/31/20 13:20	02/11/20 09:26	1

Client Sample ID: Outfall002_20200117_Comp
Lab Sample ID: 440-259373-1
Date Collected: 01/17/20 11:00
Matrix: Water
Date Received: 01/17/20 16:20

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	85.5		30 - 110	01/31/20 13:20	02/11/20 09:26	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-3

Client Sample ID: Outfall002_20200117_Comp

Date Collected: 01/17/20 11:00
Date Received: 01/17/20 16:20

Lab Sample ID: 440-259373-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			117.25 g	1.0 g	458760	01/31/20 08:37	RJD	TAL SL
Total/NA	Analysis	900.0		1			459719	02/08/20 10:47	AJD	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	458534	01/29/20 17:42	KLH	TAL SL
Total/NA	Analysis	901.1		1			458638	01/30/20 12:55	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.57 mL	1.0 g	458653	01/30/20 10:08	RBR	TAL SL
Total/NA	Analysis	903.0		1			461378	02/21/20 10:55	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.57 mL	1.0 g	458654	01/30/20 10:31	RBR	TAL SL
Total/NA	Analysis	904.0		1			460293	02/11/20 17:20	KLS	TAL SL
Total/NA	Prep	PrecSep-7			1000.51 mL	1.0 g	458666	01/30/20 12:26	RBR	TAL SL
Total/NA	Analysis	905		1			459585	02/07/20 10:56	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.2 mL	1.0 g	458507	01/29/20 10:15	KNF	TAL SL
Total/NA	Analysis	906.0		1			458667	01/30/20 09:39	KRR	TAL SL
Total/NA	Prep	ExtChrom			500.02 mL	1.0 mL	458790	01/31/20 13:20	KLH	TAL SL
Total/NA	Analysis	A-01-R		1			459879	02/11/20 09:26	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-458760/1-A
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458760

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.1110	U	0.434	0.434	3.00	0.949	pCi/L	01/31/20 08:37	02/08/20 10:46	1
Gross Beta	0.2559	U	0.489	0.490	4.00	0.836	pCi/L	01/31/20 08:37	02/08/20 10:46	1

Lab Sample ID: LCS 160-458760/2-A
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458760

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	50.06		7.53	3.00	2.22	pCi/L	101	75 - 125

Lab Sample ID: LCSB 160-458760/3-A
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458760

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.9	80.01		8.53	4.00	0.896	pCi/L	94	75 - 125

Lab Sample ID: 680-179740-F-1-B MS
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 458760

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	2.52	U G	68.3	55.70		9.22	3.00	3.17	pCi/L	78	60 - 140

Lab Sample ID: 680-179740-F-1-C MSBT
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 458760

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	1.65		117	120.8		12.8	4.00	1.25	pCi/L	102	60 - 140

Lab Sample ID: 680-179740-F-1-D DU
Matrix: Water
Analysis Batch: 459719

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 458760

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	2.52	U G	0.1927	U G	2.02	3.00	3.84	pCi/L	0.56	1
Gross Beta	1.65		3.048		0.993	4.00	1.19	pCi/L	0.73	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-458534/1-A
Matrix: Water
Analysis Batch: 458635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458534

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-0.7576	U	7.81	7.82	20.0	13.6	pCi/L	01/29/20 17:42	01/30/20 16:03	1
Potassium-40	-37.53	U	104	104		136	pCi/L	01/29/20 17:42	01/30/20 16:03	1

Lab Sample ID: LCS 160-458534/2-A
Matrix: Water
Analysis Batch: 458636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458534

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	133900		15500		359	pCi/L	99	90 - 111
Cesium-137	43900	42760		4280	20.0	108	pCi/L	97	90 - 111
Cobalt-60	27000	26150		2590		77.0	pCi/L	97	89 - 110

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 458637

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA
Prep Batch: 458534

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	0.604	U	3.018	U	5.56	20.0	9.22	pCi/L	0.22	1
Potassium-40	-3.96	U	-75.00	U	111		142	pCi/L	0.33	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-458653/10-A
Matrix: Water
Analysis Batch: 461378

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458653

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01964	U	0.0561	0.0562	1.00	0.131	pCi/L	01/30/20 10:08	02/21/20 12:43	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.0*		*40 - 110*	*01/30/20 10:08*	*02/21/20 12:43*	*1*

Lab Sample ID: LCS 160-458653/1-A
Matrix: Water
Analysis Batch: 461378

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458653

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	15.1	12.97		1.36	1.00	0.174	pCi/L	86	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-458653/2-A
Matrix: Water
Analysis Batch: 461378

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 458653

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			15.1	14.56		1.50	1.00	0.143	pCi/L	96	75 - 125	0.55	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*99.7*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-458654/10-A
Matrix: Water
Analysis Batch: 459863

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458654

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1085	U	0.281	0.282	1.00	0.488	pCi/L	01/30/20 10:31	02/11/20 17:30	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.0*		*40 - 110*	*01/30/20 10:31*	*02/11/20 17:30*	*1*
Y Carrier	*91.4*		*40 - 110*	*01/30/20 10:31*	*02/11/20 17:30*	*1*

Lab Sample ID: LCS 160-458654/1-A
Matrix: Water
Analysis Batch: 460293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458654

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.2	11.87		1.40	1.00	0.543	pCi/L	98	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*
Y Carrier	*84.8*		*40 - 110*

Lab Sample ID: LCSD 160-458654/2-A
Matrix: Water
Analysis Batch: 460293

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 458654

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			12.2	10.79		1.28	1.00	0.522	pCi/L	89	75 - 125	0.40	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*99.7*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-458666/4-A
Matrix: Water
Analysis Batch: 459585

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458666

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.06801	U	0.171	0.171	3.00	0.319	pCi/L	01/30/20 12:26	02/07/20 10:56	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*78.6*		*40 - 110*	*01/30/20 12:26*	*02/07/20 10:56*	*1*
Y Carrier	*93.8*		*40 - 110*	*01/30/20 12:26*	*02/07/20 10:56*	*1*

Lab Sample ID: LCS 160-458666/1-A
Matrix: Water
Analysis Batch: 459585

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458666

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.92	7.255		0.786	3.00	0.279	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*81.5*		*40 - 110*
Y Carrier	*96.1*		*40 - 110*

Lab Sample ID: LCSD 160-458666/2-A
Matrix: Water
Analysis Batch: 459585

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 458666

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90			7.92	7.407		0.792	3.00	0.294	pCi/L	94	75 - 125	0.1	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Sr Carrier	*86.1*		*40 - 110*
Y Carrier	*96.4*		*40 - 110*

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-458507/1-A
Matrix: Water
Analysis Batch: 458667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458507

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	141.0	U	184	185	500	308	pCi/L	01/29/20 10:15	01/30/20 08:54	1

Lab Sample ID: LCS 160-458507/2-A
Matrix: Water
Analysis Batch: 458667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458507

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2500	2758		440	500	300	pCi/L	110	75 - 114		

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-259786-A-1-B MS
Matrix: Water
Analysis Batch: 458667

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 458507

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	36.0	U	2500	2627		430	500	303	pCi/L	104	67 - 130		

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 458667

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA
Prep Batch: 458507

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Tritium	39.6	U		79.28	U	169	500	287	pCi/L			0.12	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-458790/1-A
Matrix: Water
Analysis Batch: 459877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458790

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.08179	U	0.07810	0.07825	1.00	0.0874	pCi/L	01/31/20 13:20	02/11/20 09:26	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*90.1*		*30 - 110*	*01/31/20 13:20*	*02/11/20 09:26*	*1*

Lab Sample ID: LCS 160-458790/2-A
Matrix: Water
Analysis Batch: 459878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458790

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			12.7	13.39		1.50	1.00	0.114	pCi/L	105	75 - 125		
Uranium-238			13.0	13.81		1.54	1.00	0.0892	pCi/L	106	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*76.3*		*30 - 110*

Lab Sample ID: 440-259373-1 DU
Matrix: Water
Analysis Batch: 459880

Client Sample ID: Outfall002_20200117_Comp
Prep Type: Total/NA
Prep Batch: 458790

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Total Uranium	2.78			2.222		0.424	1.00	0.125	pCi/L			0.61	1

Tracer	*DU %Yield*	*DU Qualifier*	*Limits*
Uranium-232	*88.5*		*30 - 110*

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Prep Batch: 458507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-458507/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-458507/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-259786-A-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 458534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-458534/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-458534/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 458653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	PrecSep-21	
MB 160-458653/10-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-458653/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-458653/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 458654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	PrecSep_0	
MB 160-458654/10-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-458654/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-458654/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 458666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	PrecSep-7	
MB 160-458666/4-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-458666/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-458666/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 458760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	Evaporation	
MB 160-458760/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-458760/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-458760/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
680-179740-F-1-B MS	Matrix Spike	Total/NA	Water	Evaporation	
680-179740-F-1-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
680-179740-F-1-D DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 458790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-259373-1	Outfall002_20200117_Comp	Total/NA	Water	ExtChrom	
MB 160-458790/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-458790/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-259373-1 DU	Outfall002_20200117_Comp	Total/NA	Water	ExtChrom	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-3

Qualifiers

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Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-259373-3
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)	
Sampler: Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	R TCDD (and all congeners) (E1613B)	R BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	R Surfactants (MBAS) (SM5540C/E425.1)	R Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	R Turbidity, TDS (SM2540C/E180.1)	R TSS (160.2 (SM2540D))	R Ammonia-N (350.2)	R alpha-BHC (E608)	R 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R Total Recoverable Metals Mercury (E245.1)	C		Comments
Outfall 002	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	HNO_3	90	No	X										X	X	
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	130	No					X								48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	170	No									X				
			WM	1 L Glass Amber	2	None	180	No										X			
			WM	1L Poly	1	None	185	No							X						
	Outfall002_20200117_Comp_Extra	1/17/2020 1100	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	130	No					H								Hold
			WM	1 L Glass Amber	2	None	170	No									H				Hold
			WM	1 L Glass Amber	2	None	180	No										H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/17/2020 1322	Haley&Aldrich	[illegible]	1322
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible] Ponce	1/17 4:20	DES		
Relinquished By	Date/Time	Company	Received By	Date/Time
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV ___X___

IR93
1/17/20 LD
27/2.7 24/2.4 · 2.6/2.6 21/2.1

440-259373 Chain of Custody

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	[illegible] (C)						Comments
Outfall 002	Outfall002_20200117_Comp_F	1/17/2020 1100	WM	1L Poly	1	None	200	No	X					X						[illegible]
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200117_Comp	1/17/2020 1100	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second rain event [illegible] Deliver to ABC Labs in Ventura CA *

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	01/17/2020 1322	Haley & Aldrich	[illegible]	1 22
Yely Ponce	1/17 4:20	DCS	[signature]	
			EC IRV	1/17/20 1620

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

* Chron tox only delivered to ABC labs directly by H&A

2019-2020 Rainy Season
Version 2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-151369.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-259373-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/29/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200117_Comp (440-259373-1)	1/17/20	11:00 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: A. Kennedy	Date/Time: 1/20/2020 1700	Company: EC-IRV	Received by:	Date/Time: 1-21-20 9:15	Company: GTA SLC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 1-21-20 8:50	Company: ETAS LV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-259373-3

Login Number: 259373
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-259373-3

Login Number: 259373
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 01/21/20 03:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-259373-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-259373-1	Outfall002_20200117_Comp	83.0
LCS 160-458653/1-A	Lab Control Sample	102
LCSD 160-458653/2-A	Lab Control Sample Dup	99.7
MB 160-458653/10-A	Method Blank	93.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-259373-1	Outfall002_20200117_Comp	83.0	86.3
LCS 160-458654/1-A	Lab Control Sample	102	84.8
LCSD 160-458654/2-A	Lab Control Sample Dup	99.7	90.8
MB 160-458654/10-A	Method Blank	93.0	91.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-259373-1	Outfall002_20200117_Comp	74.6	93.8
LCS 160-458666/1-A	Lab Control Sample	81.5	96.1
LCSD 160-458666/2-A	Lab Control Sample Dup	86.1	96.4
MB 160-458666/4-A	Method Blank	78.6	93.8

Tracer/Carrier Legend

Sr Carrier = Sr Carrier

Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-259373-1	Outfall002_20200117_Comp	85.5
440-259373-1 DU	Outfall002_20200117_Comp	88.5
LCS 160-458790/2-A	Lab Control Sample	76.3
MB 160-458790/1-A	Method Blank	90.1

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Sacramento
Sample Receiving Notes

440-259373 Field Sheet

Job: _____

Tracking # : 1540 4106 0373

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.4 °C Corrected: 0.4 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: PK Date: 1/21/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 1/21/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W21A ~~W14A~~ PK 1/21/20

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-262960-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-262960-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200313_GRAB	440-262960-1	Water	3/13/20 7:40	E120.1, E1664, E624, SM2540F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-262960-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.
- The case narrative indicated that two of three vials for the VOC analysis of the trip blank were received with headspace. A third vial without headspace remained for analysis. No qualification was necessary.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

E. Wessling of MEC[X] reviewed the SDG on April 8, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes were not evaluated in a Level II validation.

Calibration criteria were not evaluated in a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG for 1,1,-dichloroethene, 1,2-dichloroethane and TCE. Recoveries and RPDs for these three compounds were with QC acceptance limits. MEC[X] evaluated method accuracy for the remaining compounds based on the associated LCS results.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200313 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. Internal Standards Performance

The internal standard retention times and area counts were not evaluated in a Level II validation.

III.6. Compound Identification

Compound identification was not evaluated in a Level II validation. The laboratory analyzed for 3 target compounds; 1,1-dichloroethene, 1,2-dichloroethane and trichloroethene by Method 624.1.

III.7. Compound Quantification and Reported Detection Limits

Compound quantification was not evaluated in a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. Tentatively Identified Compounds

The laboratory did not report TICs for this SDG.

III.9. System Performance

Review of the raw data not performed in a Level II validation.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. Holding Times

The QAPP holding times, as listed below, were met.

- 28 days for specific conductance (Method 120.1) and Oil and Grease (HEM, Method 1664)
- 7 days for total settleable solids (2540F)

IV.2. Calibration

Instrument calibration review is not performed at Level II validation. The initial and continuing calibration verification recoveries met laboratory control limits for Method 120.0.

IV.3. Quality Control Samples

IV.3.1. *Method Blanks*

The method blanks had no detections for Methods 120.1 and 1664. Method blanks do not apply to Method 2540C.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for applicable methods. Laboratory control sample analysis does not apply to Method 2540C.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402629601

Analysis Method E120.1

Sample Name OUTFALL002_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 7:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-262960-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	550	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL002_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 7:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-262960-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	5.4	1.5	mg/L	U	U	

Analysis Method E624

Sample Name OUTFALL002_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 7:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-262960-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	U	

Analysis Method SM2540F

Sample Name OUTFALL002_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 7:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-262960-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS	ND	0.10	0.10	ml/l/hr	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-262960-1
Client Project/Site: Routine Outfall 002 Grab
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/15/2020 9:22:44 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/15/2020 9:22:44 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-262960-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-262960-1	Outfall002_20200313_Grab	Water	03/13/20 07:40	03/13/20 15:30	
440-262960-3	TB-20200313	Water	03/13/20 07:40	03/13/20 15:30	

Job ID: 440-262960-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-262960-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.6º C, 0.7º C, 1.0º C and 1.1º C.

Receipt Exceptions
The following sample(s) was received with headspace in the sample container: TB-20200313 (440-262960-3). Received two out of three voa vials TB HCL with headspace more than 6 mm. One remains.

GC/MS VOA
Method 624.1: The continuing calibration verification (CCV) associated with batch 440-600639 recovered above the upper control limit for Chloromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-600560.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602093 and analytical batch 440-602118. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200313_Grab

Lab Sample ID: 440-262960-1
Date Collected: 03/13/20 07:40
Matrix: Water
Date Received: 03/13/20 15:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:05	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:05	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*60 - 140*		*03/16/20 09:05*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 140*		*03/16/20 09:05*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*03/16/20 09:05*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.4	1.5	mg/L		03/24/20 10:33	03/24/20 12:22	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**550**		1.0	1.0	umhos/cm			03/24/20 09:18	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/14/20 13:32	1

Client Sample ID: TB-20200313

Lab Sample ID: 440-262960-3
Date Collected: 03/13/20 07:40
Matrix: Water
Date Received: 03/13/20 15:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:29	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:29	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*60 - 140*		*03/16/20 09:29*	*1*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*03/16/20 09:29*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*03/16/20 09:29*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-262960-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-262960-1

Client Sample ID: Outfall002_20200313_Grab

Lab Sample ID: 440-262960-1

Date Collected: 03/13/20 07:40
Matrix: Water
Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600624	03/16/20 09:05	P1A	TAL IRV
Total/NA	Analysis	120.1		1			602074	03/24/20 09:18	XL	TAL IRV
Total/NA	Prep	1664A			930 mL	1000 mL	602093	03/24/20 10:33	L1H	TAL IRV
Total/NA	Analysis	1664A		1			602118	03/24/20 12:22	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	600560	03/14/20 13:32	HZ	TAL IRV

Client Sample ID: TB-20200313

Lab Sample ID: 440-262960-3

Date Collected: 03/13/20 07:40
Matrix: Water
Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600624	03/16/20 09:29	P1A	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-600624/4
Matrix: Water
Analysis Batch: 600624

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 07:54	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 07:54	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 07:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*60 - 140*		*03/16/20 07:54*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 140*		*03/16/20 07:54*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*03/16/20 07:54*	*1*

Lab Sample ID: LCS 440-600624/1002
Matrix: Water
Analysis Batch: 600624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			25.0	22.9		ug/L		91	19 - 212		
1,2-Dichloroethane			25.0	23.3		ug/L		93	72 - 137		
Trichloroethene			25.0	22.6		ug/L		90	75 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*95*		*60 - 140*

Lab Sample ID: 440-262960-1 MS
Matrix: Water
Analysis Batch: 600624

Client Sample ID: Outfall002_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	ND		10.0	9.37		ug/L		94	10 - 234		
1,2-Dichloroethane	ND		10.0	9.84		ug/L		98	49 - 155		
Trichloroethene	ND		10.0	9.36		ug/L		94	70 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*60 - 140*
Dibromofluoromethane (Surr)	*107*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Lab Sample ID: 440-262960-1 MSD
Matrix: Water
Analysis Batch: 600624

Client Sample ID: Outfall002_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		10.0	9.69		ug/L		97	10 - 234	3	32
1,2-Dichloroethane	ND		10.0	10.2		ug/L		102	49 - 155	3	49
Trichloroethene	ND		10.0	9.83		ug/L		98	70 - 157	5	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262960-1 MSD
Matrix: Water
Analysis Batch: 600624

Client Sample ID: Outfall002_20200313_Grab
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*60 - 140*
Dibromofluoromethane (Surr)	*107*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-602074/3
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/24/20 09:16	1

Lab Sample ID: LCS 440-602074/4
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	946	932		umhos/cm		99	90 - 110

Lab Sample ID: 440-263222-A-2 DU
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	390		392		umhos/cm		0.5	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-602093/1-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/24/20 10:33	03/24/20 12:22	1

Lab Sample ID: LCS 440-602093/2-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602093

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	34.4		mg/L		86	78 - 114

Lab Sample ID: LCSD 440-602093/3-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602093

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	34.7		mg/L		87	78 - 114	1	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-262960-1

GC/MS VOA

Analysis Batch: 600624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262960-1	Outfall002_20200313_Grab	Total/NA	Water	624.1	
440-262960-3	TB-20200313	Total/NA	Water	624.1	
MB 440-600624/4	Method Blank	Total/NA	Water	624.1	
LCS 440-600624/1002	Lab Control Sample	Total/NA	Water	624.1	
440-262960-1 MS	Outfall002_20200313_Grab	Total/NA	Water	624.1	
440-262960-1 MSD	Outfall002_20200313_Grab	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 600560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262960-1	Outfall002_20200313_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 602074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262960-1	Outfall002_20200313_Grab	Total/NA	Water	120.1	
MB 440-602074/3	Method Blank	Total/NA	Water	120.1	
LCS 440-602074/4	Lab Control Sample	Total/NA	Water	120.1	
440-263222-A-2 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 602093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262960-1	Outfall002_20200313_Grab	Total/NA	Water	1664A	
MB 440-602093/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-602093/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-602093/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 602118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262960-1	Outfall002_20200313_Grab	Total/NA	Water	1664A	602093
MB 440-602093/1-A	Method Blank	Total/NA	Water	1664A	602093
LCS 440-602093/2-A	Lab Control Sample	Total/NA	Water	1664A	602093
LCSD 440-602093/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	602093

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-262960-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262960-1
Project/Site: Routine Outfall 002 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

CHAIN OF CUSTODY FORM

Client Name/Address:	Project:	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab	Field Readings: (Include units) Time of Readings: 0740 DO 9.24 mg/L pH 7.91 pH unit Temp 10.81 °C °F	
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	Field readings OK Checked by: RH Date/Time: 03/13/2020 0740	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		
Sampler: Dan Smith			

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM) R	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624) R	Settleable Solids (E160.5 (SM2540F)) R	Conductivity (SM2510B / E120.1) R	Comments
Outfall 002	Outfall002_20200313_Grab	3/13/2020 0740	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	9	HCl	30	Yes		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall002_20200313_Grab_Extra	3/13/2020 0740	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			WM	500 mL Poly	1	None	75	No				H	Hold
Trip Blanks	TB-20200313	3/13/2020 0740	WQ	40 mL VOA	3	HCl	30	No		X			

440-262960 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/13/2020 1211	RH	Jose Angulo	3/13/20 DCS
Jose Angulo	2:52	DCS		3/13/20 EA MS2
Jose Angulo	3:30 3/13/20	DCS	EC-IR1	3/13/20 1530

Turn-around time. (Check)
24 Hour: _____ 72 Hour: _____ 10 Day ___X___
48 Hour: _____ 5 Day. _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice. _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV. ___X___

0.4/0.6 0.5/0.7 0.9/1.1
0.8/1.0 IR93

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4/15/2020 (Rev. 1)

2019-2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262960-1

Login Number: 262960
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263045-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263045-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II/IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method	Validation Level
Outfall002_20200314_Comp	440-263045-1	N/A	Water	3/14/2020 8:00:00 AM	E1613B	II
					E200.7, E200.8	IV
Outfall002_20200314_Comp_F	440-263045-3	N/A	Water	3/14/2020 8:00:00 AM	E200.7, E200.8	IV

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263045-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- The sample was transferred from TA-Irvine to TA-Savannah for analysis of Method 1613B.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (957 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, OCDD and OCDF, and for totals HxCDD, HxCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The method blank concentration was insufficient to qualify the sample detect for OCDD. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. Compound Identification

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 957 ml sample volume was available for extraction.

Isomers and total HpCDD previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDD and 2,3,4,7,8-PeCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals except total HpCDD included one or more EMPC peaks and were therefore qualified as estimated (J).

IV. Methods 200.7 and 200.8— Metals

M. Hilchey of MEC^X reviewed the SDG on April 17, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7 and 200.8* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

IV.1. Holding Times

The analytical holding time, six months for metals, was met. Sample Outfall002_20200314_Comp_F was filtered and preserved 44 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were qualified as estimated (J for detects, UJ for nondetects).

IV.2. Calibration

Mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.

QAPP calibration criteria were met. A blank and two or three standards were used for calibration of ICP-AES target analytes and a blank and four standards were used for calibration of ICP-MS. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for both methods with the exception of the ICV for total zinc (106%). The associated sample result was a nondetect and was

not qualified.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results.

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. No interferents were present in the samples for ICP-AES analysis in concentrations comparable to those of the ICS; therefore, matrix interference was not suspected for ICP-AES. All ICP-MS ICSA results for non-spiked analytes were nondetect; therefore, interference was not evaluated for ICP-MS.

IV.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

IV.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

IV.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on samples Outfall002_20200314_Comp and Outfall002_20200314_Comp_F for both methods. The MS recovery for total iron (44%) and the MS/MSD RPD for total iron (23%) did not meet QAPP control limits of 70-130% and ≤20%, respectively; therefore, the total iron result was qualified as estimated with potentially low bias (J-). MS and MSD recoveries for total aluminum (150%/238%) and the MS/MSD RPD (22%) did not meet QAPP control limits; therefore, the total aluminum result was qualified as estimated with potentially high bias (J+).

The laboratory did not perform post-digestion spike analyses.

IV.4. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within 60-125% of the ICP-MS calibration blank.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified, and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

IV.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the

associated site samples. Findings associated with field QC samples are summarized below:

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402630451

Analysis Method E1613B

Sample Name Outfall002_20200314_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 8:00:00 AM **Validation Level:** 9

Lab Sample Name: 440-263045-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000024	0.00010	0.00000095	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00026	0.00010	0.0000012	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000081	0.000052	0.00000084	ug/L	J,DX	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000024	0.000052	0.00000052	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000023	0.000052	0.00000096	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000015	0.000052	0.00000063	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000033	0.000052	0.0000011	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000020	0.000052	0.00000065	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000019	0.000052	0.0000012	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000020	0.000052	0.00000065	ug/L	J,DXqMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000026	0.000052	0.0000010	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000012	0.000052	0.00000079	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.00000095	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000015	0.000052	0.00000060	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000089	0.000052	0.00000075	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000019	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000087	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000018	0.000052	0.00000084	ug/L	J,DXq	J	*III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000045	0.000052	0.00000052	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000011	0.000052	0.00000060	ug/L	J,DXqMB	J	B, *III, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000078	0.000052	0.0000010	ug/L	J,DXqMB	J	B, *III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000021	0.000052	0.00000075	ug/L	J,DXq	J	*III, DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000052	0.00000095	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000019	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000087	ug/L	U	U

Analysis Method E200.7

Sample Name Outfall002_20200314_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 8:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-263045-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	1000	100	50	ug/L		J+	Q, Q1
Arsenic	T	7440-38-2	ND	10	8.9	ug/L	U	U	
Iron	T	7439-89-6	1300	100	50	ug/L		J-	Q, Q1
Manganese	T	7439-96-5	27	20	15	ug/L			
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name Outfall002_20200314_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 8:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-263045-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	D	7429-90-5	ND	100	50	ug/L	U	UJ	H
Arsenic	D	7440-38-2	ND	10	8.9	ug/L	U	UJ	H
Iron	D	7439-89-6	ND	0.10	0.050	mg/L	U	UJ	H
Manganese	D	7439-96-5	ND	20	15	ug/L	U	UJ	H
Zinc	D	7440-66-6	ND	20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name Outfall002_20200314_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 8:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-263045-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	2.1	2.0	0.50	ug/L			
Lead	T	7439-92-1	0.63	1.0	0.50	ug/L	J,DX	J	DNQ
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U	

Analysis Method E200.8

Sample Name Outfall002_20200314_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 8:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-263045-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8	1.3	2.0	0.50	ug/L	J,DX	J	H, DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	H
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	UJ	H

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263045-1
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/7/2020 3:13:32 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 3:13:32 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263045-1	Outfall002_20200314_Comp	Water	03/14/20 08:00	03/14/20 17:30	
440-263045-3	Outfall002_20200314_Comp_F	Water	03/14/20 08:00	03/14/20 17:30	

Job ID: 440-263045-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263045-1

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.9º C, 1.0º C, 1.2º C, 1.5º C and 2.3º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20200314_Comp (440-263045-1), (CCV 320-366401/17), (LCS 320-365527/2-A) and (MB 320-365527/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20200314_Comp_F (440-263045-3), Outfall002_20200314_Comp_F (440-263045-3[MS]) and Outfall002_20200314_Comp_F (440-263045-3[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

03/16/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The initial calibration verification (ICV) result for batch 440-601251 was above the upper control limit for Zinc. Sample results were non-detects, and have been reported as qualified data.

Method 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision of Aluminum and Iron for preparation batch 440-600729 and analytical batch 440-601251 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected. The associated laboratory control sample (LCS) was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 625: A LCSD was added due to about 30 mL of the MS spilling during the extraction procedure. The LCSD was added to provide

Job ID: 440-263045-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

precision data for the batch.

Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]) and Outfall002_20200314_Comp (440-263045-1[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall002_20200314_Comp (440-263045-1) were received in wide-mouth amber glass bottles.

preparation batch 320-365527
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Outfall002_20200314_Comp

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.4	0.11	ug/L		03/18/20 08:11	03/20/20 10:13	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 10:13	1
N-Nitrosodimethylamine	ND		5.3	0.32	ug/L		03/18/20 08:11	03/20/20 10:13	1
Pentachlorophenol	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 10:13	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 10:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*88*		*60 - 120*	*03/18/20 08:11*	*03/20/20 10:13*	*1*
2-Fluorobiphenyl	*86*		*51 - 120*	*03/18/20 08:11*	*03/20/20 10:13*	*1*
2-Fluorophenol	*80*		*43 - 120*	*03/18/20 08:11*	*03/20/20 10:13*	*1*
Nitrobenzene-d5	*91*		*53 - 150*	*03/18/20 08:11*	*03/20/20 10:13*	*1*
Phenol-d5	*85*		*45 - 150*	*03/18/20 08:11*	*03/20/20 10:13*	*1*
Terphenyl-d14	*70*		*12 - 142*	*03/18/20 08:11*	*03/20/20 10:13*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/18/20 05:58	03/18/20 22:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*61*		*10 - 104*	*03/18/20 05:58*	*03/18/20 22:56*	*1*
DCB Decachlorobiphenyl (Surr)	*74*		*18 - 134*	*03/18/20 05:58*	*03/18/20 22:56*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22**		5.0	2.5	mg/L			03/16/20 14:38	10
Nitrate as N	**0.083**	**J,DX**	0.11	0.055	mg/L			03/14/20 18:48	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 18:48	1
Sulfate	**150**		5.0	2.5	mg/L			03/16/20 14:38	10

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 11:24	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.083**	**J,DX**	0.15	0.055	mg/L			03/20/20 11:55	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000087	ug/L		03/18/20 08:33	03/21/20 13:08	1
2,3,7,8-TCDF	ND		0.000010	0.00000019	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,7,8-PeCDD	ND		0.000052	0.00000095	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,7,8-PeCDF	**0.0000012**	**J,DX**	0.000052	0.00000079	ug/L		03/18/20 08:33	03/21/20 13:08	1
2,3,4,7,8-PeCDF	**0.00000089**	**J,DX q**	0.000052	0.00000075	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,4,7,8-HxCDD	**0.0000033**	**J,DX q MB**	0.000052	0.0000011	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,6,7,8-HxCDD	**0.0000019**	**J,DX q**	0.000052	0.0000012	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,7,8,9-HxCDD	**0.0000026**	**J,DX**	0.000052	0.0000010	ug/L		03/18/20 08:33	03/21/20 13:08	1

Client Sample ID: Outfall002_20200314_Comp

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8-HxCDF	0.0000015	J,DX q	0.000052	0.00000063	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,6,7,8-HxCDF	0.0000020	J,DX	0.000052	0.00000065	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,7,8,9-HxCDF	0.0000020	J,DX q MB	0.000052	0.00000065	ug/L		03/18/20 08:33	03/21/20 13:08	1
2,3,4,6,7,8-HxCDF	0.0000015	J,DX	0.000052	0.00000060	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,4,6,7,8-HpCDD	0.000024	J,DX MB	0.000052	0.00000052	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,4,6,7,8-HpCDF	0.0000081	J,DX	0.000052	0.00000084	ug/L		03/18/20 08:33	03/21/20 13:08	1
1,2,3,4,7,8,9-HpCDF	0.0000023	J,DX q	0.000052	0.00000096	ug/L		03/18/20 08:33	03/21/20 13:08	1
OCDD	0.00026	MB	0.00010	0.0000012	ug/L		03/18/20 08:33	03/21/20 13:08	1
OCDF	0.000024	J,DX MB	0.00010	0.00000095	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total TCDD	ND		0.000010	0.00000087	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total TCDF	ND		0.000010	0.00000019	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total PeCDD	ND		0.000052	0.00000095	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total PeCDF	0.0000021	J,DX q	0.000052	0.00000075	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total HxCDD	0.0000078	J,DX q MB	0.000052	0.0000010	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total HxCDF	0.000011	J,DX q MB	0.000052	0.00000060	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total HpCDD	0.000045	J,DX MB	0.000052	0.00000052	ug/L		03/18/20 08:33	03/21/20 13:08	1
Total HpCDF	0.000018	J,DX q	0.000052	0.00000084	ug/L		03/18/20 08:33	03/21/20 13:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-2,3,7,8-TCDF	*74*		*24 - 169*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-2,3,4,7,8-PeCDF	*66*		*21 - 178*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,4,7,8-HxCDD	*61*		*32 - 141*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,4,7,8-HxCDF	*65*		*26 - 152*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,6,7,8-HxCDF	*60*		*26 - 123*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,7,8,9-HxCDF	*61*		*29 - 147*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-2,3,4,6,7,8-HxCDF	*66*		*28 - 136*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*52*		*23 - 140*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*57*		*28 - 143*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*53*		*26 - 138*	*03/18/20 08:33*	*03/21/20 13:08*	*1*
13C-OCDD	*48*		*17 - 157*	*03/18/20 08:33*	*03/21/20 13:08*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*77*		*35 - 197*	*03/18/20 08:33*	*03/21/20 13:08*	*1*

Client Sample ID: Outfall002_20200314_Comp

Lab Sample ID: 440-263045-1
Matrix: Water
Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		03/17/20 09:43	03/18/20 15:29	1
Iron	**1300**		100	50	ug/L		03/17/20 09:43	03/18/20 15:29	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:43	03/18/20 15:29	1
Aluminum	**1000**		100	50	ug/L		03/17/20 09:43	03/18/20 15:29	1
Manganese	**27**		20	15	ug/L		03/17/20 09:43	03/18/20 15:29	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 18:02	1
Copper	**2.1**		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:02	1
Lead	**0.63**	**J,DX**	1.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:02	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:02	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:41	03/25/20 01:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**49**		0.50	0.20	NTU			03/14/20 20:07	5
Total Dissolved Solids	**410**		10	5.0	mg/L			03/18/20 10:01	1
Total Suspended Solids	**14**		1.1	0.57	mg/L			03/20/20 15:24	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:34	1
Ammonia (as N)	**0.108**	**J,DX**	0.200	0.100	mg/L			03/19/20 13:45	1
Methylene Blue Active Substances	**0.098**	**J,DX**	0.10	0.050	mg/L			03/15/20 10:49	1
Biochemical Oxygen Demand	**2.0**		2.0	2.0	mg/L			03/15/20 10:16	1

Client Sample ID: Outfall002_20200314_Comp_F

Lab Sample ID: 440-263045-3
Matrix: Water
Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/16/20 16:13	03/17/20 21:00	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 21:00	1
Iron	ND		0.10	0.050	mg/L		03/16/20 16:13	03/17/20 21:00	1
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 21:00	1
Manganese	ND		20	15	ug/L		03/16/20 16:13	03/17/20 21:00	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/16/20 16:01	03/16/20 19:55	1
Copper	**1.3**	**J,DX**	2.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:55	1
Lead	ND		1.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:55	1
Selenium	ND		2.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:55	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:16	03/18/20 17:59	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

Client Sample ID: Outfall002_20200314_Comp

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			940 mL	2.0 mL	601122	03/18/20 08:11	NAM	TAL IRV
Total/NA	Analysis	625.1		1			601579	03/20/20 10:13	HN	TAL IRV
Total/NA	Prep	608			980 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601220	03/18/20 22:56	D1D	TAL IRV
Total/NA	Analysis	300.0		10			600678	03/16/20 14:38	NTN	TAL IRV
Total/NA	Analysis	300.0		1			600528	03/14/20 18:48	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602274	03/25/20 11:24	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601658	03/20/20 11:55	TLN	TAL IRV
Total/NA	Prep	1613B			957.2 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			366401	03/21/20 13:08	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	600729	03/17/20 09:43	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			601251	03/18/20 15:29	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	600753	03/17/20 10:00	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			601042	03/17/20 18:02	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602148	03/24/20 14:41	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602304	03/25/20 01:57	MEM	TAL IRV
Total/NA	Analysis	180.1		5			600573	03/14/20 20:07	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	601166	03/18/20 10:01	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	875 mL	1000 mL	601707	03/20/20 15:24	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	601903	03/23/20 10:17	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			601977	03/23/20 15:34	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	601472	03/19/20 13:45	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	600600	03/15/20 10:49	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	600599	03/15/20 10:16	KYP	TAL IRV

Client Sample ID: Outfall002_20200314_Comp_F

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600775	03/16/20 16:13	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601061	03/17/20 21:00	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600769	03/16/20 16:01	M1G	TAL IRV
Dissolved	Analysis	200.8		1			600824	03/16/20 19:55	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	600735	03/16/20 13:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	601070	03/18/20 08:16	DB	TAL IRV
Dissolved	Analysis	245.1		1			601310	03/18/20 17:59	DB	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pentachlorophenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*60 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorobiphenyl	*82*		*51 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorophenol	*85*		*43 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Nitrobenzene-d5	*76*		*53 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Phenol-d5	*80*		*45 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Terphenyl-d14	*87*		*12 - 142*	*03/18/20 08:11*	*03/20/20 09:01*	*1*

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	15.0	14.2		ug/L		95	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	13.3		ug/L		89	29 - 137
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
Pentachlorophenol	30.0	24.9		ug/L		83	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*91*		*60 - 120*
2-Fluorobiphenyl	*84*		*51 - 120*
2-Fluorophenol	*86*		*43 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Phenol-d5	*71*		*45 - 150*
Terphenyl-d14	*89*		*12 - 142*

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	15.0	15.4		ug/L		103	52 - 129	8	35
Bis(2-ethylhexyl) phthalate	15.0	14.8		ug/L		98	29 - 137	10	35
N-Nitrosodimethylamine	15.0	16.9		ug/L		112	60 - 140	22	35
Pentachlorophenol	30.0	29.0		ug/L		97	38 - 152	15	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*99*		*60 - 120*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*80*		*43 - 120*
Nitrobenzene-d5	*88*		*53 - 150*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5	*95*		*45 - 150*
Terphenyl-d14	*97*		*12 - 142*

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	ND		16.2	16.9		ug/L		104	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.2	14.9		ug/L		92	8 - 158
N-Nitrosodimethylamine	ND		16.2	20.3		ug/L		125	60 - 140
Pentachlorophenol	ND		32.4	34.1		ug/L		105	14 - 176

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*99*		*60 - 120*
2-Fluorobiphenyl	*88*		*51 - 120*
2-Fluorophenol	*97*		*43 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Phenol-d5	*110*		*45 - 150*
Terphenyl-d14	*79*		*12 - 142*

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	ND		16.4	15.4		ug/L		94	37 - 144	9	58
Bis(2-ethylhexyl) phthalate	ND		16.4	13.0		ug/L		79	8 - 158	14	82
N-Nitrosodimethylamine	ND		16.4	18.4		ug/L		112	60 - 140	10	35
Pentachlorophenol	ND		32.8	31.1		ug/L		95	14 - 176	9	86

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*91*		*60 - 120*
2-Fluorobiphenyl	*79*		*51 - 120*
2-Fluorophenol	*74*		*43 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Phenol-d5	*92*		*45 - 150*
Terphenyl-d14	*66*		*12 - 142*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/18/20 05:58	03/18/20 21:10	1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	59		10 - 104	03/18/20 05:58	03/18/20 21:10	1
DCB Decachlorobiphenyl (Surr)	70		18 - 134	03/18/20 05:58	03/18/20 21:10	1

Lab Sample ID: LCS 440-601089/2-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC			0.400	0.298		ug/L		75	37 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	78		10 - 104
DCB Decachlorobiphenyl (Surr)	84		18 - 134

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC	ND		0.406	0.261		ug/L		64	37 - 140		

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	77		10 - 104
DCB Decachlorobiphenyl (Surr)	87		18 - 134

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC	ND		0.402	0.260		ug/L		65	37 - 140	1	36

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	75		10 - 104
DCB Decachlorobiphenyl (Surr)	83		18 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-600528/6
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/14/20 17:46	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 17:46	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-600528/5
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			1.13	1.10		mg/L		97	90 - 110		
Nitrite as N			1.52	1.49		mg/L		98	90 - 110		

Lab Sample ID: 440-263076-A-1 MS
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	0.27		1.13	1.40		mg/L		100	80 - 120		
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120		

Lab Sample ID: 440-263076-A-1 MSD
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.27		1.13	1.30		mg/L		91	80 - 120	7	20
Nitrite as N	ND		1.52	1.50		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 440-600678/6
Matrix: Water
Analysis Batch: 600678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/16/20 11:09	1
Sulfate	ND		0.50	0.25	mg/L			03/16/20 11:09	1

Lab Sample ID: LCS 440-600678/5
Matrix: Water
Analysis Batch: 600678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	4.91		mg/L		98	90 - 110		
Sulfate			5.00	4.95		mg/L		99	90 - 110		

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 600678

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	22		50.0	73.1		mg/L		102	80 - 120		
Sulfate	150		50.0	207		mg/L		115	80 - 120		

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 600678

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	22		50.0	73.4		mg/L		103	80 - 120	0	20
Sulfate	150		50.0	207		mg/L		114	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602274/6
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 10:20	1

Lab Sample ID: LCS 440-602274/5
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	25.4		ug/L		102	85 - 115

Lab Sample ID: MRL 440-602274/4
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	1.08	J,DX	ug/L		108	75 - 125

Lab Sample ID: MRL 440-602274/8
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.12		ug/L		103	75 - 125

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	24.8		ug/L		99	80 - 120

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 602274

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	25.4		ug/L		102	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,7,8-TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8-PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDD	0.00000318	J,DX	0.000050	0.0000010	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000012	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000070	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000073	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDF	0.00000180	J,DX	0.000050	0.00000076	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDD	0.00000587	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000014	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDD	0.0000202	J,DX	0.00010	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDF	0.00000627	J,DX	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDD	0.00000318	J,DX	0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDF	0.00000180	J,DX	0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDD	0.0000101	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*73*		*25 - 164*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,7,8-TCDF	*81*		*24 - 169*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8-PeCDD	*63*		*25 - 181*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8-PeCDF	*67*		*24 - 185*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,4,7,8-PeCDF	*74*		*21 - 178*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*74*		*32 - 141*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*66*		*28 - 130*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*81*		*26 - 152*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*74*		*26 - 123*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*78*		*28 - 136*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*28 - 143*	*03/18/20 08:33*	*03/21/20 08:20*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/18/20 08:33	03/21/20 08:20	1
13C-OCDD	50		17 - 157	03/18/20 08:33	03/21/20 08:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/18/20 08:33	03/21/20 08:20	1

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			0.000200	0.000234		ug/L		117	67 - 158		
2,3,7,8-TCDF			0.000200	0.000262		ug/L		131	75 - 158		
1,2,3,7,8-PeCDD			0.00100	0.00111		ug/L		111	70 - 142		
1,2,3,7,8-PeCDF			0.00100	0.00123		ug/L		123	80 - 134		
2,3,4,7,8-PeCDF			0.00100	0.00114		ug/L		114	68 - 160		
1,2,3,4,7,8-HxCDD			0.00100	0.00101	MB	ug/L		101	70 - 164		
1,2,3,6,7,8-HxCDD			0.00100	0.00112		ug/L		112	76 - 134		
1,2,3,7,8,9-HxCDD			0.00100	0.00102		ug/L		102	64 - 162		
1,2,3,4,7,8-HxCDF			0.00100	0.00110		ug/L		110	72 - 134		
1,2,3,6,7,8-HxCDF			0.00100	0.00119		ug/L		119	84 - 130		
1,2,3,7,8,9-HxCDF			0.00100	0.00120	MB	ug/L		120	78 - 130		
2,3,4,6,7,8-HxCDF			0.00100	0.00117		ug/L		117	70 - 156		
1,2,3,4,6,7,8-HpCDD			0.00100	0.000997	MB	ug/L		100	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.00100	0.00108		ug/L		108	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.00100	0.00102		ug/L		102	78 - 138		
OCDD			0.00200	0.00201	MB	ug/L		100	78 - 144		
OCDF			0.00200	0.00231	MB	ug/L		115	63 - 170		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	75		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	74		13 - 328
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	79		19 - 202
13C-1,2,3,6,7,8-HxCDF	71		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	75		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	63		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	68		20 - 186
13C-OCDD	52		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	81		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-600729/1-A
Matrix: Water
Analysis Batch: 601251

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600729

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		03/17/20 09:43	03/18/20 11:58	1
Iron	ND		100	50	ug/L		03/17/20 09:43	03/18/20 11:58	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:43	03/18/20 11:58	1
Aluminum	ND		100	50	ug/L		03/17/20 09:43	03/18/20 11:58	1
Manganese	ND		20	15	ug/L		03/17/20 09:43	03/18/20 11:58	1

Lab Sample ID: LCS 440-600729/2-A
Matrix: Water
Analysis Batch: 601251

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	500		ug/L		100	85 - 115
Iron	500	500		ug/L		100	85 - 115
Arsenic	500	502		ug/L		100	85 - 115
Aluminum	500	493		ug/L		99	85 - 115
Manganese	500	494		ug/L		99	85 - 115

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 601251

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total Recoverable
Prep Batch: 600729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	ND		500	501		ug/L		100	70 - 130
Iron	1300		500	1540	LN	ug/L		44	70 - 130
Arsenic	ND		500	521		ug/L		104	70 - 130
Aluminum	1000		500	1770	LM	ug/L		150	70 - 130
Manganese	27		500	520		ug/L		98	70 - 130

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 601251

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total Recoverable
Prep Batch: 600729

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	ND		500	517		ug/L		103	70 - 130	3	20
Iron	1300		500	1930	BA	ug/L		123	70 - 130	23	20
Arsenic	ND		500	539		ug/L		108	70 - 130	3	20
Aluminum	1000		500	2210	LM BA	ug/L		238	70 - 130	22	20
Manganese	27		500	540		ug/L		102	70 - 130	4	20

Lab Sample ID: MB 440-600737/1-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600775

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 20:54	1
Iron	ND		0.10	0.050	mg/L		03/16/20 16:13	03/17/20 20:54	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 20:54	1
Aluminum	ND		100	50	ug/L		03/16/20 16:13	03/17/20 20:54	1
Manganese	ND		20	15	ug/L		03/16/20 16:13	03/17/20 20:54	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-600737/2-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600775

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Magnesium			2.50	2.41		mg/L		96	85 - 115		
Zinc			500	475		ug/L		95	85 - 115		
Iron			0.500	0.466		mg/L		93	85 - 115		
Arsenic			500	465		ug/L		93	85 - 115		
Aluminum			500	477		ug/L		95	85 - 115		
Manganese			500	482		ug/L		96	85 - 115		

Lab Sample ID: 440-263045-3 MS
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum	ND		500	536		ug/L		107	70 - 130		
Arsenic	ND		500	490		ug/L		98	70 - 130		
Iron	ND		0.500	0.512		mg/L		102	70 - 130		
Magnesium	17		2.50	18.7	BB	mg/L		86	70 - 130		
Zinc	ND		500	476		ug/L		95	70 - 130		
Manganese	ND		500	489		ug/L		98	70 - 130		

Lab Sample ID: 440-263045-3 MSD
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		500	520		ug/L		104	70 - 130	3	20
Arsenic	ND		500	480		ug/L		96	70 - 130	2	20
Iron	ND		0.500	0.511		mg/L		102	70 - 130	0	20
Magnesium	17		2.50	18.7	BB	mg/L		86	70 - 130	0	20
Zinc	ND		500	463		ug/L		93	70 - 130	3	20
Manganese	ND		500	474		ug/L		95	70 - 130	3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-600753/1-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 17:22	1
Copper	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Lead	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1

Lab Sample ID: LCS 440-600753/2-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium			80.0	78.2		ug/L		98	85 - 115		
Copper			80.0	78.1		ug/L		98	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-600753/2-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	80.0	71.5		ug/L		89	85 - 115
Selenium	80.0	75.7		ug/L		95	85 - 115

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	78.2		ug/L		98	70 - 130
Copper	2.1		80.0	75.5		ug/L		92	70 - 130
Lead	0.63	J,DX	80.0	73.4		ug/L		91	70 - 130
Selenium	ND		80.0	75.6		ug/L		94	70 - 130

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	76.5		ug/L		96	70 - 130	2	20
Copper	2.1		80.0	75.5		ug/L		92	70 - 130	0	20
Lead	0.63	J,DX	80.0	71.7		ug/L		89	70 - 130	2	20
Selenium	ND		80.0	75.0		ug/L		94	70 - 130	1	20

Lab Sample ID: MB 440-600737/1-B
Matrix: Water
Analysis Batch: 600824

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/16/20 16:01	03/16/20 19:51	1
Copper	ND		2.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:51	1
Lead	ND		1.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:51	1
Selenium	ND		2.0	0.50	ug/L		03/16/20 16:01	03/16/20 19:51	1

Lab Sample ID: LCS 440-600737/2-B
Matrix: Water
Analysis Batch: 600824

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	77.6		ug/L		97	85 - 115
Copper	80.0	78.0		ug/L		97	85 - 115
Lead	80.0	77.6		ug/L		97	85 - 115
Selenium	80.0	81.0		ug/L		101	85 - 115

Lab Sample ID: 440-263045-3 MS
Matrix: Water
Analysis Batch: 600824

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	76.9		ug/L		96	70 - 130
Copper	1.3	J,DX	80.0	78.1		ug/L		96	70 - 130

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-263045-3 MS
Matrix: Water
Analysis Batch: 600824

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		80.0	77.1		ug/L		96	70 - 130
Selenium	ND		80.0	80.5		ug/L		101	70 - 130

Lab Sample ID: 440-263045-3 MSD
Matrix: Water
Analysis Batch: 600824

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	76.8		ug/L		96	70 - 130	0	20
Copper	1.3	J,DX	80.0	77.6		ug/L		95	70 - 130	1	20
Lead	ND		80.0	77.0		ug/L		96	70 - 130	0	20
Selenium	ND		80.0	80.7		ug/L		101	70 - 130	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602148/1-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:41	03/25/20 01:52	1

Lab Sample ID: LCS 440-602148/2-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.04		ug/L		101	85 - 115

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.99		ug/L		100	75 - 125

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.93		ug/L		98	75 - 125	2	20

Lab Sample ID: MB 440-600735/1-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601070

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:16	03/18/20 17:54	1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 440-600735/2-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601070

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			4.00	3.89		ug/L		97	85 - 115		

Lab Sample ID: 440-263045-3 MS
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		4.00	3.86		ug/L		96	75 - 125		

Lab Sample ID: 440-263045-3 MSD
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Outfall002_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.87		ug/L		97	75 - 125	0	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-600573/5
Matrix: Water
Analysis Batch: 600573

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/14/20 20:07	1

Lab Sample ID: 440-263045-1 DU
Matrix: Water
Analysis Batch: 600573

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	49		48.1		NTU		1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-601166/1
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/18/20 10:01	1

Lab Sample ID: LCS 440-601166/2
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	962		mg/L		96	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 440-263045-1 DU
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	410		420		mg/L		2	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-601707/1
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/20/20 15:24	1

Lab Sample ID: LCS 440-601707/2
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	1060		mg/L		106	85 - 115

Lab Sample ID: 440-263154-B-1 DU
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	330		327		mg/L		0.6	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-601903/1-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:33	1

Lab Sample ID: LCS 440-601903/2-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	98.0		ug/L		98	80 - 120

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	98.8		ug/L		99	75 - 125

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-263045-1 MSD — **Client Sample ID: Outfall002_20200314_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601977 — **Prep Batch: 601903**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	97.8		ug/L		98	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-601472/10 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601472

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/19/20 11:34	1

Lab Sample ID: LCS 440-601472/11 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601472

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.210		mg/L		104	90 - 110

Lab Sample ID: MRL 440-601472/9 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601472

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.1970	J,DX	mg/L		99	50 - 150

Lab Sample ID: 440-263045-1 MS — **Client Sample ID: Outfall002_20200314_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601472

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.108	J,DX	5.00	5.090		mg/L		100	90 - 110

Lab Sample ID: 440-263045-1 MSD — **Client Sample ID: Outfall002_20200314_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 601472

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	0.108	J,DX	5.00	5.000		mg/L		98	90 - 110	2	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-600600/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 600600

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/15/20 10:49	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCS 440-600600/5
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.266		mg/L		106	90 - 110

Lab Sample ID: MRL 440-600600/3
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.128		mg/L		128	50 - 150

Lab Sample ID: 440-263076-B-1 MS
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.097	J,DX	0.250	0.318		mg/L		88	50 - 125

Lab Sample ID: 440-263076-B-1 MSD
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.097	J,DX	0.250	0.347		mg/L		100	50 - 125	9	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-600599/3
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/15/20 10:16	1

Lab Sample ID: LCS 440-600599/7
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	172		mg/L		87	85 - 115

Lab Sample ID: LCSD 440-600599/8
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	187		mg/L		94	85 - 115	8	20

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCSD 440-600599/9
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	171		mg/L		86	85 - 115	1	20

Lab Sample ID: 440-263076-G-1 DU
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	ND			ND		mg/L				NC	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

GC/MS Semi VOA

Prep Batch: 601122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	625	
MB 440-601122/1-A	Method Blank	Total/NA	Water	625	
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	625	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	625	

Analysis Batch: 601579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	625.1	601122
MB 440-601122/1-A	Method Blank	Total/NA	Water	625.1	601122
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625.1	601122
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625.1	601122
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	625.1	601122
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	625.1	601122

GC Semi VOA

Prep Batch: 601089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	608	
MB 440-601089/1-A	Method Blank	Total/NA	Water	608	
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	608	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	608	

Analysis Batch: 601220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608.3	601089
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	608.3	601089
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	608.3	601089

HPLC/IC

Analysis Batch: 600528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	300.0	
MB 440-600528/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600528/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263076-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 600678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	300.0	
MB 440-600678/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600678/5	Lab Control Sample	Total/NA	Water	300.0	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	300.0	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	300.0	

HPLC/IC

Analysis Batch: 601658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 602274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	314.0	
MB 440-602274/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602274/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602274/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602274/8	Lab Control Sample	Total/NA	Water	314.0	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	314.0	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 365527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	1613B	
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 366401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	1613B	365527
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	365527
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	365527

Metals

Prep Batch: 600729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600729/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600729/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263045-1 MS	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	
440-263045-1 MSD	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	

Filtration Batch: 600735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600735/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 600737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600737/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-600737/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600737/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 600737 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 600753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263045-1 MS	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	
440-263045-1 MSD	Outfall002_20200314_Comp	Total Recoverable	Water	200.2	

Prep Batch: 600769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-B	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-B	Lab Control Sample	Dissolved	Water	200.2	600737
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737

Prep Batch: 600775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.2	600737
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	200.2	600737

Analysis Batch: 600824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	200.8	600769
MB 440-600737/1-B	Method Blank	Dissolved	Water	200.8	600769
LCS 440-600737/2-B	Lab Control Sample	Dissolved	Water	200.8	600769
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	200.8	600769
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	200.8	600769

Analysis Batch: 601042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total Recoverable	Water	200.8	600753
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.8	600753
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.8	600753
440-263045-1 MS	Outfall002_20200314_Comp	Total Recoverable	Water	200.8	600753
440-263045-1 MSD	Outfall002_20200314_Comp	Total Recoverable	Water	200.8	600753

Analysis Batch: 601061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600775
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.7 Rev 4.4	600775
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600775

Metals

Prep Batch: 601070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	600735
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	600735
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	600735
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	600735
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	600735

Analysis Batch: 601251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600729
MB 440-600729/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	600729
LCS 440-600729/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	600729
440-263045-1 MS	Outfall002_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600729
440-263045-1 MSD	Outfall002_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600729

Analysis Batch: 601310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-3	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	601070
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	601070
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	601070
440-263045-3 MS	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	601070
440-263045-3 MSD	Outfall002_20200314_Comp_F	Dissolved	Water	245.1	601070

Prep Batch: 602148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	245.1	
MB 440-602148/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602148/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	245.1	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	245.1	

Analysis Batch: 602304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	245.1	602148
MB 440-602148/1-A	Method Blank	Total/NA	Water	245.1	602148
LCS 440-602148/2-A	Lab Control Sample	Total/NA	Water	245.1	602148
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	245.1	602148
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	245.1	602148

General Chemistry

Analysis Batch: 600573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	180.1	
MB 440-600573/5	Method Blank	Total/NA	Water	180.1	
440-263045-1 DU	Outfall002_20200314_Comp	Total/NA	Water	180.1	

Analysis Batch: 600599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM5210B	
USB 440-600599/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-600599/7	Lab Control Sample	Total/NA	Water	SM5210B	

General Chemistry (Continued)

Analysis Batch: 600599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 440-600599/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-600599/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263076-G-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 600600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM 5540C	
MB 440-600600/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-600600/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-600600/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263076-B-1 MS	Matrix Spike	Total/NA	Water	SM 5540C	
440-263076-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 601166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM 2540C	
MB 440-601166/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-601166/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-263045-1 DU	Outfall002_20200314_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 601472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-601472/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-601472/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-601472/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 NH3 G	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 601707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM 2540D	
MB 440-601707/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-601707/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263154-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 601903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	Distill/CN	
MB 440-601903/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	Distill/CN	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 601977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903
MB 440-601903/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	601903
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	601903
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
BA	Relative percent difference out of control
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263045-1
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013."* Results were as follows:

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall002_20200314_Comp (440-263045-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.093

CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

SURVIVAL = PASS % EFFECT = 0.00 %

GROWTH = PASS % EFFECT = 1.76 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 03 Apr-20 10:33 (p 1 of 1)
Test Code/ID: CSE0320.093fml / 14-0413-9026

Fathead Minnow 7-d Larval Survival and Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-3097-4911	**Test Type:**	Growth-Survival (7d)	**Analyst:**			
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	24 Mar-20 09:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable		
Test Length:	6d 22h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	04-8712-8765	**Code:**	CSE0320.093fml	**Project:**	Boeing-SSFL NPDES		
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report		
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp		
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience				

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
09-8963-5856	7d Survival Rate	TST-Welch's t Test	<1.0E-37	100% passed 7d survival rate	1
11-0601-1608	Mean Dry Biomass-mg	TST-Welch's t Test	8.2E-06	100% passed mean dry biomass-mg	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
09-8963-5856	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
11-0601-1608	Mean Dry Biomass-mg	Control Resp	0.4022	0.25	>>	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.4022	0.3689	0.4355	0.3473	0.444	0.01408	0.03982	9.90%	0.00%
100		8	0.3951	0.373	0.4172	0.34	0.4293	0.009342	0.02642	6.69%	1.76%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3473	0.3847	0.398	0.3473	0.4427	0.436	0.444	0.4173
100		0.398	0.406	0.414	0.3947	0.34	0.3973	0.4293	0.3813

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Fathead Minnow 7-d Larval Survival and Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	09-8963-5856	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	02 Apr-20 15:33	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	05-3097-4911	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Mar-20 09:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 22h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	04-8712-8765	**Code:**	CSE0320.093fml	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	25590000	0.6955	12	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	1	0.8	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	1.421E-14	1.015E-15	14			
Total	1.421E-14		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	1	8.885	1.0000	Equal Variances
Distribution	D'Agostino Skewness Test	1.937	2.576	0.0527	Normal Distribution

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.441	1.441	1.442	1.441	1.441	1.441	0	0.00%	0.00%
100		8	1.441	1.441	1.442	1.441	1.441	1.441	0	0.00%	0.00%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.441	1.441	1.441	1.441	1.441	1.441	1.441	1.441
100		1.441	1.441	1.441	1.441	1.441	1.441	1.441	1.441

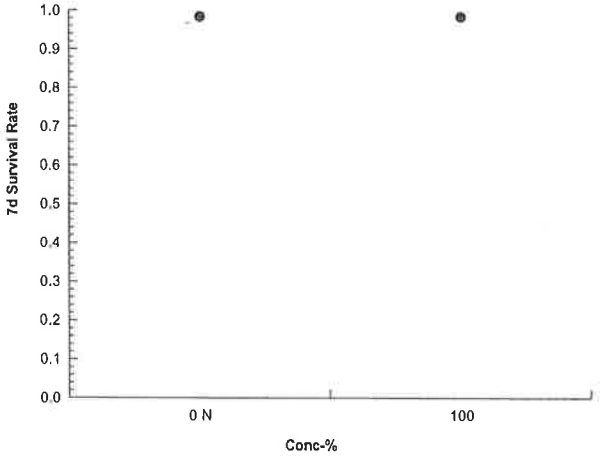
7d Survival Rate Binomials

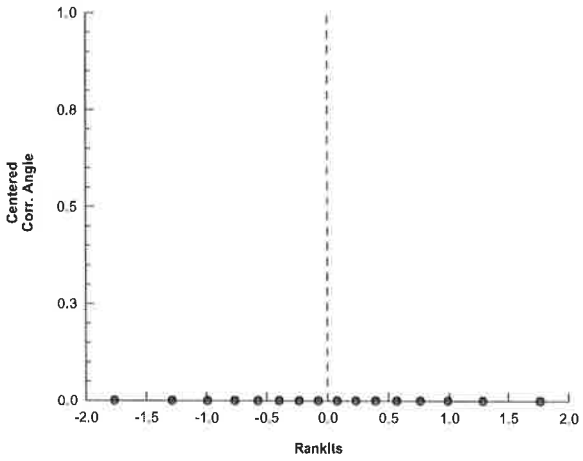
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Fathead Minnow 7-d Larval Survival and Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	09-8963-5856	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	02 Apr-20 15:33	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	11-0601-1608	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.5
Analyzed:	02 Apr-20 15:33	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	05-3097-4911	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Mar-20 09:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 22h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	04-8712-8765	**Code:**	CSE0320.093fml	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	6.629	0.6938	13	CDF	8.2E-06	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	0.4022	0.25	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0002007	0.0002007	1	0.1757	0.6814	Non-Significant Effect
Error	0.0159891	0.0011421	14			
Total	0.0161897		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	2.716	8.862	0.1216	Equal Variances
	Mod Levene Equality of Variance Test	2.675	8.862	0.1242	Equal Variances
	Variance Ratio F Test	2.272	8.885	0.3012	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.5992	3.878	0.1210	Normal Distribution
	D'Agostino Skewness Test	1.104	2.576	0.2697	Normal Distribution
	Kolmogorov-Smirnov D Test	0.141	0.2471	0.5709	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9025	0.8408	0.0881	Normal Distribution

Mean Dry Biomass-mg Summary

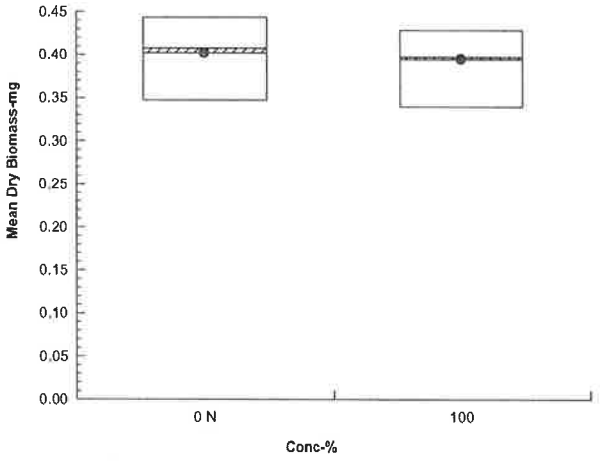
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.4022	0.3689	0.4355	0.4077	0.3473	0.444	0.01408	9.90%	0.00%
100		8	0.3951	0.373	0.4172	0.3977	0.34	0.4293	0.009342	6.69%	1.76%

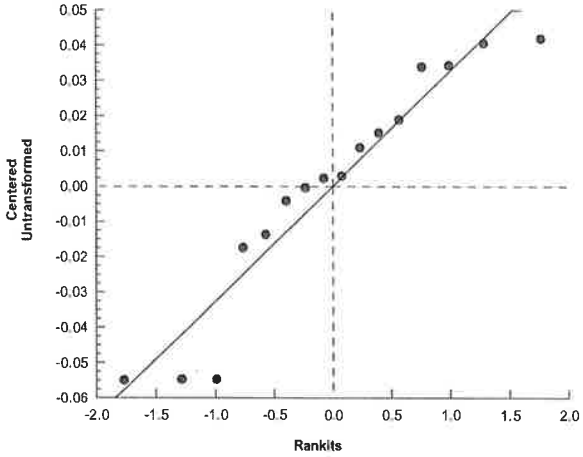
Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3473	0.3847	0.398	0.3473	0.4427	0.436	0.444	0.4173
100		0.398	0.406	0.414	0.3947	0.34	0.3973	0.4293	0.3813

Analysis ID: 11-0601-1608 **Endpoint:** Mean Dry Biomass-mg **CETIS Version:** CETISv1.9.5
Analyzed: 02 Apr-20 15:33 **Analysis:** Parametric Bioequivalence-Two Sample **Status Level:** 1

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-3097-4911	**Test Type:**	Growth-Survival (7d)	**Analyst:**			
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	24 Mar-20 09:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable		
Test Length:	6d 22h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO	**Age:**	

Sample ID:	04-8712-8765	**Code:**	CSE0320.093fml	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.0%	0
100		8	151	151	151	151	151	0	0	0.0%	0
Overall		16	106.5	82.01	131	62	151	11.49	45.96	43.15%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	337.2	333.1	341.4	326	342	1.74	4.921	1.46%	0
100		8	802.2	791.3	813.2	773	815	4.64	13.12	1.64%	0
Overall		16	569.8	441.7	697.8	326	815	60.08	240.3	42.18%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.8	7.564	8.036	7.3	8.2	0.1	0.2828	3.63%	0
100		8	7.913	7.639	8.186	7.4	8.3	0.1156	0.3271	4.13%	0
Overall		16	7.856	7.696	8.017	7.3	8.3	0.07526	0.301	3.83%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	87	87	87	87	87	0	0	0.0%	0
100		8	257	257	257	257	257	0	0	0.0%	0
Overall		16	172	125.2	218.8	87	257	21.95	87.79	51.04%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.913	7.726	8.099	7.7	8.3	0.07892	0.2232	2.82%	0
100		8	7.838	7.72	7.955	7.6	8	0.04978	0.1408	1.8%	0
Overall		16	7.875	7.777	7.973	7.6	8.3	0.0461	0.1844	2.34%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.0%	0
100		8	24.1	23.95	24.25	24	24.5	0.06267	0.1773	0.74%	0
Overall		16	24.05	23.98	24.12	24	24.5	0.03291	0.1317	0.55%	0 (0%)

Fathead Minnow 7-d Larval Survival and Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		62					
100				151					
0	N	2		62					
100				151					
0	N	3		62					
100				151					
0	N	4		62					
100				151					
0	N	5		62					
100				151					
0	N	6		62					
100				151					
0	N	7		62					
100				151					
0	N	8		62					
100				151					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		341					
100				802					
0	N	2		326					
100				806					
0	N	3		339					
100				773					
0	N	4		336					
100				802					
0	N	5		338					
100				810					
0	N	6		338					
100				815					
0	N	7		338					
100				812					
0	N	8		342					
100				798					

Fathead Minnow 7-d Larval Survival and Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				7.9					
0	N	2		8.2					
100				8.3					
0	N	3		7.3					
100				8.1					
0	N	4		7.8					
100				8.2					
0	N	5		7.9					
100				8.1					
0	N	6		7.9					
100				7.5					
0	N	7		8					
100				7.8					
0	N	8		7.5					
100				7.4					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		87					
100				257					
0	N	2		87					
100				257					
0	N	3		87					
100				257					
0	N	4		87					
100				257					
0	N	5		87					
100				257					
0	N	6		87					
100				257					
0	N	7		87					
100				257					
0	N	8		87					
100				257					

Fathead Minnow 7-d Larval Survival and Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.9					
100				8					
0	N	2		7.7					
100				7.6					
0	N	3		7.9					
100				7.9					
0	N	4		7.7					
100				7.8					
0	N	5		7.8					
100				7.9					
0	N	6		7.8					
100				7.7					
0	N	7		8.2					
100				7.8					
0	N	8		8.3					
100				8					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24					
100				24.5					
0	N	3		24					
100				24.1					
0	N	4		24					
100				24.2					
0	N	5		24					
100				24					
0	N	6		24					
100				24					
0	N	7		24					
100				24					
0	N	8		24					
100				24					

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall002_20200314_Comp (440-263045-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.093

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

1WC = 100.00%

TST RESULT

SURVIVAL = PASS % EFFECT = 0.00 %

REPRODUCTION = PASS % EFFECT = -56.67 %

Yours very truly,

Scott Johnson
Laboratory Director

*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia, see CETIS report using TST-Welch's t Test.

CETIS Summary Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	20-9435-2320	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Mar-20 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 22h	**Taxon:**	Branchiopoda	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	12-1103-1908	**Code:**	CSE0320.093cer	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
20-7039-0127	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
13-9437-0350	Reproduction	TST-Welch's t Test	<1.0E-37	100% passed reproduction	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
20-7039-0127	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
13-9437-0350	Reproduction	Control Resp	15	15	>>	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	15	12.8	17.2	7	23	1.049	4.69	31.27%	0.00%
100		20	23.5	20.26	26.74	11	34	1.55	6.932	29.50%	-56.67%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	14	10	10	12	11	7	20	14	14	19
		23	18	17	16	23	18	19	15	13	7
100		34	13	26	16	21	26	24	28	28	30
		31	11	23	19	23	16	21	31	15	34

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Ceriodaphnia 7-d Survival and Reproduction Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	13-9437-0350	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.9.5
Analyzed:	31 Mar-20 15:24	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	20-9435-2320	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Mar-20 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 22h	**Taxon:**	Branchiopoda	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	12-1103-1908	**Code:**	CSE0320.093cer	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	7.047	0.8546	28	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	15	15	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	722.5	722.5	1	20.63	5.5E-05	Significant Effect
Error	1331	35.0263	38			
Total	2053.5		39			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	3.496	7.353	0.0692	Equal Variances
	Mod Levene Equality of Variance Test	3.452	7.353	0.0709	Equal Variances
	Variance Ratio F Test	2.184	3.432	0.0969	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2223	3.878	0.8619	Normal Distribution
	D'Agostino Kurtosis Test	0.9994	2.576	0.3176	Normal Distribution
	D'Agostino Skewness Test	0.4118	2.576	0.6805	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.168	9.21	0.5576	Normal Distribution
	Kolmogorov-Smirnov D Test	0.0754	0.1617	0.8572	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9806	0.9236	0.7118	Normal Distribution

Reproduction Summary

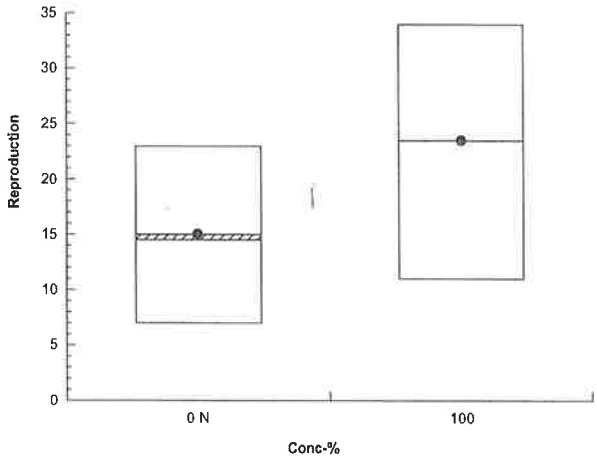
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	15	12.8	17.2	14.5	7	23	1.049	31.27%	0.00%
100		20	23.5	20.26	26.74	23.5	11	34	1.55	29.50%	-56.67%

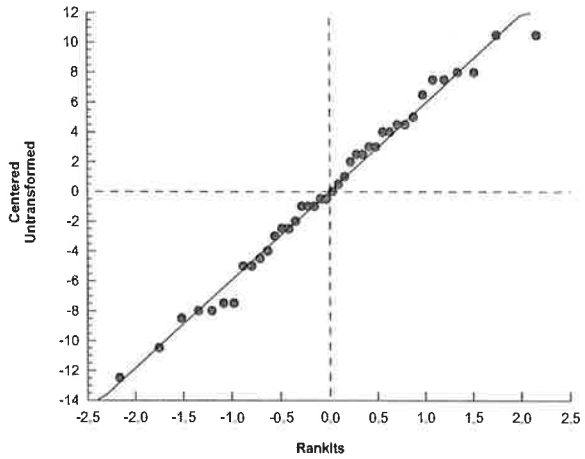
Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	14	10	10	12	11	7	20	14	14	19
		23	18	17	16	23	18	19	15	13	7
100		34	13	26	16	21	26	24	28	28	30
		31	11	23	19	23	16	21	31	15	34

Analysis ID: 13-9437-0350 **Endpoint:** Reproduction **CETIS Version:** CETISv1.9.5
Analyzed: 31 Mar-20 15:24 **Analysis:** Parametric Bioequivalence-Two Sample **Status Level:** 1

Graphics





CETIS Analytical Report

Report Date: 03 Apr-20 10:34 (p 1 of 2)
Test Code/ID: CSE0320.093cer / 17-0979-5780

Ceriodaphnia 7-d Survival and Reproduction Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	20-7039-0127	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	31 Mar-20 15:23	**Analysis:**	Single 2x2 Contingency Table	**Status Level:**	1
Batch ID:	20-9435-2320	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Mar-20 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 22h	**Taxon:**	Branchiopoda	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	12-1103-1908	**Code:**	CSE0320.093cer	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	Comparison Result
Untransformed	C > T	100% passed 7d survival rate

Fisher Exact Test

Control	vs	Group	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		100	1.0000	Exact	1.0000	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	1	0.8	>>	Yes	Passes Criteria

Data Summary

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	20	0	20	1	0	0.0%
100		20	0	20	1	0	0.0%

7d Survival Rate Detail

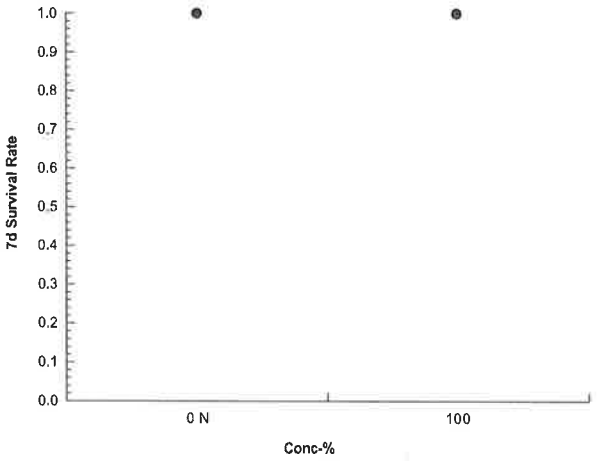
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Analysis ID:	20-7039-0127	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	31 Mar-20 15:23	**Analysis:**	Single 2x2 Contingency Table	**Status Level:**	1

Graphics



Ceriodaphnia 7-d Survival and Reproduction Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	20-9435-2320	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**			
Start Date:	17 Mar-20 11:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	24 Mar-20 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable		
Test Length:	6d 22h	**Taxon:**	Branchiopoda	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	12-1103-1908	**Code:**	CSE0320.093cer	**Project:**	Boeing-SSFL NPDES		
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report		
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp		
Sample Age:	75h (2.3 °C)	**Client:**	Eurofins Calscience				

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.0%	0
100		8	151	151	151	151	151	0	0	0.0%	0
Overall		16	106.5	82.01	131	62	151	11.49	45.96	43.15%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	337.2	333.1	341.4	326	342	1.74	4.921	1.46%	0
100		8	802.2	791.3	813.2	773	815	4.64	13.12	1.64%	0
Overall		16	569.8	441.7	697.8	326	815	60.08	240.3	42.18%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.8	7.564	8.036	7.3	8.2	0.1	0.2828	3.63%	0
100		8	7.913	7.639	8.186	7.4	8.3	0.1156	0.3271	4.13%	0
Overall		16	7.856	7.696	8.017	7.3	8.3	0.07526	0.301	3.83%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	87	87	87	87	87	0	0	0.0%	0
100		8	257	257	257	257	257	0	0	0.0%	0
Overall		16	172	125.2	218.8	87	257	21.95	87.79	51.04%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.913	7.726	8.099	7.7	8.3	0.07892	0.2232	2.82%	0
100		8	7.838	7.72	7.955	7.6	8	0.04978	0.1408	1.8%	0
Overall		16	7.875	7.777	7.973	7.6	8.3	0.0461	0.1844	2.34%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.0%	0
100		8	24.1	23.95	24.25	24	24.5	0.06267	0.1773	0.74%	0
Overall		16	24.05	23.98	24.12	24	24.5	0.03291	0.1317	0.55%	0 (0%)

Ceriodaphnia 7-d Survival and Reproduction Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		62					
100				151					
0	N	2		62					
100				151					
0	N	3		62					
100				151					
0	N	4		62					
100				151					
0	N	5		62					
100				151					
0	N	6		62					
100				151					
0	N	7		62					
100				151					
0	N	8		62					
100				151					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		341					
100				802					
0	N	2		326					
100				806					
0	N	3		339					
100				773					
0	N	4		336					
100				802					
0	N	5		338					
100				810					
0	N	6		338					
100				815					
0	N	7		338					
100				812					
0	N	8		342					
100				798					

Ceriodaphnia 7-d Survival and Reproduction Test — Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				7.9					
0	N	2		8.2					
100				8.3					
0	N	3		7.3					
100				8.1					
0	N	4		7.8					
100				8.2					
0	N	5		7.9					
100				8.1					
0	N	6		7.9					
100				7.5					
0	N	7		8					
100				7.8					
0	N	8		7.5					
100				7.4					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		87					
100				257					
0	N	2		87					
100				257					
0	N	3		87					
100				257					
0	N	4		87					
100				257					
0	N	5		87					
100				257					
0	N	6		87					
100				257					
0	N	7		87					
100				257					
0	N	8		87					
100				257					

Ceriodaphnia 7-d Survival and Reproduction Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.9					
100				8					
0	N	2		7.7					
100				7.6					
0	N	3		7.9					
100				7.9					
0	N	4		7.7					
100				7.8					
0	N	5		7.8					
100				7.9					
0	N	6		7.8					
100				7.7					
0	N	7		8.2					
100				7.8					
0	N	8		8.3					
100				8					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24					
100				24.5					
0	N	3		24					
100				24.1					
0	N	4		24					
100				24.2					
0	N	5		24					
100				24					
0	N	6		24					
100				24					
0	N	7		24					
100				24					
0	N	8		24					
100				24					

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall002_20200314_Comp (440-263045-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.093

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = 3.26 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	18-9021-8053	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:05	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	04-8088-0561	**Code:**	CSE0320.093sel	**Project:**	Boeing-SSFL NPDES		
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report		
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp		
Sample Age:	78h (2.3 °C)	**Client:**	Eurofins Calscience				

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
01-2322-8456	Cell Density	TST-Welch's t Test	<1.0E-37	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-2322-8456	Cell Density	Control CV	0.03766	<<	0.2	Yes	Passes Criteria
01-2322-8456	Cell Density	Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.232E+6	1.365E+6	1.706E+4	4.826E+4	3.77%	0.00%
100		8	1.240E+6	1.194E+6	1.285E+6	1.138E+6	1.312E+6	1.930E+4	5.459E+4	4.40%	3.26%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		1.312E+6	1.230E+6	1.285E+6	1.275E+6	1.246E+6	1.234E+6	1.138E+6	1.197E+6

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	01-2322-8456	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:01	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	18-9021-8053	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:05	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	04-8088-0561	**Code:**	CSE0320.093sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	78h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	12.03	0.6955	12	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.03766	<<	0.2	Yes	Passes Criteria
Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	6.972E+09	6.972E+09	1	2.627	0.1274	Non-Significant Effect
Error	3.716E+10	2.654E+09	14			
Total	4.413E+10		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.002803	8.862	0.9585	Equal Variances
	Mod Levene Equality of Variance Test	0.002797	8.862	0.9586	Equal Variances
	Variance Ratio F Test	1.279	8.885	0.7535	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2411	3.878	0.8005	Normal Distribution
	D'Agostino Skewness Test	0.3519	2.576	0.7249	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1166	0.2471	0.9510	Normal Distribution
	Shapiro-Wilk W Normality Test	0.974	0.8408	0.8979	Normal Distribution

Cell Density Summary

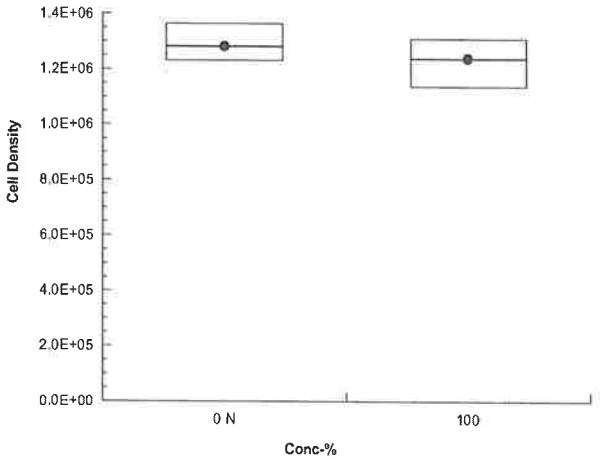
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.283E+6	1.232E+6	1.365E+6	1.706E+4	3.77%	0.00%
100		8	1.240E+6	1.194E+6	1.285E+6	1.240E+6	1.138E+6	1.312E+6	1.930E+4	4.40%	3.26%

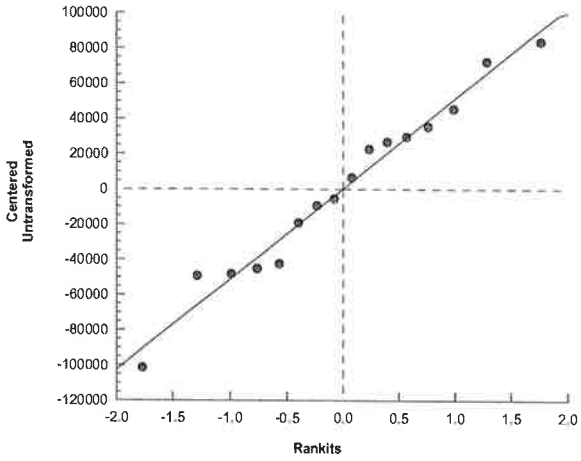
Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		1.312E+6	1.230E+6	1.285E+6	1.275E+6	1.246E+6	1.234E+6	1.138E+6	1.197E+6

Analysis ID: 01-2322-8456 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.5
Analyzed: 25 Mar-20 9:01 **Analysis:** Parametric Bioequivalence-Two Sample **Status Level:** 1

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	18-9021-8053	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:05	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**

Sample ID:	04-8088-0561	**Code:**	CSE0320.093sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 08:00	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:17	**CAS (PC):**		**Station:**	Outfall002_20200314_Comp
Sample Age:	78h (2.3 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
100		1	70			70	70	0	0	0.0%	0
Overall		2	61.5	-46.5	169.5	53	70	8.5	12.02	19.55%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	448	443.3	452.7	443	452	1.703	3.808	0.85%	0
100		5	726.6	716.8	736.4	720	740	3.544	7.925	1.09%	0
Overall		10	587.3	482.2	692.4	443	740	46.47	147	25.02%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
100		1	73			73	73	0	0	0.0%	0
Overall		2	76.5	32.03	121	73	80	3.5	4.95	6.47%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.734	8.186	7.8	8.2	0.08124	0.1817	2.28%	0
100		5	7.92	7.599	8.241	7.6	8.2	0.1158	0.2588	3.27%	0
Overall		10	7.94	7.788	8.092	7.6	8.2	0.067	0.2119	2.67%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
100		5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
Overall		10	24.64	24.37	24.91	24	25	0.1204	0.3806	1.55%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
100				70					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
100				740					
0	N	2		445					
100				727					
0	N	3		450					
100				724					
0	N	4		452					
100				720					
0	N	5		450					
100				722					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
100				73					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
100				8.1					
0	N	2		7.8					
100				8					
0	N	3		8.2					
100				8.2					
0	N	4		7.8					
100				7.6					
0	N	5		7.9					
100				7.7					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24.9					
100				24.9					
0	N	3		25					
100				25					
0	N	4		24.8					
100				24.8					
0	N	5		24.5					
100				24.5					

Test America

CHAIN OF CUSTODY FORM

4/7/2020

Client Name/Address:	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Total Dissolved Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Ceriodaphnia (EPA 821-R-02-013)	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals (E200.7): Al, As, Ba, Fe	Comments
						R	R	R	R	R	C			
Outfall 002	Outfall002_20200314_Comp_F	3/14/2020	WM	1L Poly	3	None	200	Yes	X				X	
		0800	WM	borosilicate vials	3	None	320	Yes				X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall002_20200314_Comp	3/14/2020	WM	500 mL Poly	3	NaOH	220	Yes		X				
			WM	2.5 Gal Cube	3	None	225	Yes			X			
				1 L Glass Amber	3	None	230	Yes					.093	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
		0800	WM	1 Gal Cube	1/7	None	235	No						Pb, Cu, Cd, Zn, Ba in Sample C/A

Temp. deg. C = 2.3

Chlorine (mg/L) = 40.1

NH3 (mg/L) = 0.3

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	03/14/2020 15:15	H&A		3.14.2020 1515
	3-16-2020 1110	H&A		03/16/2020 1117

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

* 1 gal Species Sensitivity delivered to ABC directly by H&A (M. Dominick)

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

440-263045 Chain of Custody

Client Name/Address	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	
Test America Contact. Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218	Project Manager Katherine Miller 520.289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager: Mark Dominick 978.234 5033, 818.599 0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)			Comments
									R	R	R	R	R	R	R	R	R	R	R	C		
Outfall 002	Outfall002_20200314_Comp	3/14/2020 0800	WM	500 mL Poly	3	HNO_3	90	Yes	X										X	X		
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	6	None	120	Yes				X										
			WM	500 mL Poly	6	None	130	Yes					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X						
			WM	1 L Glass Amber	6	None	170	Yes									X					
			WM	1 L Glass Amber	6	None	180	Yes										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall002_20200314_Comp_Extra	3/14/2020 0800	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

00 3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hann	03/14/2020 15:15	H&A	EC-IRV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 1730	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	R R R R R C
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904 6944 (cell)	
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234.5033, 818.599 0702 (cell)	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, Cs-137 (E901 0 or E901 1)	Chromium Species Sensitivity (EPA 218.6 or 7199)	Total Dissolved Metals Mercury (E245 1)	Total Dissolved Metals (E200 7) Fe	Comments
Outfall 002	Outfall002_20200314_Comp_F	3/14/2020 0800	WM	1L Poly	3	None	200	Yes	X					X	For analytes (Cr, Cu, Se, Sr, Zn, Fe) at Outfall 2 and/or for Cu, Pb, Cd, Se, Sr, Zn, Fe Outfall 011 and/or for As, Mn, Mo, Fe Outfall 018 (Table 4-1)
			WM	borosilicate vials	3	None	320	Yes					X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200314_Comp	3/14/2020 0800	WM	500 mL Poly	3	NaOH	220	Yes		X					
			WM	2 5 Gal Cube	3	None	225	Yes			X				Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	3	None	230	Yes							
			WM	1 Gal Cube	1/7	None	235	No							[redacted] Deliver to ABC Labs in Ventura CA *

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020 15:15	H&A	EC-IRV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 17:30	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____

Store samples for 6 months

Data Requirements (Check)
No Level IV _____ All Level IV __X__

* 1 gal species Sensitivity delivered to ABC directly by H&A (M. Dominick)

2.3/2.3, 0.9/0.9, 1.0/1.0, 1.5/1.5
1.2/1.2, 2.8/2.8 IR 89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153978.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263045-1
Address: 880 Riverside Parkway,	Due Date Requested: 3/26/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200314_Comp (440-263045-1)	3/14/20	08:00 Pacific		Water			X	1	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Teresa Alm	Date/Time: 3.16.20 1700	Company: ECIRV	Received by: [signature]	Date/Time: 3/17/20 920	Company: EEBCO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: (Δ Yes) Δ No	Custody Seal No.: Seals		Cooler Temperature(s) °C and Other Remarks: 1.8°C/2.2°C, 0.9°C/1.3°C		

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263045-1

Login Number: 263045
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263045-1

Login Number: 263045
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/17/20 01:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 1.8 corr 2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263045-1	Outfall002_20200314_Comp	60	74	56	55	66	61	56	65
MB 320-365527/1-A	Method Blank	73	81	63	67	74	74	66	81

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263045-1	Outfall002_20200314_Comp	60	61	66	52	57	53	48
MB 320-365527/1-A	Method Blank	74	71	78	60	64	63	50

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-365527/2-A	Lab Control Sample	68	75	63	64	74	73	64	79

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-365527/2-A	Lab Control Sample	71	69	75	63	64	68	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento Sample Receiving Notes

440-263045 Field Sheet

Tracking #: 1540 4107 1999

Job: ____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other ____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+/-) 0.4 °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☒

Initials: SG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento
Sample Receiving Notes

Tracking #: 1540 9107 1541

Job: _____

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK7 Corr. Factor: (+)/(-) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263045-2
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/16/2020 9:50:12 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/16/2020 9:50:12 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263045-1	Outfall002_20200314_Comp	Water	03/14/20 08:00	03/14/20 17:30	

Job ID: 440-263045-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263045-2

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.9º C, 1.0º C, 1.2º C, 1.5º C and 2.3º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465288

The gross alpha detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass. Analytical results are reported with the MDC achieved.
Outfall002_20200314_Comp (440-263045-1) and (440-263045-Q-1-J DU).

Method 900.0: Gross Alpha/Beta Prep Batch 160-465288
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-465288/2-A), (LCSB 160-465288/3-A), (MB 160-465288/1-A), (440-263045-Q-1-J DU), (440-263045-Q-1-H MSBT) and (440-263045-Q-1-I MSBTD)

Method 901.1: Gamma Prep Batch 160-464923
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Job ID: 440-263045-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Pb-211
Bi-214 Ra-226
Outfall002_20200314_Comp (440-263045-1), (LCS 160-464923/2-A), (MB 160-464923/1-A), (440-263043-M-1-D) and (440-263043-M-1-EDU)

Method 903.0: Radium-226 Prep Batch 160-464916
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-464916/1-A) and (MB 160-464916/12-A)

Method 904.0: Radium-228 Prep Batch 160-464919
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-464919/1-A) and (MB 160-464919/12-A)

Method 905: Strontium-90 Prep Batch 160-464947
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-464947/1-A) and (MB 160-464947/10-A)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-466637/2-A) and (MB 160-466637/1-A)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-466637/2-A) and (MB 160-466637/1-A)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Job ID: 440-263045-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]), Outfall002_20200314_Comp (440-263045-1[MSD]), (LCS 160-466005/2-A) and (MB 160-466005/1-A)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]) and Outfall002_20200314_Comp (440-263045-1[MSD]).

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following samples were preserved: Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]) and Outfall002_20200314_Comp (440-263045-1[MSD]).

Method LSC_Dist_Susp: Tritium Prep Batch 160-466637:
In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the re-aliquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Method PrecSep-21: Radium 226 Prep Batch 160-464916:

The following samples (680-181574-1, 680-181574-2, 160-37616-1, 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS, 440-263045-1MSD and 440-263076-1) were prepared at a reduced aliquot due to yellow discoloration: Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]) and Outfall002_20200314_Comp (440-263045-1[MSD]).

Method PrecSep-7: Strontium 90 Prep Batch 160-464947:

The following samples were prepared at a reduced aliquot due to discoloration: Outfall002_20200314_Comp (440-263045-1), Outfall002_20200314_Comp (440-263045-1[MS]) and Outfall002_20200314_Comp (440-263045-1[MSD]).Samples 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS and 440-263045-1MSD all have a yellow discoloration. Sample 160-37605-1 has a cloudy appearance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200314_Comp

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.95	U G	2.56	2.56	3.00	4.27	pCi/L	03/23/20 11:56	03/28/20 14:41	1
Gross Beta	**5.19**		1.42	1.51	4.00	1.74	pCi/L	03/23/20 11:56	03/28/20 14:41	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.37	U	8.56	8.56	20.0	15.2	pCi/L	03/19/20 09:11	03/20/20 11:14	1
Potassium-40	-27.7	U	127	127		189	pCi/L	03/19/20 09:11	03/20/20 11:14	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.130	U	0.226	0.226	1.00	0.395	pCi/L	03/19/20 08:31	04/12/20 23:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.4*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:11*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.515	U	0.590	0.592	1.00	0.971	pCi/L	03/19/20 08:56	04/10/20 16:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.4*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*
Y Carrier	*80.4*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.289	U	0.540	0.541	3.00	0.921	pCi/L	03/19/20 12:18	03/30/20 11:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*74.3*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*
Y Carrier	*89.7*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-23.0	U	180	180	500	329	pCi/L	04/05/20 12:18	04/09/20 05:34	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**1.57**		0.498	0.507	1.00	0.298	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample ID: Outfall002_20200314_Comp
Lab Sample ID: 440-263045-1
Date Collected: 03/14/20 08:00
Matrix: Water
Date Received: 03/14/20 17:30

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	77.7		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Client Sample ID: Outfall002_20200314_Comp

Date Collected: 03/14/20 08:00
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263045-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			107.34 g	1.0 g	465288	03/23/20 11:56	RJD	TAL SL
Total/NA	Analysis	900.0		1			466007	03/28/20 14:41	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	464923	03/19/20 09:11	EJQ	TAL SL
Total/NA	Analysis	901.1		1			465041	03/20/20 11:14	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.36 mL	1.0 g	464916	03/19/20 08:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			467460	04/12/20 23:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.36 mL	1.0 g	464919	03/19/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	467453	04/10/20 16:24	KLS	TAL SL
Total/NA	Prep	PrecSep-7			500.22 mL	1.0 g	464947	03/19/20 12:18	RBR	TAL SL
Total/NA	Analysis	905		1			466121	03/30/20 11:35	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 05:34	JS	TAL SL
Total/NA	Prep	ExtChrom			250.43 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467784	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465288/1-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465288

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4757	U	0.672	0.674	3.00	1.14	pCi/L	03/23/20 11:56	03/28/20 14:39	1
Gross Beta	0.4257	U	0.488	0.490	4.00	0.790	pCi/L	03/23/20 11:56	03/28/20 14:39	1

Lab Sample ID: LCS 160-465288/2-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	56.94		8.37	3.00	2.76	pCi/L	115	75 - 125

Lab Sample ID: LCSB 160-465288/3-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.6	85.51		9.08	4.00	0.751	pCi/L	101	75 - 125

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	1.95	U G	92.5	76.59		12.5	3.00	3.54	pCi/L	81	60 - 140

Lab Sample ID: 440-263045-1 MSBT
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	5.19		158	159.2		16.9	4.00	1.82	pCi/L	97	60 - 140

Lab Sample ID: 440-263045-1 MSBTD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	5.19		158	164.1		17.4	4.00	1.98	pCi/L	101	60 - 140	0.14	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.95	U G	92.4	70.83		11.8	3.00	3.95	pCi/L	75	60 - 140	0.24	1

Lab Sample ID: 440-263045-1 DU
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	1.95	U G	4.519	G	2.89	3.00	3.88	pCi/L	0.47	1
Gross Beta	5.19		3.726		1.35	4.00	1.66	pCi/L	0.51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-464923/1-A
Matrix: Water
Analysis Batch: 464857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464923

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.012	U	11.7	11.7	20.0	19.7	pCi/L	03/19/20 09:11	03/19/20 10:40	1
Potassium-40	-59.82	U	110	110		177	pCi/L	03/19/20 09:11	03/19/20 10:40	1

Lab Sample ID: LCS 160-464923/2-A
Matrix: Water
Analysis Batch: 464856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464923

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	125800		14500		341	pCi/L	93	90 - 111
Cesium-137	43800	43420		4350	20.0	103	pCi/L	99	90 - 111
Cobalt-60	26500	25670		2540		60.2	pCi/L	97	89 - 110

Lab Sample ID: 440-263043-M-1-E DU
Matrix: Water
Analysis Batch: 464854

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 464923

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	3.88	U	1.483	U	10.2	20.0	18.1	pCi/L	0.14	1
Potassium-40	-104	U	34.87	U	87.0		151	pCi/L	0.57	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-464916/12-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464916

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02504	U	0.127	0.127	1.00	0.269	pCi/L	03/19/20 08:31	04/12/20 23:12	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.3*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:12*	*1*

Lab Sample ID: LCS 160-464916/1-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464916

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.77		1.46	1.00	0.262	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.4*		*40 - 110*

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.130	U	15.1	14.11		1.61	1.00	0.251	pCi/L	92	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.130	U	15.1	13.74		1.59	1.00	0.292	pCi/L	90	75 - 138	0.11	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*84.6*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-464919/12-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464919

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5658		0.362	0.365	1.00	0.556	pCi/L	03/19/20 08:56	04/10/20 16:25	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	03/19/20 08:56	04/10/20 16:25	1
Y Carrier	86.0		40 - 110	03/19/20 08:56	04/10/20 16:25	1

Lab Sample ID: LCS 160-464919/1-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464919

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			11.9	9.552		1.18	1.00	0.433	pCi/L	80	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.4		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.515	U	11.9	10.11		1.30	1.00	0.636	pCi/L	81	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	84.9		40 - 110
Y Carrier	83.7		40 - 110

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.515	U	11.9	10.52		1.37	1.00	0.710	pCi/L	84	45 - 150	0.15	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	77.4		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04215	U	0.247	0.247	3.00	0.434	pCi/L	03/19/20 12:18	03/30/20 11:36	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	84.7		40 - 110	03/19/20 12:18	03/30/20 11:36	1
Y Carrier	92.0		40 - 110	03/19/20 12:18	03/30/20 11:36	1

Lab Sample ID: LCS 160-464947/1-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464947

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	9.212		1.02	3.00	0.426	pCi/L	117	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	88.5		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.289	U	15.8	18.64		2.21	3.00	1.05	pCi/L	116	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	76.1		40 - 110
Y Carrier	80.7		40 - 110

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.289	U	15.8	21.87		2.55	3.00	1.12	pCi/L	137	19 - 150	0.68	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	64.4		40 - 110
Y Carrier	84.5		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263045-1 MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-1 MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Outfall002_20200314_Comp
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

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Prep Batch: 464916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-21	
MB 160-464916/12-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-464916/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-21	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 464919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	PrecSep_0	
MB 160-464919/12-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-464919/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	PrecSep_0	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 464923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-464923/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-464923/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263043-M-1-E DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 464947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-7	
MB 160-464947/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-464947/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-7	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 465288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	
MB 160-465288/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465288/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465288/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	
440-263045-1 MSBT	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	
440-263045-1 MSBTD	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	
440-263045-1 DU	Outfall002_20200314_Comp	Total/NA	Water	Evaporation	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	ExtChrom	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Rad

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-1	Outfall002_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263045-1 MS	Outfall002_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	
440-263045-1 MSD	Outfall002_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

CHAIN OF CUSTODY FORM

440-263045 Chain of Custody

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	**Project:** Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact. Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	**Project Manager Katherine Miller** 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	**Field Manager: Mark Dominick** 978.234 5033, 818.599 0702 (cell)

									ANALYSIS REQUIRED														
									R	R	R	R	R	R	R	R	R	R	R	C			
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)	[illegible]		Comments
Outfall 002	Outfall002_20200314_Comp	3/14/2020	WM	500 mL Poly	3	HNO_3	90	Yes	X										X	X		
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	6	None	120	Yes				X										
			WM	500 mL Poly	6	None	130	Yes					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X						
			WM	1 L Glass Amber	6	None	170	Yes									X					
			WM	1 L Glass Amber	6	None	180	Yes										X				
		0800	WM	1L Poly	1	None	185	No							X							
	Outfall002_20200314_Comp_Extra	3/14/2020	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
		0800	WM	1 L Glass Amber	2	None	180	No										H				Hold

00
3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hann	03/14/2020 15:15	H&A	EC-IRV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 1730	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

4/16/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904 6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234.5033, 818.599 0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, Cs-137 (E901 0 or E901 1)	Chronic Toxicity - Ceriodaphnia Species Sensitivity (EPA 821-R-02-013)	Total Dissolved Metals Mercury (E245 1)	Total Dissolved Metals (E200 7) Fe	Comments
									R	R	R	R	R	C
Outfall 002	Outfall002_20200314_Comp_F	3/14/2020 0800	WM	1L Poly	3	None	200	Yes	X					X		For analyses not specified above, prepare composite per Outfall 002 sample for Fe. Outfall 001 sample for Al, Mn, and Fe. Outfall 011 sample for Fe
			WM	borosilicate vials	3	None	320	Yes					X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200314_Comp	3/14/2020 0800	WM	500 mL Poly	3	NaOH	220	Yes		X						
			WM	2 5 Gal Cube	3	None	225	Yes			X					Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
				1 L Glass Amber	3	None	230	Yes								
			WM	1 Gal Cube	1/7	None	235	No								[redacted] Deliver to ABC Labs in Ventura CA *

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020 15:15	H&A	EC-IRV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 17:30	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months

Data Requirements (Check)
No Level IV _____ All Level IV __X__

* 1 gal species Sensitivity delivered to ABC directly by H&A (M. Dominick)

2.3/2.3, 0.9/0.9, 1.0/1.0, 1.5/1.5
1.2/1.2, 2.8/2.8 IR 89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154036.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263045-1
Address: 13715 Rider Trail North,	Due Date Requested: 3/26/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200314_Comp (440-263045-1)	3/14/20	08:00 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200314_Comp (440-263045-1MS)	3/14/20	08:00 Pacific	MS	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200314_Comp (440-263045-1MSD)	3/14/20	08:00 Pacific	MSD	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Kennedy	3/17/2020 1700	EC-IRV	FE		
2	FE			Mana Kennedy	3/18/2020 0950	EA STL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience Irvine

Initiated by: MK Date: 3/18/2020 Time: 09:50 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids. If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 2252	192688461	0.5	
2.	1540 4107 2263		0.4	
3.	1540 4107 2274		-1.3	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y N	Are there custody seals present on the cooler?	8.	Y N	Are there custody seals present on bottles?
2.	Y N N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N N/A	Do custody seals on bottles appear to be tampered with?
3.	Y N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	Y N	Sample received with Chain of Custody?	11.	Y N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	Y N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y N	Sample received in proper containers?
6.	Y N	Was sample received broken?	13.	Y N N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	Y N	Is sample volume sufficient for analysis?	14.	Y N N/A	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Samples 440-263045-1, -1MS, -1MSD were received unpreserved.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/18/2020 16:05

Preservative and lot#: HNO3 000024482

Amount of Preservative: -1 (6mL), -1MS (12mL), -1MSD (6mL)

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263045-2

Login Number: 263045
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263045-2

Login Number: 263045
List Number: 3
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/18/20 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample received unpreserved with a pH=7. Sample preserved with HNO3.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263045-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263045-1	Outfall002_20200314_Comp	65.4
440-263045-1 MS	Outfall002_20200314_Comp	84.9
440-263045-1 MSD	Outfall002_20200314_Comp	84.6
LCS 160-464916/1-A	Lab Control Sample	98.4
MB 160-464916/12-A	Method Blank	94.3

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263045-1	Outfall002_20200314_Comp	65.4	80.4
440-263045-1 MS	Outfall002_20200314_Comp	84.9	83.7
440-263045-1 MSD	Outfall002_20200314_Comp	84.6	77.4
LCS 160-464919/1-A	Lab Control Sample	98.4	84.5
MB 160-464919/12-A	Method Blank	94.3	86.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263045-1	Outfall002_20200314_Comp	74.3	89.7
440-263045-1 MS	Outfall002_20200314_Comp	76.1	80.7
440-263045-1 MSD	Outfall002_20200314_Comp	64.4	84.5
LCS 160-464947/1-A	Lab Control Sample	88.5	90.8
MB 160-464947/10-A	Method Blank	84.7	92.0

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263045-1	Outfall002_20200314_Comp	77.7
440-263045-1 MS	Outfall002_20200314_Comp	76.4
440-263045-1 MSD	Outfall002_20200314_Comp	82.5
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263045-2
Project/Site: Routine Outfall 002 Comp

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Sacramento
Sample Receiving Notes

440-263045 Field Sheet

Tracking #: 1540 4107 1999

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+) / - 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☒

Initials: SG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento Sample Receiving Notes

Tracking # : 1540 4107 1541

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other

Job:

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:

Therm. ID: Ale 7 Corr. Factor: (+/-) 0.4 °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263360-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263360-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200320_GRAB	440-263360-1	Water	3/20/20 9:40	E120.1, E1664, E624, SM2540F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-263360-1:

- The laboratory received the samples in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

E. Wessling of MEC[X] reviewed the SDG on April 8, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes were not evaluated as part of a Level II validation.

Calibration criteria were not evaluated as part of a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC[X] evaluated method accuracy based on the associated LCS results.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200320 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. Internal Standards Performance

The internal standard retention times and area counts were not evaluated as part of a Level II validation.

III.6. Compound Identification

Compound identification was not evaluated as part of a Level II validation. The laboratory analyzed for target compounds 1,1-dichloroethene, 1,2-dichloroethane and trichloroethene by Method 624.1.

III.7. Compound Quantification and Reported Detection Limits

Compound quantification was not evaluated as part of a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. Tentatively Identified Compounds

The laboratory did not report TICs for this SDG.

III.9. System Performance

Review of the raw data not performed as part of a Level II validation.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. Holding Times

The QAPP holding times, as listed below, were met.

- 28 days for specific conductance (Method 120.1) and Oil and Grease (HEM, Method 1664)
- 7 days for total settleable solids (2540F)

IV.2. Calibration

Instrument calibration review is not performed at Level II validation. The initial and continuing calibration verification recoveries met laboratory control limits for Method 120.0.

IV.3. Quality Control Samples

IV.3.1. *Method Blanks*

The method blanks had no detections for Methods 120.1 and 1664. Method blanks do not apply to Method 2540C.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for applicable methods. Laboratory control sample analysis does not apply to Method 2540C.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402633601

Analysis Method E120.1

Sample Name OUTFALL002_20200320_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/20/2020 9:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-263360-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	940	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL002_20200320_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/20/2020 9:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-263360-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE		5.2	1.4	mg/L	U	U	

Analysis Method E624

Sample Name OUTFALL002_20200320_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/20/2020 9:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-263360-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1-Dichloroethene	N	75-35-4		0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2		0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6		0.50	0.25	ug/L	U	U	

Analysis Method SM2540F

Sample Name OUTFALL002_20200320_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/20/2020 9:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-263360-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS		0.10	0.10	ml/l/hr	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263360-1
Client Project/Site: Routine Outfall 002 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
3/26/2020 12:02:23 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
3/26/2020 12:02:23 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263360-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263360-1	Outfall002_20200320_Grab	Water	03/20/20 09:40	03/20/20 13:00	
440-263360-3	TB-20200320	Water	03/20/20 00:01	03/20/20 13:00	

Job ID: 440-263360-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263360-1

Comments
No additional comments.

Receipt
The samples were received on 3/20/2020 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1° C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-601744.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Methods 1664A, 1664B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602430 and analytical batch 440-602490. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A/B.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200320_Grab
Lab Sample ID: 440-263360-1
Date Collected: 03/20/20 09:40
Matrix: Water
Date Received: 03/20/20 13:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/20/20 23:26	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/20/20 23:26	1
Trichloroethene	ND		0.50	0.25	ug/L			03/20/20 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*60 - 140*		*03/20/20 23:26*	*1*
Dibromofluoromethane (Surr)	*107*		*60 - 140*		*03/20/20 23:26*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*03/20/20 23:26*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.4	mg/L		03/26/20 05:58	03/26/20 09:09	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**940**		1.0	1.0	umhos/cm			03/25/20 14:28	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/20/20 19:08	1

Client Sample ID: TB-20200320
Lab Sample ID: 440-263360-3
Date Collected: 03/20/20 00:01
Matrix: Water
Date Received: 03/20/20 13:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/20/20 23:54	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/20/20 23:54	1
Trichloroethene	ND		0.50	0.25	ug/L			03/20/20 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*60 - 140*		*03/20/20 23:54*	*1*
Dibromofluoromethane (Surr)	*104*		*60 - 140*		*03/20/20 23:54*	*1*
Toluene-d8 (Surr)	*100*		*60 - 140*		*03/20/20 23:54*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263360-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263360-1

Client Sample ID: Outfall002_20200320_Grab

Lab Sample ID: 440-263360-1

Date Collected: 03/20/20 09:40
Matrix: Water
Date Received: 03/20/20 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	601741	03/20/20 23:26	A1W	TAL IRV
Total/NA	Analysis	120.1		1			602364	03/25/20 14:28	XL	TAL IRV
Total/NA	Prep	1664A			970 mL	1000 mL	602430	03/26/20 05:58	L1H	TAL IRV
Total/NA	Analysis	1664A		1			602490	03/26/20 09:09	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	601744	03/20/20 19:08	HZ	TAL IRV

Client Sample ID: TB-20200320

Lab Sample ID: 440-263360-3

Date Collected: 03/20/20 00:01
Matrix: Water
Date Received: 03/20/20 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	601741	03/20/20 23:54	A1W	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601741/4
Matrix: Water
Analysis Batch: 601741

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/20/20 21:20	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/20/20 21:20	1
Trichloroethene	ND		0.50	0.25	ug/L			03/20/20 21:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*60 - 140*		*03/20/20 21:20*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 140*		*03/20/20 21:20*	*1*
Toluene-d8 (Surr)	*98*		*60 - 140*		*03/20/20 21:20*	*1*

Lab Sample ID: LCS 440-601741/1002
Matrix: Water
Analysis Batch: 601741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			25.0	24.9		ug/L		100	19 - 212		
1,2-Dichloroethane			25.0	30.1		ug/L		120	72 - 137		
Trichloroethene			25.0	25.7		ug/L		103	75 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*102*		*60 - 140*

Lab Sample ID: 320-59568-B-1 MS
Matrix: Water
Analysis Batch: 601741

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	ND		10.0	9.66		ug/L		97	10 - 234		
1,2-Dichloroethane	ND		10.0	12.2		ug/L		122	49 - 155		
Trichloroethene	ND		10.0	10.2		ug/L		102	70 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*60 - 140*
Dibromofluoromethane (Surr)	*101*		*60 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Lab Sample ID: 320-59568-B-1 MSD
Matrix: Water
Analysis Batch: 601741

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		10.0	10.1		ug/L		101	10 - 234	4	32
1,2-Dichloroethane	ND		10.0	11.1		ug/L		111	49 - 155	10	49
Trichloroethene	ND		10.0	10.5		ug/L		105	70 - 157	3	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 320-59568-B-1 MSD
Matrix: Water
Analysis Batch: 601741

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*
Dibromofluoromethane (Surr)	*110*		*60 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-602364/3
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/25/20 14:28	1

Lab Sample ID: LCS 440-602364/4
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	946	950		umhos/cm		100	90 - 110

Lab Sample ID: 440-262981-A-1 DU
Matrix: Water
Analysis Batch: 602364

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	36		35.2		umhos/cm		3	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-602430/1-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/26/20 05:58	03/26/20 09:09	1

Lab Sample ID: LCS 440-602430/2-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	36.3		mg/L		91	78 - 114

Lab Sample ID: LCSD 440-602430/3-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602430

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	36.4		mg/L		91	78 - 114	0	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263360-1

GC/MS VOA

Analysis Batch: 601741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263360-1	Outfall002_20200320_Grab	Total/NA	Water	624.1	
440-263360-3	TB-20200320	Total/NA	Water	624.1	
MB 440-601741/4	Method Blank	Total/NA	Water	624.1	
LCS 440-601741/1002	Lab Control Sample	Total/NA	Water	624.1	
320-59568-B-1 MS	Matrix Spike	Total/NA	Water	624.1	
320-59568-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 601744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263360-1	Outfall002_20200320_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 602364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263360-1	Outfall002_20200320_Grab	Total/NA	Water	120.1	
MB 440-602364/3	Method Blank	Total/NA	Water	120.1	
LCS 440-602364/4	Lab Control Sample	Total/NA	Water	120.1	
440-262981-A-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 602430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263360-1	Outfall002_20200320_Grab	Total/NA	Water	1664A	
MB 440-602430/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-602430/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-602430/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 602490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263360-1	Outfall002_20200320_Grab	Total/NA	Water	1664A	602430
MB 440-602430/1-A	Method Blank	Total/NA	Water	1664A	602430
LCS 440-602430/2-A	Lab Control Sample	Total/NA	Water	1664A	602430
LCSD 440-602430/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	602430

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263360-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263360-1
Project/Site: Routine Outfall 002 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America

CHAIN OF CUSTODY FORM

VLJOUVKT

Client Name/Address:	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab
Test America Contact. Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	
TestAmerica s services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich Inc , its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager. Katherine Miller 520 289.8606, 520.904.6944 (cell)
Sampler Dan Smith	Field Manager. Mark Dominick 978.234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Field Readings | Meter serial #

Field Readings: (Include units)

Time of Readings: 0940

DO 12.33 mg/L

pH 8.35 pH unit

Temp 49.1 °C/°F

Field readings QC

Checked by: [signature]

Date/Time: 3 20 2020/0941

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160 5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 002	Outfall002_20200320_Grab	3/20/2020/0940	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall002_20200320_Grab_Extra	3/20/2020/0940	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			WM	500 mL Poly	1	None	75	No				H	Hold
Trip Blanks	TB-20200320	3/20/2020	WQ	40 mL VOA	3	HCl	30	No		X			

JLL 3/20/20

440-263360 Chain of Custody

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3 20-20/1055	H:A	[signature]	3.20-20 10 55 DCS
Elip	3 20 20 13	DCS	[signature] EL-IPU	3/20/20 1300

Turn-around time: (Check)

24 Hour: _____ 72 Hour. _____ 10 Day: __X__

48 Hour. _____ 5 Day _____ Normal: _____

Sample Integrity. (Check)

Intact _____ On Ice: _____

Store samples for 6 months

Data Requirements. (Check)

No Level IV: _____ All Level IV: __X__

S1/S1 ~~2 3/3 2~~

IA-80

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263360-1

Login Number: 263360
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263408-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

6 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263408-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL002_20200321_COMP	440-263408-1	Water	3/21/20 8:20	E1613B, E180.1, E200.7, E200.8, E245.1, E300, E314.0, E608.3, E625.1, SM2540C/D, SM4500-CN-E, SM4500-NH3G, SM5210B, SM5540
OUTFALL002_20200321_COMP_F	440-263408-3	Water	3/21/20 8:20	E200.7, E200.8, E245.1

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-263408-1:

- TA-Irvine received the samples in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- According to the Login Sample Receipt Checklist for TA-Irvine, custody seals were absent on the coolers; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals TCDD, HpCDD and HpCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. Compound Identification

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 914 ml sample volume was available for extraction.

Isomers and total HpCDD previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDF 1,2,3,6,7,8-HxCDD, 2,3,4,7,8-PeCDF and 1,2,3,7,8-PeCDD reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Total PeCDD consisted of the single isomer EMPC peak qualified in the sample and was therefore also qualified as an estimated nondetect (UJ). Total HpCDF consisted of a blank contaminant and an EMPC and was therefore qualified as an estimated nondetect (UJ). The remaining totals included one or more EMPC peaks and were therefore qualified as estimated (J).

IV. Methods 200.7, 200.8 and 245.1 — Metals and Mercury

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7, 200.8 and 245.1* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

IV.1. Holding Times

The analytical holding times, 28 days for mercury and six months for metals, were met. Sample OUTFALL002_20200321_COMP_F was filtered and preserved 46 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were nondetect and were qualified as estimated (UJ).

IV.2. Calibration

Instrument calibration review is not performed at Level II validation. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES and mercury, and 90-110% for ICP-MS and ICP-AES. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for all methods.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results.

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. Interferents were not reported for site samples; therefore, interference could not be evaluated.

IV.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

IV.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

IV.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the samples (total and dissolved) in this SDG for Methods 200.7 and 200.8. Recoveries met the QAPP control limits. The RPDs were <20%. MS/MSD analyses were not performed on a sample in this SDG for mercury.

IV.4. SERIAL DILUTION

Serial dilution analyses were not performed on a sample in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

ICP-MS internal standard performance is not assessed at Level II validation.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Reported analyte results are not verified at Level II validation. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

IV.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

V. EPA METHOD 608.3 –PESTICIDES AND PCBS

E. Wessling of MEC[X] reviewed the SDG on April 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608.3* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

V.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

V.2. CALIBRATION

Calibration was not evaluated during a Stage II validation.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

V.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries and RPDs were within the respective laboratory control limits for pesticide alpha-BHC.

V.3.3. *SURROGATE RECOVERY*

Pesticide surrogates tetrachloro-m-xylene (TCMX) was recovered within the laboratory control limits of 10-104% and surrogate decachlorobiphenyl (DCB) was recovered within the laboratory control limits of 18-134%.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG. MEC[X] evaluated method accuracy and precision based on the LCS/LCSD results.

V.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

V.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

V.5. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. The laboratory analyzed for alpha-BHC by Method 608.3.

V.6. Compound Quantification and Reported Detection Limits

Compound quantification was not evaluated during a Stage II validation. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

VI. EPA METHOD 314.0 — Perchlorate

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 314.0* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

VI.1. Holding Times

The analytical holding time, 28 days, was met.

VI.2. Calibration

Instrument calibration review is not performed at Level II validation. The initial calibration verification recovery was within QAPP control limits of 75-125% and the continuing calibration verification recoveries were within QAPP control limits of 85-115%. The MRL was recovered within the QAPP control limits of 70-130%. Interference check sample recovery was within the QAPP control limits of 80-120%.

VI.3. Quality Control Samples

VI.3.1. *Method Blanks*

The method blank and calibration blanks had no detects.

VI.3.2. *Laboratory Control Samples*

The LCS recovery was within the QAPP control limits of 85-115%.

VI.3.3. *Laboratory Duplicates*

Laboratory duplicate analyses were not performed on the sample from this SDG.

VI.3.4. *Matrix Spike/Matrix Spike Duplicate*

Matrix spike/matrix spike duplicate analyses were not performed on the sample from this SDG.

VI.4. Sample Result Verification

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

VI.5. Field QC Samples

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VI.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VI.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VII. EPA METHOD 625.1 — SEMIVOLATILE ORGANIC COMPOUNDS (SVOCS)

E. Wessling of MEC^X reviewed the SDG on April 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 625.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VII.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within seven days of collection and analyzed within 30 days of extraction.

VII.2. GC/MS TUNING AND CALIBRATION

The DFTPP tune and calibration criteria were not evaluated during a Stage II validation.

VII.3. QUALITY CONTROL SAMPLES

VII.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

VII.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries and RPDs were within the laboratory control limits.

VII.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within laboratory control limits.

VII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC^X evaluated method accuracy based on the LCS result.

VII.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

VII.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

Field blank or equipment blank samples were not identified for this SDG.

VII.4.2. *FIELD DUPLICATES:*

Field duplicate samples were not identified in this SDG.

VII.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were not evaluated during a Stage II validation.

VII.6. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. The laboratory analyzed 5 compounds by EPA Method 625.1.

VII.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was not evaluated during a Stage II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. No target compounds were detected in the site sample. Nondetects are valid to the RL. The sample did not require dilution.

VII.8. TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

The laboratory did not report TICs for this SDG.

VII.9. SYSTEM PERFORMANCE

Raw data and system performance was not evaluated during a Stage II validation.

VIII. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 180.1 and 300.0, Standard Methods for the Examination of Water and Wastewater 2540C, 2540D, 4500-NH3-G and 4500-CN-E, 5210B and 5540C* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2017).

VIII.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 48 hours from collection for nitrate as N and nitrite as N (300.0); biological oxygen demand (5210B); turbidity (180.1); MBAS (5540C)
- 7 days for total dissolved solids (2540C); total suspended solids (2540D)
- 28 days for ammonia (4500-NH3-G); chloride, fluoride and sulfate (300.0)
- 14 days for total cyanide (4500-CN-E)

VIII.2. CALIBRATION

Instrument calibration review is not performed at Level II validation. All continuing calibration verification recoveries were within 90-110% for all appropriate analyses. The MRL recoveries for ammonia and MBAS were within the laboratory control limits of 50-150%.

VIII.3. QUALITY CONTROL SAMPLES

VIII.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detections.

VIII.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries and RPDs, as applicable, were within the laboratory control limits.

VIII.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were performed on the sample in this SDG for Methods 180.1 and 5210B. The RPDs met the laboratory acceptance limits. Laboratory duplicate analyses were not performed on the sample in this SDG for the remaining methods.

VIII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for Method 5540C. Recoveries and the RPD met laboratory acceptance limits. MS/MSD analyses were not performed on the sample in this SDG for the remaining methods.

VIII.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements.

VIII.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VIII.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VIII.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402634081

Analysis Method E1613B

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000012	0.00010	0.0000022	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000025	0.00010	0.0000019	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000036	0.000051	0.00000064	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000058	0.000051	0.00000078	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000028	0.000051	0.00000088	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9		0.000051	0.0000023	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000049	0.000051	0.0000011	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000033	0.000051	0.0000020	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000035	0.000051	0.0000011	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000037	0.000051	0.0000013	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000045	0.000051	0.0000010	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000028	0.000051	0.00000086	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000025	0.000051	0.00000093	ug/L	J,DXq	UJ	*III
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000028	0.000051	0.0000013	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000018	0.000051	0.00000087	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9		0.000010	0.00000049	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6		0.000010	0.00000075	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000065	0.000051	0.00000064	ug/L	J,DXMBq	UJ	B, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000077	0.000051	0.00000078	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000097	0.000051	0.0000013	ug/L	J,DXq	J	*III, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000013	0.000051	0.0000010	ug/L	J,DXq	J	*III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000046	0.000051	0.00000086	ug/L	J,DXq	J	*III, DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000025	0.000051	0.00000093	ug/L	J,DXq	UJ	*III
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5		0.000010	0.00000049	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.0000016	0.000010	0.00000075	ug/L	J,DXMBq	J	B, *III, DNQ

Analysis Method E180.1

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Turbidity	N	TURBIDITY	0.32	0.10	0.040	NTU			

Analysis Method E200.7

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	T	7440-38-2		10	8.9	ug/L	U	U	
Iron	T	7439-89-6		0.10	0.050	mg/L	U	U	
Manganese	T	7439-96-5		20	15	ug/L	U	U	
Zinc	T	7440-66-6		20	12	ug/L	U	U	

Sample Name OUTFALL002_20200321_COMP_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	D	7440-38-2		10	8.9	ug/L	U	UJ	H
Manganese	D	7439-96-5		20	15	ug/L	U	UJ	H
Zinc	D	7440-66-6		20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	T	7440-43-9		1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	0.80	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	T	7439-92-1		1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2		2.0	0.50	ug/L	U	U	

Analysis Method E200.8

Sample Name OUTFALL002_20200321_COMP_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	D	7440-43-9		1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8		2.0	0.50	ug/L	U	UJ	H
Lead	D	7439-92-1		1.0	0.50	ug/L	U	UJ	H
Selenium	D	7782-49-2		2.0	0.50	ug/L	U	UJ	H

Analysis Method E245.1

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6		0.20	0.10	ug/L	U	U	

Sample Name OUTFALL002_20200321_COMP_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6		0.20	0.10	ug/L	U	UJ	H

Analysis Method E300

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	35	10	5.0	mg/L			
Nitrate (as N)	N	14797-55-8		0.11	0.055	mg/L	U	U	
Nitrite (as N)	N	14797-65-0		0.15	0.025	mg/L	U	U	
Nitrite/Nitrate	N	NO2NO3		0.15	0.055	mg/L	U	U	
Sulfate	N	14808-79-8	220	10	5.0	mg/L			

Analysis Method E314.0

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Perchlorate	N	14797-73-0		4.0	0.95	ug/L	U	U	

Analysis Method E608.3

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
alpha-BHC	N	319-84-6		0.10	0.021	ug/L	U	U	

Analysis Method E625.1

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
2,4,6-Trichlorophenol	N	88-06-2		6.2	0.10	ug/L	U	U	
2,4-Dinitrotoluene	N	121-14-2		5.1	2.1	ug/L	U	U	
bis(2-Ethylhexyl)phthalate	N	117-81-7		5.1	2.1	ug/L	U	U	
N-Nitrosodimethylamine	N	62-75-9		5.1	0.31	ug/L	U	U	
Pentachlorophenol	N	87-86-5		5.1	1.0	ug/L	U	U	

Analysis Method SM2540C

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	690	10	5.0	mg/L			

Analysis Method SM2540D

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	0.60	1.0	0.50	mg/L	J,DX	J	DNQ

Analysis Method SM4500-CN-E

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cyanide	N	57-12-5		5.0	2.5	ug/L	U	U	

Analysis Method SM4500-NH3G

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N		0.200	0.100	mg/L	U	U	

Analysis Method SM5210B

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Biochemical Oxygen Demand	N	BOD		2.0	2.0	mg/L	U	U	

Analysis Method SM5540

Sample Name OUTFALL002_20200321_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/21/2020 8:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263408-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Surfactants as MBAS	N	SURFASMBAS	0.14	0.10	0.050	mg/L			

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263408-1
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/1/2020 10:25:15 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/1/2020 10:25:15 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263408-1	Outfall002_20200321_Comp	Water	03/21/20 08:20	03/21/20 13:15	
440-263408-3	Outfall002_20200321_Comp_F	Water	03/21/20 08:20	03/21/20 13:15	

Job ID: 440-263408-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263408-1

Comments
No additional comments.

Receipt
The samples were received on 3/21/2020 1:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 1.5º C, 2.3º C, 2.8º C and 3.4º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601836 and analytical batch 440-601932. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-601836/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall002_20200321_Comp (440-263408-1), (CCV 320-368420/27), (LCS 320-367895/2-A) and (MB 320-367895/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20200321_Comp_F (440-263408-3). These samples were filtered and preserved upon receipt to the laboratory.

03/23/20
2.5ml of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for 440-602588 contained Arsenic above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 3510C, 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601836. Method 8081

Methods 3520C, 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with

Job ID: 440-263408-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

preparation batch 440-602721. LCS was performed in duplicate to provide precision of data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall002_20200321_Comp (440-263408-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-367895
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200321_Comp

Date Collected: 03/21/20 08:20
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263408-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.2	0.10	ug/L		03/27/20 11:42	03/29/20 14:19	1
Bis(2-ethylhexyl) phthalate	ND		5.1	2.1	ug/L		03/27/20 11:42	03/29/20 14:19	1
N-Nitrosodimethylamine	ND		5.1	0.31	ug/L		03/27/20 11:42	03/29/20 14:19	1
Pentachlorophenol	ND		5.1	1.0	ug/L		03/27/20 11:42	03/29/20 14:19	1
2,4-Dinitrotoluene	ND		5.1	2.1	ug/L		03/27/20 11:42	03/29/20 14:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*60 - 120*	*03/27/20 11:42*	*03/29/20 14:19*	*1*
2-Fluorobiphenyl	*78*		*51 - 120*	*03/27/20 11:42*	*03/29/20 14:19*	*1*
2-Fluorophenol	*74*		*43 - 120*	*03/27/20 11:42*	*03/29/20 14:19*	*1*
Nitrobenzene-d5	*85*		*53 - 150*	*03/27/20 11:42*	*03/29/20 14:19*	*1*
Phenol-d5	*73*		*45 - 150*	*03/27/20 11:42*	*03/29/20 14:19*	*1*
Terphenyl-d14	*90*		*12 - 142*	*03/27/20 11:42*	*03/29/20 14:19*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.021	ug/L		03/23/20 06:07	03/23/20 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*50*		*10 - 104*	*03/23/20 06:07*	*03/23/20 17:56*	*1*
DCB Decachlorobiphenyl (Surr)	*66*		*18 - 134*	*03/23/20 06:07*	*03/23/20 17:56*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**35**		10	5.0	mg/L			03/21/20 16:03	20
Nitrate as N	ND		0.11	0.055	mg/L			03/21/20 14:06	1
Nitrite as N	ND		0.15	0.025	mg/L			03/21/20 14:06	1
Sulfate	**220**		10	5.0	mg/L			03/21/20 16:03	20

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/26/20 12:13	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.15	0.055	mg/L			03/23/20 11:53	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000075	ug/L		03/26/20 11:50	03/28/20 12:06	1
2,3,7,8-TCDF	ND		0.000010	0.00000049	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,7,8-PeCDD	**0.0000025**	**J,DX q**	0.000051	0.00000093	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,7,8-PeCDF	**0.0000028**	**J,DX**	0.000051	0.00000086	ug/L		03/26/20 11:50	03/28/20 12:06	1
2,3,4,7,8-PeCDF	**0.0000018**	**J,DX q**	0.000051	0.00000087	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,4,7,8-HxCDD	**0.0000049**	**J,DX**	0.000051	0.0000011	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,6,7,8-HxCDD	**0.0000035**	**J,DX q**	0.000051	0.0000011	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,7,8,9-HxCDD	**0.0000045**	**J,DX**	0.000051	0.0000010	ug/L		03/26/20 11:50	03/28/20 12:06	1

Client Sample ID: Outfall002_20200321_Comp

Date Collected: 03/21/20 08:20
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263408-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8-HxCDF	ND		0.000051	0.0000023	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,6,7,8-HxCDF	**0.0000033**	**J,DX**	0.000051	0.0000020	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,7,8,9-HxCDF	**0.0000037**	**J,DX q**	0.000051	0.0000013	ug/L		03/26/20 11:50	03/28/20 12:06	1
2,3,4,6,7,8-HxCDF	**0.0000028**	**J,DX**	0.000051	0.0000013	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,4,6,7,8-HpCDD	**0.0000058**	**J,DX MB**	0.000051	0.00000078	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,4,6,7,8-HpCDF	**0.0000036**	**J,DX MB q**	0.000051	0.00000064	ug/L		03/26/20 11:50	03/28/20 12:06	1
1,2,3,4,7,8,9-HpCDF	**0.0000028**	**J,DX q**	0.000051	0.00000088	ug/L		03/26/20 11:50	03/28/20 12:06	1
OCDD	**0.000025**	**J,DX MB q**	0.00010	0.0000019	ug/L		03/26/20 11:50	03/28/20 12:06	1
OCDF	**0.000012**	**J,DX MB q**	0.00010	0.0000022	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total TCDD	**0.0000016**	**J,DX MB q**	0.000010	0.00000075	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total TCDF	ND		0.000010	0.00000049	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total PeCDD	**0.0000025**	**J,DX q**	0.000051	0.00000093	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total PeCDF	**0.0000046**	**J,DX q**	0.000051	0.00000086	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total HxCDD	**0.000013**	**J,DX q**	0.000051	0.0000010	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total HxCDF	**0.0000097**	**J,DX q**	0.000051	0.0000013	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total HpCDD	**0.0000077**	**J,DX MB**	0.000051	0.00000078	ug/L		03/26/20 11:50	03/28/20 12:06	1
Total HpCDF	**0.0000065**	**J,DX MB q**	0.000051	0.00000064	ug/L		03/26/20 11:50	03/28/20 12:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*47*		*25 - 164*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-2,3,7,8-TCDF	*44*		*24 - 169*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,7,8-PeCDD	*36*		*25 - 181*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,7,8-PeCDF	*36*		*24 - 185*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-2,3,4,7,8-PeCDF	*38*		*21 - 178*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,4,7,8-HxCDD	*41*		*32 - 141*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,6,7,8-HxCDD	*44*		*28 - 130*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,4,7,8-HxCDF	*41*		*26 - 152*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,6,7,8-HxCDF	*41*		*26 - 123*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,7,8,9-HxCDF	*42*		*29 - 147*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-2,3,4,6,7,8-HxCDF	*41*		*28 - 136*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*51*		*23 - 140*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*52*		*26 - 138*	*03/26/20 11:50*	*03/28/20 12:06*	*1*
13C-OCDD	*38*		*17 - 157*	*03/26/20 11:50*	*03/28/20 12:06*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*77*		*35 - 197*	*03/26/20 11:50*	*03/28/20 12:06*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/26/20 07:44	03/26/20 15:44	1
Iron	ND		0.10	0.050	mg/L		03/26/20 07:44	03/26/20 15:44	1
Zinc	ND		20	12	ug/L		03/26/20 07:44	03/26/20 15:44	1
Manganese	ND		20	15	ug/L		03/26/20 07:44	03/26/20 15:44	1

Client Sample ID: Outfall002_20200321_Comp

Lab Sample ID: 440-263408-1

Date Collected: 03/21/20 08:20

Matrix: Water

Date Received: 03/21/20 13:15

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/26/20 09:16	03/26/20 14:55	1
Copper	**0.80**	**J,DX**	2.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:55	1
Lead	ND		1.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:55	1
Selenium	ND		2.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:55	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:43	03/25/20 03:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.32**		0.10	0.040	NTU			03/21/20 20:34	1
Total Dissolved Solids	**690**		10	5.0	mg/L			03/24/20 15:29	1
Total Suspended Solids	**0.60**	**J,DX**	1.0	0.50	mg/L			03/26/20 15:04	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1
Ammonia (as N)	ND		0.200	0.100	mg/L			03/23/20 15:43	1
Methylene Blue Active Substances	**0.14**		0.10	0.050	mg/L			03/21/20 14:44	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/22/20 09:22	1

Client Sample ID: Outfall002_20200321_Comp_F

Lab Sample ID: 440-263408-3

Date Collected: 03/21/20 08:20

Matrix: Water

Date Received: 03/21/20 13:15

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		03/23/20 12:44	03/23/20 15:03	1
Arsenic	ND		10	8.9	ug/L		03/23/20 12:44	03/23/20 15:03	1
Manganese	ND		20	15	ug/L		03/23/20 12:44	03/23/20 15:03	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/23/20 12:48	03/23/20 14:13	1
Copper	ND		2.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:13	1
Lead	ND		1.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:13	1
Selenium	ND		2.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:13	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:41	03/30/20 20:20	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

Client Sample ID: Outfall002_20200321_Comp

Lab Sample ID: 440-263408-1

Date Collected: 03/21/20 08:20

Matrix: Water

Date Received: 03/21/20 13:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			975 mL	2.0 mL	602721	03/27/20 11:42	ACT	TAL IRV
Total/NA	Analysis	625.1		1			602857	03/29/20 14:19	HN	TAL IRV
Total/NA	Prep	608			965 mL	2 mL	601836	03/23/20 06:07	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601932	03/23/20 17:56	D1D	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	601777	03/21/20 14:06	NTN	TAL IRV
Total/NA	Analysis	300.0		20	5 mL	1.0 mL	601778	03/21/20 16:03	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602482	03/26/20 12:13	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601936	03/23/20 11:53	TLN	TAL IRV
Total/NA	Prep	1613B			976.2 mL	20 uL	367895	03/26/20 11:50	NIR	TAL SAC
Total/NA	Analysis	1613B		1			368420	03/28/20 12:06	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602458	03/26/20 07:44	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			602588	03/26/20 15:44	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602493	03/26/20 09:16	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			602582	03/26/20 14:55	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602150	03/24/20 14:43	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602304	03/25/20 03:41	MEM	TAL IRV
Total/NA	Analysis	180.1		1			601793	03/21/20 20:34	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	602160	03/24/20 15:29	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	602571	03/26/20 15:04	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	602698	03/27/20 09:59	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			602725	03/27/20 12:12	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	601978	03/23/20 15:43	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	601788	03/21/20 14:44	HTL	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	601796	03/22/20 09:22	KYP	TAL IRV

Client Sample ID: Outfall002_20200321_Comp_F

Lab Sample ID: 440-263408-3

Date Collected: 03/21/20 08:20

Matrix: Water

Date Received: 03/21/20 13:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			175 mL	175 mL	601934	03/23/20 11:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	601948	03/23/20 12:44	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601971	03/23/20 15:03	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			175 mL	175 mL	601934	03/23/20 11:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	601949	03/23/20 12:48	M1G	TAL IRV
Dissolved	Analysis	200.8		1			601964	03/23/20 14:13	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	601929	03/23/20 11:46	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	602972	03/30/20 13:41	MEM	TAL IRV
Dissolved	Analysis	245.1		1			603021	03/30/20 20:20	MEM	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602721/1-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		03/27/20 11:42	03/29/20 13:07	1
Pentachlorophenol	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*86*		*60 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2-Fluorobiphenyl	*86*		*51 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2-Fluorophenol	*83*		*43 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Nitrobenzene-d5	*88*		*53 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Phenol-d5	*79*		*45 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Terphenyl-d14	*100*		*12 - 142*	*03/27/20 11:42*	*03/29/20 13:07*	*1*

Lab Sample ID: LCS 440-602721/2-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	15.0	14.9		ug/L		99	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	14.5		ug/L		97	29 - 137
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
Pentachlorophenol	30.0	27.1		ug/L		90	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*95*		*60 - 120*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*84*		*43 - 120*
Nitrobenzene-d5	*92*		*53 - 150*
Phenol-d5	*87*		*45 - 150*
Terphenyl-d14	*103*		*12 - 142*

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	15.0	14.8		ug/L		99	52 - 129	1	35
Bis(2-ethylhexyl) phthalate	15.0	14.3		ug/L		95	29 - 137	2	35
N-Nitrosodimethylamine	15.0	12.9		ug/L		86	60 - 140	5	35
Pentachlorophenol	30.0	29.7		ug/L		99	38 - 152	9	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*93*		*60 - 120*
2-Fluorobiphenyl	*87*		*51 - 120*
2-Fluorophenol	*83*		*43 - 120*
Nitrobenzene-d5	*90*		*53 - 150*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5	*86*		*45 - 150*
Terphenyl-d14	*96*		*12 - 142*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-601836/1-A
Matrix: Water
Analysis Batch: 601932

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601836

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/23/20 06:07	03/23/20 14:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*10 - 104*	*03/23/20 06:07*	*03/23/20 14:53*	*1*
DCB Decachlorobiphenyl (Surr)	*71*		*18 - 134*	*03/23/20 06:07*	*03/23/20 14:53*	*1*

Lab Sample ID: LCS 440-601836/2-A
Matrix: Water
Analysis Batch: 601932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601836

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
alpha-BHC	0.400	0.330		ug/L		83	37 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*79*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*90*		*18 - 134*

Lab Sample ID: LCSD 440-601836/3-A
Matrix: Water
Analysis Batch: 601932

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601836

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC	0.400	0.326		ug/L		82	37 - 140	1	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*76*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*86*		*18 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-601777/6
Matrix: Water
Analysis Batch: 601777

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/21/20 13:40	1
Nitrite as N	ND		0.15	0.025	mg/L			03/21/20 13:40	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-601777/5
Matrix: Water
Analysis Batch: 601777

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			1.13	1.11		mg/L		98	90 - 110		
Nitrite as N			1.52	1.50		mg/L		98	90 - 110		

Lab Sample ID: 440-263285-I-7 MS
Matrix: Water
Analysis Batch: 601777

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	ND		1.13	1.18		mg/L		105	80 - 120		
Nitrite as N	ND		1.52	1.81		mg/L		119	80 - 120		

Lab Sample ID: 440-263285-I-7 MSD
Matrix: Water
Analysis Batch: 601777

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	ND		1.13	1.17		mg/L		104	80 - 120	1	20
Nitrite as N	ND		1.52	1.81		mg/L		119	80 - 120	0	20

Lab Sample ID: MB 440-601778/6
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/21/20 13:40	1
Sulfate	ND		0.50	0.25	mg/L			03/21/20 13:40	1

Lab Sample ID: LCS 440-601778/5
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	4.63		mg/L		93	90 - 110		
Sulfate			5.00	4.75		mg/L		95	90 - 110		

Lab Sample ID: 440-263222-A-1 MS
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	51		25.0	78.2		mg/L		110	80 - 120		
Sulfate	22		25.0	45.7		mg/L		96	80 - 120		

Lab Sample ID: 440-263222-A-1 MSD
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	51		25.0	74.8		mg/L		96	80 - 120	5	20
Sulfate	22		25.0	44.7		mg/L		92	80 - 120	2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-263285-I-7 MS
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	21	EY	5.00	26.8	EY BB	mg/L		108	80 - 120
Sulfate	0.79		5.00	6.45		mg/L		113	80 - 120

Lab Sample ID: 440-263285-I-7 MSD
Matrix: Water
Analysis Batch: 601778

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	21	EY	5.00	26.8	EY BB	mg/L		107	80 - 120	0	20
Sulfate	0.79		5.00	6.82	LM	mg/L		121	80 - 120	5	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602482/6
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/26/20 10:04	1

Lab Sample ID: LCS 440-602482/5
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	26.3		ug/L		105	85 - 115

Lab Sample ID: MRL 440-602482/4
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	1.23	J,DX	ug/L		123	75 - 125

Lab Sample ID: MRL 440-602482/8
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.91	J,DX	ug/L		98	75 - 125

Lab Sample ID: 680-181910-A-4 MS
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	23		25.0	47.8		ug/L		99	80 - 120

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 680-181910-A-4 MSD
Matrix: Water
Analysis Batch: 602482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	23		25.0	49.1		ug/L		104	80 - 120	3	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,7,8-TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000070	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000010	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000093	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.00000063	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDD	0.00000250	J,DX	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000071	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDD	0.0000101	J,DX	0.00010	0.0000013	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDF	0.00000304	J,DX q	0.00010	0.0000012	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDD	0.00000154	J,DX q	0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDD	0.00000435	J,DX q	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDD	*60*		*28 - 130*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDF	*57*		*26 - 123*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,6,7,8-HxCDF	*59*		*28 - 136*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*66*		*23 - 140*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*67*		*28 - 143*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*70*		*26 - 138*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-OCDD	*49*		*17 - 157*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*79*		*35 - 197*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000179		ug/L		90	67 - 158
2,3,7,8-TCDF	0.000200	0.000179		ug/L		89	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000970		ug/L		97	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000950		ug/L		95	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000884		ug/L		88	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000867		ug/L		87	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000956		ug/L		96	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000911		ug/L		91	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000887		ug/L		89	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000974		ug/L		97	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000977		ug/L		98	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000962		ug/L		96	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000927	MB	ug/L		93	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000957	MB	ug/L		96	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000899		ug/L		90	78 - 138
OCDD	0.00200	0.00186	MB	ug/L		93	78 - 144
OCDF	0.00200	0.00204	MB	ug/L		102	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*65*		*20 - 175*
13C-2,3,7,8-TCDF	*60*		*22 - 152*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,7,8-PeCDD	*53*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*54*		*21 - 192*
13C-2,3,4,7,8-PeCDF	*57*		*13 - 328*
13C-1,2,3,4,7,8-HxCDD	*66*		*21 - 193*
13C-1,2,3,6,7,8-HxCDD	*67*		*25 - 163*
13C-1,2,3,4,7,8-HxCDF	*65*		*19 - 202*
13C-1,2,3,6,7,8-HxCDF	*61*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*62*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*63*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*77*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*79*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*81*		*20 - 186*
13C-OCDD	*63*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*74*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602458/1-A
Matrix: Water
Analysis Batch: 602588

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		03/26/20 07:44	03/26/20 15:39	1
Zinc	ND		20	12	ug/L		03/26/20 07:44	03/26/20 15:39	1
Arsenic	ND		10	8.9	ug/L		03/26/20 07:44	03/26/20 15:39	1
Manganese	ND		20	15	ug/L		03/26/20 07:44	03/26/20 15:39	1

Lab Sample ID: LCS 440-602458/2-A
Matrix: Water
Analysis Batch: 602588

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602458

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	467		ug/L		93	85 - 115
Iron	0.500	0.456		mg/L		91	85 - 115
Magnesium	2.50	2.30		mg/L		92	85 - 115
Zinc	500	486		ug/L		97	85 - 115
Arsenic	500	490		ug/L		98	85 - 115
Manganese	500	471		ug/L		94	85 - 115

Lab Sample ID: 440-263408-1 MS
Matrix: Water
Analysis Batch: 602588

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		500	561		ug/L		112	70 - 130
Iron	ND		0.500	0.494		mg/L		99	70 - 130
Magnesium	29		2.50	31.2	BB	mg/L		78	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-263408-1 MS
Matrix: Water
Analysis Batch: 602588

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	ND		500	494		ug/L		99	70 - 130
Arsenic	ND		500	542		ug/L		108	70 - 130
Manganese	ND		500	495		ug/L		99	70 - 130

Lab Sample ID: 440-263408-1 MSD
Matrix: Water
Analysis Batch: 602588

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		500	553		ug/L		111	70 - 130	1	20
Iron	ND		0.500	0.486		mg/L		97	70 - 130	2	20
Magnesium	29		2.50	31.2	BB	mg/L		79	70 - 130	0	20
Zinc	ND		500	488		ug/L		98	70 - 130	1	20
Arsenic	ND		500	529		ug/L		106	70 - 130	2	20
Manganese	ND		500	489		ug/L		98	70 - 130	1	20

Lab Sample ID: MB 440-601934/1-B
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		03/23/20 12:44	03/23/20 14:59	1
Arsenic	ND		10	8.9	ug/L		03/23/20 12:44	03/23/20 14:59	1
Manganese	ND		20	15	ug/L		03/23/20 12:44	03/23/20 14:59	1

Lab Sample ID: LCS 440-601934/2-B
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	473		ug/L		95	85 - 115
Arsenic	500	474		ug/L		95	85 - 115
Manganese	500	472		ug/L		94	85 - 115

Lab Sample ID: 440-263408-3 MS
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Outfall002_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	ND		500	464		ug/L		93	70 - 130
Arsenic	ND		500	501		ug/L		100	70 - 130
Manganese	ND		500	474		ug/L		95	70 - 130

Lab Sample ID: 440-263408-3 MSD
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Outfall002_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	ND		500	461		ug/L		92	70 - 130	1	20
Arsenic	ND		500	498		ug/L		100	70 - 130	1	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-263408-3 MSD
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Outfall002_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	ND		500	471		ug/L		94	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602493/1-A
Matrix: Water
Analysis Batch: 602582

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602493

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/26/20 09:16	03/26/20 14:51	1
Copper	ND		2.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:51	1
Lead	ND		1.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:51	1
Selenium	ND		2.0	0.50	ug/L		03/26/20 09:16	03/26/20 14:51	1

Lab Sample ID: LCS 440-602493/2-A
Matrix: Water
Analysis Batch: 602582

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	75.7		ug/L		95	85 - 115
Copper	80.0	77.3		ug/L		97	85 - 115
Lead	80.0	74.8		ug/L		93	85 - 115
Selenium	80.0	75.1		ug/L		94	85 - 115

Lab Sample ID: 440-263408-1 MS
Matrix: Water
Analysis Batch: 602582

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602493

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	74.8		ug/L		93	70 - 130
Copper	0.80	J,DX	80.0	74.6		ug/L		92	70 - 130
Lead	ND		80.0	74.9		ug/L		94	70 - 130
Selenium	ND		80.0	74.2		ug/L		93	70 - 130

Lab Sample ID: 440-263408-1 MSD
Matrix: Water
Analysis Batch: 602582

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602493

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	75.7		ug/L		95	70 - 130	1	20
Copper	0.80	J,DX	80.0	75.1		ug/L		93	70 - 130	1	20
Lead	ND		80.0	75.6		ug/L		95	70 - 130	1	20
Selenium	ND		80.0	73.3		ug/L		92	70 - 130	1	20

Lab Sample ID: MB 440-601934/1-C
Matrix: Water
Analysis Batch: 601964

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601949

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/23/20 12:48	03/23/20 14:08	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 440-601934/1-C
Matrix: Water
Analysis Batch: 601964

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601949

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		2.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:08	1
Lead	ND		1.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:08	1
Selenium	ND		2.0	0.50	ug/L		03/23/20 12:48	03/23/20 14:08	1

Lab Sample ID: LCS 440-601934/2-C
Matrix: Water
Analysis Batch: 601964

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601949

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	74.6		ug/L		93	85 - 115
Copper	80.0	75.0		ug/L		94	85 - 115
Lead	80.0	72.8		ug/L		91	85 - 115
Selenium	80.0	78.0		ug/L		98	85 - 115

Lab Sample ID: 440-263408-3 MS
Matrix: Water
Analysis Batch: 601964

Client Sample ID: Outfall002_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601949

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	69.2		ug/L		86	70 - 130
Copper	ND		80.0	68.2		ug/L		85	70 - 130
Lead	ND		80.0	67.0		ug/L		84	70 - 130
Selenium	ND		80.0	76.9		ug/L		96	70 - 130

Lab Sample ID: 440-263408-3 MSD
Matrix: Water
Analysis Batch: 601964

Client Sample ID: Outfall002_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601949

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	69.6		ug/L		87	70 - 130	1	20
Copper	ND		80.0	68.5		ug/L		86	70 - 130	0	20
Lead	ND		80.0	67.6		ug/L		85	70 - 130	1	20
Selenium	ND		80.0	79.9		ug/L		100	70 - 130	4	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602150/1-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602150

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:43	03/25/20 02:55	1

Lab Sample ID: LCS 440-602150/2-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602150

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.87		ug/L		97	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263370-A-5-B MS
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602150

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.09		ug/L		102	75 - 125

Lab Sample ID: 440-263370-A-5-C MSD
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602150

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.95		ug/L		99	75 - 125	3	20

Lab Sample ID: MB 440-601929/1-C
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602972

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:41	03/30/20 20:05	1

Lab Sample ID: LCS 440-601929/2-C
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602972

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.15		ug/L		104	85 - 115

Lab Sample ID: 440-263409-B-2-C MS
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602972

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.20		ug/L		105	75 - 125

Lab Sample ID: 440-263409-C-2-C MSD
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602972

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.15		ug/L		104	75 - 125	1	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-601793/5
Matrix: Water
Analysis Batch: 601793

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/21/20 20:34	1

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: 440-263408-1 DU
Matrix: Water
Analysis Batch: 601793

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Turbidity	0.32			0.340		NTU				6	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-602160/1
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/24/20 15:29	1

Lab Sample ID: LCS 440-602160/2
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	994		mg/L		99	90 - 110		

Lab Sample ID: 720-97894-E-1 DU
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	520			516		mg/L				2	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602571/1
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/26/20 15:04	1

Lab Sample ID: LCS 440-602571/2
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	857		mg/L		86	85 - 115		

Lab Sample ID: 440-263493-A-1 DU
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	230			228		mg/L				0.9	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-602698/1-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1

Lab Sample ID: LCS 440-602698/2-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	96.0		ug/L		96	80 - 120

Lab Sample ID: 440-263409-C-1-A MS
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	93.0		ug/L		93	75 - 125

Lab Sample ID: 440-263409-C-1-B MSD
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	104		ug/L		104	75 - 125	11	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-601978/10
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/23/20 12:22	1

Lab Sample ID: LCS 440-601978/11
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.240		mg/L		105	90 - 110

Lab Sample ID: MRL 440-601978/9
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.2110		mg/L		106	50 - 150

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-263149-D-1 MS
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	1.76		5.00	6.490		mg/L		95	90 - 110		

Lab Sample ID: 440-263149-D-1 MSD
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	1.76		5.00	6.810		mg/L		101	90 - 110	5	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-601788/3
Matrix: Water
Analysis Batch: 601788

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/21/20 14:43	1

Lab Sample ID: LCS 440-601788/4
Matrix: Water
Analysis Batch: 601788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.250		mg/L		100	90 - 110

Lab Sample ID: 440-263408-1 MS
Matrix: Water
Analysis Batch: 601788

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances	0.14		0.250	0.274		mg/L		53	50 - 125		

Lab Sample ID: 440-263408-1 MSD
Matrix: Water
Analysis Batch: 601788

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.14		0.250	0.265		mg/L		50	50 - 125	3	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-601796/3
Matrix: Water
Analysis Batch: 601796

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/22/20 09:22	1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-601796/7
Matrix: Water
Analysis Batch: 601796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			199	205		mg/L		103	85 - 115		

Lab Sample ID: LCSD 440-601796/8
Matrix: Water
Analysis Batch: 601796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	186		mg/L		93	85 - 115	10	20

Lab Sample ID: LCSD 440-601796/9
Matrix: Water
Analysis Batch: 601796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	188		mg/L		94	85 - 115	9	20

Lab Sample ID: 440-263408-1 DU
Matrix: Water
Analysis Batch: 601796

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	ND			ND		mg/L				NC	20

GC/MS Semi VOA

Prep Batch: 602721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	625	
MB 440-602721/1-A	Method Blank	Total/NA	Water	625	
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 602857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	625.1	602721
MB 440-602721/1-A	Method Blank	Total/NA	Water	625.1	602721
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625.1	602721
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	602721

GC Semi VOA

Prep Batch: 601836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	608	
MB 440-601836/1-A	Method Blank	Total/NA	Water	608	
LCS 440-601836/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-601836/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 601932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	608.3	601836
MB 440-601836/1-A	Method Blank	Total/NA	Water	608.3	601836
LCS 440-601836/2-A	Lab Control Sample	Total/NA	Water	608.3	601836
LCSD 440-601836/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	601836

HPLC/IC

Analysis Batch: 601777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	300.0	
MB 440-601777/6	Method Blank	Total/NA	Water	300.0	
LCS 440-601777/5	Lab Control Sample	Total/NA	Water	300.0	
440-263285-I-7 MS	Matrix Spike	Total/NA	Water	300.0	
440-263285-I-7 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 601778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	300.0	
MB 440-601778/6	Method Blank	Total/NA	Water	300.0	
LCS 440-601778/5	Lab Control Sample	Total/NA	Water	300.0	
440-263222-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263222-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-263285-I-7 MS	Matrix Spike	Total/NA	Water	300.0	
440-263285-I-7 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 601936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	NO3NO2 Calc	

HPLC/IC

Analysis Batch: 602482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	314.0	
MB 440-602482/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602482/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602482/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602482/8	Lab Control Sample	Total/NA	Water	314.0	
680-181910-A-4 MS	Matrix Spike	Total/NA	Water	314.0	
680-181910-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 367895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	1613B	
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 368420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	1613B	367895
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	367895
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	367895

Metals

Filtration Batch: 601929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	FILTRATION	
MB 440-601929/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-601929/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263409-B-2-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263409-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 601934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	FILTRATION	
MB 440-601934/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-601934/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-601934/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263408-3 MS	Outfall002_20200321_Comp_F	Dissolved	Water	FILTRATION	
440-263408-3 MSD	Outfall002_20200321_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 601948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934
MB 440-601934/1-B	Method Blank	Dissolved	Water	200.2	601934
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	200.2	601934
440-263408-3 MS	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934
440-263408-3 MSD	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934

Metals

Prep Batch: 601949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934
MB 440-601934/1-C	Method Blank	Dissolved	Water	200.2	601934
LCS 440-601934/2-C	Lab Control Sample	Dissolved	Water	200.2	601934
440-263408-3 MS	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934
440-263408-3 MSD	Outfall002_20200321_Comp_F	Dissolved	Water	200.2	601934

Analysis Batch: 601964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	200.8	601949
MB 440-601934/1-C	Method Blank	Dissolved	Water	200.8	601949
LCS 440-601934/2-C	Lab Control Sample	Dissolved	Water	200.8	601949
440-263408-3 MS	Outfall002_20200321_Comp_F	Dissolved	Water	200.8	601949
440-263408-3 MSD	Outfall002_20200321_Comp_F	Dissolved	Water	200.8	601949

Analysis Batch: 601971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	200.7 Rev 4.4	601948
MB 440-601934/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	601948
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	601948
440-263408-3 MS	Outfall002_20200321_Comp_F	Dissolved	Water	200.7 Rev 4.4	601948
440-263408-3 MSD	Outfall002_20200321_Comp_F	Dissolved	Water	200.7 Rev 4.4	601948

Prep Batch: 602150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	245.1	
MB 440-602150/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602150/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263370-A-5-B MS	Matrix Spike	Total/NA	Water	245.1	
440-263370-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 602304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	245.1	602150
MB 440-602150/1-A	Method Blank	Total/NA	Water	245.1	602150
LCS 440-602150/2-A	Lab Control Sample	Total/NA	Water	245.1	602150
440-263370-A-5-B MS	Matrix Spike	Total/NA	Water	245.1	602150
440-263370-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	602150

Prep Batch: 602458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	
MB 440-602458/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602458/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263408-1 MS	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	
440-263408-1 MSD	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	

Prep Batch: 602493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	
MB 440-602493/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602493/2-A	Lab Control Sample	Total Recoverable	Water	200.2	

Metals (Continued)

Prep Batch: 602493 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1 MS	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	
440-263408-1 MSD	Outfall002_20200321_Comp	Total Recoverable	Water	200.2	

Analysis Batch: 602582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total Recoverable	Water	200.8	602493
MB 440-602493/1-A	Method Blank	Total Recoverable	Water	200.8	602493
LCS 440-602493/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602493
440-263408-1 MS	Outfall002_20200321_Comp	Total Recoverable	Water	200.8	602493
440-263408-1 MSD	Outfall002_20200321_Comp	Total Recoverable	Water	200.8	602493

Analysis Batch: 602588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602458
MB 440-602458/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602458
LCS 440-602458/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602458
440-263408-1 MS	Outfall002_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602458
440-263408-1 MSD	Outfall002_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602458

Prep Batch: 602972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	245.1	601929
MB 440-601929/1-C	Method Blank	Dissolved	Water	245.1	601929
LCS 440-601929/2-C	Lab Control Sample	Dissolved	Water	245.1	601929
440-263409-B-2-C MS	Matrix Spike	Dissolved	Water	245.1	601929
440-263409-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	601929

Analysis Batch: 603021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-3	Outfall002_20200321_Comp_F	Dissolved	Water	245.1	602972
MB 440-601929/1-C	Method Blank	Dissolved	Water	245.1	602972
LCS 440-601929/2-C	Lab Control Sample	Dissolved	Water	245.1	602972
440-263409-B-2-C MS	Matrix Spike	Dissolved	Water	245.1	602972
440-263409-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	602972

General Chemistry

Analysis Batch: 601788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM 5540C	
MB 440-601788/3	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-601788/4	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263408-1 MS	Outfall002_20200321_Comp	Total/NA	Water	SM 5540C	
440-263408-1 MSD	Outfall002_20200321_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 601793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	180.1	
MB 440-601793/5	Method Blank	Total/NA	Water	180.1	
440-263408-1 DU	Outfall002_20200321_Comp	Total/NA	Water	180.1	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

General Chemistry

Analysis Batch: 601796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM5210B	
USB 440-601796/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-601796/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-601796/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-601796/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263408-1 DU	Outfall002_20200321_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 601978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-601978/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-601978/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-601978/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263149-D-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263149-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 602160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM 2540C	
MB 440-602160/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-602160/2	Lab Control Sample	Total/NA	Water	SM 2540C	
720-97894-E-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 602571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM 2540D	
MB 440-602571/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602571/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263493-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 602698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	Distill/CN	
MB 440-602698/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 602725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	SM 4500 CN E	602698
MB 440-602698/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	602698
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	602698

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263408-1
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Test America

CHAIN OF CUSTODY FORM

440-263408 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact. Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055 TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818 599.0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.7): Fe, Mn		Comments
Outfall 002	Outfall002_20200321_Comp	3/21/2020 1030	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		~~Outfall 001 analyze for Fe and Mn~~ Outfall 002 analyze for As and Mn ~~Outfall 011 analyze for Fe~~ ~~Outfall 018 analyze for Al~~
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall002_20200321_Comp_Extra	3/21/2020 1030	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
	3-21-2020/1130			3-21-20 11:30	EC-IRV
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
	3.21.20 1315	EC-IRV		3/21/20 1315	EC-IRV

Turn-around time: (Check)
24 Hour: _____ 72 Hour. _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal. _____

Sample Integrity: (Check)
Intact: _____ On Ice _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV _____ All Level IV: __X__

2.8/2.8 3.4/3.4 0.3/0.3 2.3/2.3 1.5/1.5 0.2/0.2
IR 89

3/21/20

CHAIN OF CUSTODY FORM

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager. Katherine Miller
520.289.8606, 520 904.6944 (cell)

Field Manager: Mark Dominick
978 234.5033, 818.599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200 7) Zn (E200.8): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905 0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura, CA	Total Dissolved Metals: Mercury (E245.1)							Comments
Outfall 002	Outfall002_20200321_Comp_F	3/21/2020 /0820	WM	1L Poly	1	None	200	No	X											Filter and preserve w/in 24hrs of receipt at lab Outfall 001 analyze for Fe and Mn Outfall 002 analyze for As and Mn Outfall 011 analyze for Fe Outfall 018 analyze for Al
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200321_Comp	3/21/2020 /0820	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			~~WM~~ MD	~~1 Gal Cube~~	~~6~~	~~None~~	~~205~~	~~No~~												~~Only test if first or second run events at the year. Deliver to ABC Labs in Ventura, CA~~ MD

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-21-2020 /1130		[signature] EC-IRV	3-21-20 11:30
[signature]	3-21-20 13:15	EC-IRV	[signature] EC-IRV	3/21/20 1315

Turn-around time. (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154295.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263408-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/2/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200321_Comp (440-263408-1)	3/21/20	08:20 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.
440-263408-02	3/21/20	0820		W				2	HOLD

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Kennedy	3/23/2020 1700	EC-IRV		3/24/20 - 9:25	ECA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: OBS 0.1 Corr 0.7

Ver: 01/16/2019

4/1/2020

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263408-1

Login Number: 263408
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263408-1

Login Number: 263408
List Number: 3
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/24/20 12:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs. 0.1c corr. 0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263408-1	Outfall002_20200321_Comp	47	44	36	36	38	41	44	41
MB 320-367895/1-A	Method Blank	63	57	51	50	53	60	60	59

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263408-1	Outfall002_20200321_Comp	41	42	41	51	51	52	38
MB 320-367895/1-A	Method Blank	57	58	59	66	67	70	49

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-367895/2-A	Lab Control Sample	65	60	53	54	57	66	67	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-367895/2-A	Lab Control Sample	61	62	63	77	79	81	63

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes

440-263408 Field Sheet

Tracking # : 1540-4107-3568

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+/-) 0.6 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.1 °C Corrected: 0.7 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 3/24/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/24/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WPC

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263408-2
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/22/2020 12:01:20 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:01:20 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263408-1	Outfall002_20200321_Comp	Water	03/21/20 08:20	03/21/20 13:15	

Job ID: 440-263408-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263408-2

Comments
No additional comments.

Receipt
The samples were received on 3/21/2020 1:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 1.5º C, 2.3º C, 2.8º C and 3.4º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

The laboratory control sample (LCS, 68%) failed below the lower limit (75%). The lab reached out to the client who requested the data be reported.

(LCS 160-465900/2-A)

Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

The detection goal was not met for the following sample due to a reduction of the sample size attributed to high residual mass: Outfall002_20200321_Comp (440-263408-1). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-465900/2-A), (LCSB 160-465900/3-A), (MB 160-465900/1-A), (440-263409-J-1-D), (440-263409-J-1-G DU), (440-263409-F-1-E MS), (440-263409-J-1-E MSBT), (440-263409-J-1-F MSBTD) and (440-263409-F-1-F MSD)

Method 901.1: Gamma Prep Batch 160-465466
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228

Job ID: 440-263408-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Outfall002_20200321_Comp (440-263408-1), (LCS 160-465466/2-A), (MB 160-465466/1-A) and (440-263408-Q-1-B DU)

Methods 903.0, 9315: Ra-226 Prep Batch 160-465586
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-465586/1-A), (MB 160-465586/20-A), (440-263409-J-1-B), (440-263409-F-1-A MS) and (440-263409-F-1-B MSD)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588

The laboratory control sample (LCS, 73%) failed below the lower limit of 75%. The MB, MS and MSD were within passing limits. The data has been reported with this narrative.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-465588/1-A), (MB 160-465588/20-A), (440-263409-J-1-C), (440-263409-F-1-C MS) and (440-263409-F-1-D MSD)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200321_Comp (440-263408-1), (LCS 160-465588/1-A), (MB 160-465588/20-A), (440-263409-J-1-C), (440-263409-F-1-C MS) and (440-263409-F-1-D MSD)

Method 905: Strontium-90 Prep Batch 160-465961

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-465961/1-A), (MB 160-465961/11-A), (440-263409-J-1-J), (440-263409-F-1-K MS) and (440-263409-F-1-L MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Job ID: 440-263408-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall002_20200321_Comp (440-263408-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200321_Comp (440-263408-1), (LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall002_20200321_Comp (440-263408-1).

Method PrecSep-7: Sr-90 Prep Batch 160-465961:

Samples 160-37640-1, 160-37641-1, and 440-263408-1 were slightly discolored. Samples 440-263409-1, 1MS, 1MSD, 440-263515-1 and 440-263518-1 had a bright yellow discoloration. In addition, sample 440-263518-1 was reduced in volume because it was cloudy.

Outfall002_20200321_Comp (440-263408-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200321_Comp

Date Collected: 03/21/20 08:20
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263408-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	2.83	U G	3.58	3.59	3.00	5.94	pCi/L	03/27/20 11:28	04/03/20 08:24	1
Gross Beta	**4.60**		1.82	1.88	4.00	2.52	pCi/L	03/27/20 11:28	04/03/20 08:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.48	U	8.48	8.49	20.0	14.7	pCi/L	03/24/20 17:00	03/24/20 22:33	1
Potassium-40	62.0	U	96.5	96.7		155	pCi/L	03/24/20 17:00	03/24/20 22:33	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.221**		0.144	0.146	1.00	0.183	pCi/L	03/26/20 06:31	04/17/20 08:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.4*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:51*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.364	U *	0.402	0.403	1.00	0.659	pCi/L	03/26/20 06:59	04/15/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.4*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:24*	*1*
Y Carrier	*68.0*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:24*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.224	U	0.312	0.313	3.00	0.521	pCi/L	03/29/20 09:20	04/07/20 10:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*79.8*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:20*	*1*
Y Carrier	*62.8*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:20*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	110	U	222	222	500	396	pCi/L	04/05/20 12:18	04/09/20 07:29	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**2.76**		0.456	0.484	1.00	0.148	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample ID: Outfall002_20200321_Comp
Lab Sample ID: 440-263408-1
Date Collected: 03/21/20 08:20
Matrix: Water
Date Received: 03/21/20 13:15

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	86.4		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Client Sample ID: Outfall002_20200321_Comp

Date Collected: 03/21/20 08:20
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263408-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			76.60 mL	1.0 g	465900	03/27/20 11:28	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	466614	04/03/20 08:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	465466	03/24/20 17:00	MLG	TAL SL
Total/NA	Analysis	901.1		1			465328	03/24/20 22:33	KLS	TAL SL
Total/NA	Prep	PrecSep-21			1000.08 mL	1.0 g	465586	03/26/20 06:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			468017	04/17/20 08:51	KRR	TAL SL
Total/NA	Prep	PrecSep_0			1000.08 mL	1.0 g	465588	03/26/20 06:59	RBR	TAL SL
Total/NA	Analysis	904.0		1			467875	04/15/20 13:24	CJQ	TAL SL
Total/NA	Prep	PrecSep-7			999.92 mL	1.0 g	465961	03/29/20 09:20	MMO	TAL SL
Total/NA	Analysis	905		1			467049	04/07/20 10:20	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 07:29	JS	TAL SL
Total/NA	Prep	ExtChrom			500.20 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467789	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465900/1-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465900

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4046	U	0.519	0.521	3.00	0.861	pCi/L	03/27/20 11:28	04/03/20 08:23	1
Gross Beta	0.4550	U	0.481	0.483	4.00	0.772	pCi/L	03/27/20 11:28	04/03/20 08:23	1

Lab Sample ID: LCS 160-465900/2-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			49.6	33.94	*	5.41	3.00	1.58	pCi/L	68	75 - 125		

Lab Sample ID: LCSB 160-465900/3-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte			Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta			84.6	80.84		8.62	4.00	0.942	pCi/L	96	75 - 125		

Lab Sample ID: 440-263409-F-1-E MS
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha	-0.0978	U	49.5	36.73		5.47	3.00	1.38	pCi/L	74	60 - 140		

Lab Sample ID: 440-263409-F-1-F MSD
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	-0.0978	U	49.5	39.84		5.86	3.00	1.64	pCi/L	80	60 - 140	0.27	1

Lab Sample ID: 440-263409-J-1-E MSBT
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta	0.603	U	84.5	78.67		8.39	4.00	0.921	pCi/L	92	60 - 140		

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263409-J-1-F MSBTD
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	0.603	U	84.5	74.07		7.92	4.00	0.902	pCi/L	87	60 - 140	0.28	1

Lab Sample ID: 440-263409-J-1-G DU
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	-0.0978	U	1.373	*		3.00	1.00	pCi/L	0.79	1
Gross Beta	0.603	U	0.8697	U		4.00	1.00	pCi/L	0.23	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-465466/1-A
Matrix: Water
Analysis Batch: 465326

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465466

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.619	U	10.7	10.7	20.0	18.7	pCi/L	03/24/20 17:00	03/24/20 22:30	1
Potassium-40	-99.61	U	96.6	97.1		219	pCi/L	03/24/20 17:00	03/24/20 22:30	1

Lab Sample ID: LCS 160-465466/2-A
Matrix: Water
Analysis Batch: 465327

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465466

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	131900		15200		532	pCi/L	97	90 - 111
Cesium-137	43800	42360		4250	20.0	145	pCi/L	97	90 - 111
Cobalt-60	26500	25970		2580		106	pCi/L	98	89 - 110

Lab Sample ID: 440-263408-1 DU
Matrix: Water
Analysis Batch: 465326

Client Sample ID: Outfall002_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465466

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-2.48	U	3.806	U	8.20	20.0	14.2	pCi/L	0.38	1
Potassium-40	62.0	U	-168.4	U	135		269	pCi/L	0.99	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-465586/20-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465586

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03638	U	0.0859	0.0860	1.00	0.199	pCi/L	03/26/20 06:31	04/17/20 08:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:55*	*1*

Lab Sample ID: LCS 160-465586/1-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465586

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.27		1.18	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.6*		*40 - 110*

Lab Sample ID: 440-263409-F-1-A MS
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	-0.0860	U	15.1	12.69		1.49	1.00	0.304	pCi/L	84	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-263409-F-1-B MSD
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	-0.0860	U	15.1	13.28		1.56	1.00	0.235	pCi/L	88	75 - 138	0.19	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-465588/20-A
Matrix: Water
Analysis Batch: 467720

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465588

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1859	U	0.267	0.268	1.00	0.447	pCi/L	03/26/20 06:59	04/15/20 13:22	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110	03/26/20 06:59	04/15/20 13:22	1
Y Carrier	79.6		40 - 110	03/26/20 06:59	04/15/20 13:22	1

Lab Sample ID: LCS 160-465588/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.93	6.531	*	0.850	1.00	0.438	pCi/L	73	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	93.6		40 - 110
Y Carrier	84.1		40 - 110

Lab Sample ID: 440-263409-F-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.300	U *	11.9	10.20		1.29	1.00	0.621	pCi/L	83	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	92.0		40 - 110
Y Carrier	80.4		40 - 110

Lab Sample ID: 440-263409-F-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.300	U *	11.9	10.90		1.37	1.00	0.657	pCi/L	89	45 - 150	0.26	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	83.8		40 - 110
Y Carrier	83.0		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-465961/11-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467045 — **Prep Batch: 465961**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.05867	U	0.135	0.135	3.00	0.258	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-465961/11-A
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465961

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110	03/29/20 09:20	04/07/20 10:14	1
Y Carrier	95.3		40 - 110	03/29/20 09:20	04/07/20 10:14	1

Lab Sample ID: LCS 160-465961/1-A
Matrix: Water
Analysis Batch: 467049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465961

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	7.289		0.803	3.00	0.348	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	87.2		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-263409-F-1-K MS
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.216	U	7.88	7.311		0.805	3.00	0.295	pCi/L	90	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	82.3		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 440-263409-F-1-L MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.216	U	7.89	6.434		0.751	3.00	0.297	pCi/L	79	19 - 150	0.56	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	79.5		40 - 110
Y Carrier	83.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

Rad

Prep Batch: 465466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-465466/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-465466/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263408-1 DU	Outfall002_20200321_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 465586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	PrecSep-21	
MB 160-465586/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-465586/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263409-F-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263409-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 465588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	PrecSep_0	
MB 160-465588/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-465588/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263409-F-1-C MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-263409-F-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 465900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	Evaporation	
MB 160-465900/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465900/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465900/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263409-F-1-E MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-F-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-J-1-F MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-G DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 465961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	PrecSep-7	
MB 160-465961/11-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-465961/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263409-F-1-K MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263409-F-1-L MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Rad

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263408-1	Outfall002_20200321_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Qualifiers

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

CHAIN OF CUSTODY FORM

440-263408 Chain of Custody

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact. Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.7): Fe, Mn		Comments
Outfall 002	Outfall002_20200321_Comp	3/21/2020 10:20	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		~~Outfall 001 analyze for Fe and Mn~~ Outfall 002 analyze for As and Mn ~~Outfall 011 analyze for Fe~~ ~~Outfall 018 analyze for Al~~
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall002_20200321_Comp_Extra	3/21/2020 10:20	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

LB 3/21/20

Relinquished By	Date/Time	Company	Received By	Date/Time
	3-21-2020/1130		EC-IRN	3-21-20 11:30
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3.21.20 1315	EC-IRN	EC-IRN	3/21/20 1315

Turn-around time: (Check)
24 Hour: _____ 72 Hour. _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal. _____

Sample Integrity: (Check)
Intact: _____ On Ice _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV _____ All Level IV: __X__

2.8/2.8 3.4/3.4 0.3/0.3 2.3/2.3 1.5/1.5 0.2/0.2
IR 89

CHAIN OF CUSTODY FORM

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 002
Comp

Project Manager. Katherine Miller
520.289.8606, 520 904.6944 (cell)

Field Manager: Mark Dominick
978 234.5033, 818.599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200 7) Zn (E200.8): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905 0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura, CA	Total Dissolved Metals: Mercury (E245.1)							Comments
Outfall 002	Outfall002_20200321_Comp_F	3/21/2020 /0820	WM	1L Poly	1	None	200	No	X											Filter and preserve w/in 24hrs of receipt at lab Outfall 001 analyze for Fe and Mn Outfall 002 analyze for As and Mn Outfall 011 analyze for Fe Outfall 018 analyze for Al
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200321_Comp	3/21/2020 /0820	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			~~WM~~ MD	~~1 Gal Cube~~	~~6~~	~~None~~	~~205~~	~~No~~												~~Only test if first or second run events at the year. Deliver to ABC Labs in Ventura, CA~~ MD

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-21-2020 /1130		[signature] EC-IRV	3-21-20 11:30
[signature]	3-21-20 13:15	EC-IRV	[signature] EC-IRV	3/21/20 1315

Turn-around time. (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154293.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263408-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/2/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200321_Comp (440-263408-1)	3/21/20	08:20 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: A. Kenney	Date/Time: 3/23/2020 1700	Company: EC-IRL	Received by: FE	Date/Time:	Company:
Relinquished by: FE	Date/Time:	Company:	Received by: Michael Koninkinger	Date/Time: 3/24/2020 08:15	Company: ETA STL
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks		

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins Cal Science

Initiated by: MK Date: 3/24/2020 Time: 08:15 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids. If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 3535	192688461	0.1	
2.	~~3533~~ 3557 MK 3/24/2020		3.1	
3.	3546		0.7	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y N	Are there custody seals present on the cooler?	8.	Y N	Are there custody seals present on bottles?
2.	Y N N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N N/A	Do custody seals on bottles appear to be tampered with?
3.	Y N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	Y N	Sample received with Chain of Custody?	11.	Y N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	Y N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y N	Sample received in proper containers?
6.	Y N	Was sample received broken?	13.	Y N N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	Y N	Is sample volume sufficient for analysis?	14.	Y N N/A	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Samples were received unpreserved. Samples were preserved upon arrival.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/24/2020 12:10

Preservative and lot#: HNO3 000024482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Page 1 of 1

ADMIN-0004 REV 21, REVISED 12/11/2018

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263408-2

Login Number: 263408
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263408-2

Login Number: 263408
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/24/20 12:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	Samples received unpreserved. Samples were preserved upon arrival.
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263408-1	Outfall002_20200321_Comp	73.4
440-263409-F-1-A MS	Matrix Spike	92.0
440-263409-F-1-B MSD	Matrix Spike Duplicate	83.8
LCS 160-465586/1-A	Lab Control Sample	93.6
MB 160-465586/20-A	Method Blank	90.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263408-1	Outfall002_20200321_Comp	73.4	68.0
440-263409-F-1-C MS	Matrix Spike	92.0	80.4
440-263409-F-1-D MSD	Matrix Spike Duplicate	83.8	83.0
LCS 160-465588/1-A	Lab Control Sample	93.6	84.1
MB 160-465588/20-A	Method Blank	90.5	79.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263408-1	Outfall002_20200321_Comp	79.8	62.8
440-263409-F-1-K MS	Matrix Spike	82.3	89.3
440-263409-F-1-L MSD	Matrix Spike Duplicate	79.5	83.7
LCS 160-465961/1-A	Lab Control Sample	87.2	93.5
MB 160-465961/11-A	Method Blank	86.1	95.3

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
440-263408-1	Outfall002_20200321_Comp	86.4
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263408-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-263408 Field Sheet

Tracking # : 1540-4107-3568

Job: _____

SO / ~~PO~~ / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+/-) 0.6 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.1 °C Corrected: 0.7 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 3/24/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/24/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WPC

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263672-1
Client Project/Site: Routine Outfall 002 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/1/2020 3:43:57 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/1/2020 3:43:57 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263672-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263672-1	Outfall002_20200326_Grab	Water	03/26/20 08:00	03/26/20 17:17	
440-263672-3	TB-20200326	Water	03/26/20 08:00	03/26/20 17:17	

Job ID: 440-263672-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263672-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2020 5:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-602598.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-603236 and analytical batch 440-603282. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200326_Grab
Lab Sample ID: 440-263672-1
Date Collected: 03/26/20 08:00
Matrix: Water
Date Received: 03/26/20 17:17

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 11:05	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 11:05	1
Trichloroethene	**0.69**		0.50	0.25	ug/L			03/27/20 11:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*60 - 140*		*03/27/20 11:05*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 140*		*03/27/20 11:05*	*1*
Toluene-d8 (Surr)	*102*		*60 - 140*		*03/27/20 11:05*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.5	1.5	mg/L		04/01/20 09:05	04/01/20 11:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**390**		1.0	1.0	umhos/cm			03/31/20 11:47	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/26/20 18:55	1

Client Sample ID: TB-20200326
Lab Sample ID: 440-263672-3
Date Collected: 03/26/20 08:00
Matrix: Water
Date Received: 03/26/20 17:17

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 12:27	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 12:27	1
Trichloroethene	ND		0.50	0.25	ug/L			03/27/20 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*60 - 140*		*03/27/20 12:27*	*1*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*03/27/20 12:27*	*1*
Toluene-d8 (Surr)	*105*		*60 - 140*		*03/27/20 12:27*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263672-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263672-1

Client Sample ID: Outfall002_20200326_Grab

Lab Sample ID: 440-263672-1

Date Collected: 03/26/20 08:00
Matrix: Water
Date Received: 03/26/20 17:17

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602664	03/27/20 11:05	MML	TAL IRV
Total/NA	Analysis	120.1		1			603108	03/31/20 11:47	XL	TAL IRV
Total/NA	Prep	1664A			910 mL	1000 mL	603236	04/01/20 09:05	JC1	TAL IRV
Total/NA	Analysis	1664A		1			603282	04/01/20 11:26	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	602598	03/26/20 18:55	HZ	TAL IRV

Client Sample ID: TB-20200326

Lab Sample ID: 440-263672-3

Date Collected: 03/26/20 08:00
Matrix: Water
Date Received: 03/26/20 17:17

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602664	03/27/20 12:27	MML	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602664/6
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 10:37	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 10:37	1
Trichloroethene	ND		0.50	0.25	ug/L			03/27/20 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*60 - 140*		*03/27/20 10:37*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 140*		*03/27/20 10:37*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*03/27/20 10:37*	*1*

Lab Sample ID: LCS 440-602664/1002
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	22.9		ug/L		91	19 - 212
1,2-Dichloroethane	25.0	26.8		ug/L		107	72 - 137
Trichloroethene	25.0	27.0		ug/L		108	75 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*60 - 140*
Dibromofluoromethane (Surr)	*110*		*60 - 140*
Toluene-d8 (Surr)	*96*		*60 - 140*

Lab Sample ID: 440-263672-1 MS
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Outfall002_20200326_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		10.0	8.75		ug/L		88	10 - 234
1,2-Dichloroethane	ND		10.0	9.82		ug/L		98	49 - 155
Trichloroethene	0.69		10.0	10.7		ug/L		100	70 - 157

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*60 - 140*
Dibromofluoromethane (Surr)	*108*		*60 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Lab Sample ID: 440-263672-1 MSD
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Outfall002_20200326_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		10.0	9.14		ug/L		91	10 - 234	4	32
1,2-Dichloroethane	ND		10.0	10.5		ug/L		105	49 - 155	7	49
Trichloroethene	0.69		10.0	11.0		ug/L		103	70 - 157	3	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263672-1 MSD
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Outfall002_20200326_Grab
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*83*		*60 - 140*
Dibromofluoromethane (Surr)	*111*		*60 - 140*
Toluene-d8 (Surr)	*103*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-603108/3
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/31/20 11:47	1

Lab Sample ID: LCS 440-603108/4
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Conductance			946	920		umhos/cm		97	90 - 110		

Lab Sample ID: 440-263672-1 DU
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Outfall002_20200326_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	390			394		umhos/cm				0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-603236/1-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603236

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/01/20 09:05	04/01/20 11:26	1

Lab Sample ID: LCS 440-603236/2-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603236

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	34.7		mg/L		87	78 - 114		

Lab Sample ID: LCSD 440-603236/3-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603236

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	34.1		mg/L		85	78 - 114	2	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263672-1

GC/MS VOA

Analysis Batch: 602664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263672-1	Outfall002_20200326_Grab	Total/NA	Water	624.1	
440-263672-3	TB-20200326	Total/NA	Water	624.1	
MB 440-602664/6	Method Blank	Total/NA	Water	624.1	
LCS 440-602664/1002	Lab Control Sample	Total/NA	Water	624.1	
440-263672-1 MS	Outfall002_20200326_Grab	Total/NA	Water	624.1	
440-263672-1 MSD	Outfall002_20200326_Grab	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 602598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263672-1	Outfall002_20200326_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 603108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263672-1	Outfall002_20200326_Grab	Total/NA	Water	120.1	
MB 440-603108/3	Method Blank	Total/NA	Water	120.1	
LCS 440-603108/4	Lab Control Sample	Total/NA	Water	120.1	
440-263672-1 DU	Outfall002_20200326_Grab	Total/NA	Water	120.1	

Prep Batch: 603236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263672-1	Outfall002_20200326_Grab	Total/NA	Water	1664A	
MB 440-603236/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-603236/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-603236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 603282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263672-1	Outfall002_20200326_Grab	Total/NA	Water	1664A	603236
MB 440-603236/1-A	Method Blank	Total/NA	Water	1664A	603236
LCS 440-603236/2-A	Lab Control Sample	Total/NA	Water	1664A	603236
LCSD 440-603236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	603236

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-263672-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263672-1
Project/Site: Routine Outfall 002 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America

CHAIN OF CUSTODY FORM

Page 1 of 1
~~Page 2 of 2~~
RH

V-JOUVKT

Client Name/Address. Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab
Test America Contact. Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520 904.6944 (cell)
Sampler. Dan Smith	Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 002	Outfall002_20200326_Grab	3/26/2020 / 0800	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	9	HCl	30	Yes		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall002_20200326_Grab_Extra	3/26/2020 / 0800	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			WM	500 mL Poly	1	None	75	No				H	Hold
Trip Blanks	TB-20200326	3/26/2020 / 0800	WQ	40 mL VOA	3	HCl	30	No		X			

Field Readings | Meter serial #

Field Readings: (include units)
Time of Readings: 0755
DO 11.97 mg/L
pH 6.77 pH unit
Temp 49.9 °C/F

Field readings QC
Checked by: [illegible]
Date/Time: 3 26 2020/0755

3/26/20 LD

440-263672 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3.26 2020/1525	H&A	[signature]	3/26/20 3:25PM
[signature]	3/26/20 5:17PM	DCS	[signature] EC-IRV	3/26/20 1717

Turn-around time: (Check)
24 Hour: ____ 72 Hour. ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal: ____

Sample Integrity: (Check)
Intact: ____ On Ice: ____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: ____ All Level IV: X

06/06 1089

4/1/2020

2019-2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263672-1

Login Number: 263672
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263721-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263721-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL002_20200327_COMP	440-263721-1	N/A	Water	3/27/20 8:45 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263721-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (968 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, OCDD and OCDF, and for totals HpCDD, HpCDF, HxCDD and HxCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. The total for HxCDF and HpCDD were comprised only of peaks qualified for method blank contamination and therefore were qualified as nondetects (U). Remaining sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 968 ml sample volume was available for extraction.

Isomers and total HpCDD and HxCDF previously qualified as method blank contamination were not further qualified as EMPCs. Isomer 1,2,3,4,7,8,9-HpCDF reported as an EMPC was qualified as estimated nondetects (UJ) at the level of the EMPC. Total HpCDF consisted of a blank contaminant and an EMPC and was therefore qualified as an estimated nondetect (UJ).

Validated Sample Result Forms: 4402637211

Analysis Method E1613B

Sample Name OUTFALL002_20200327_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/27/2020 8:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263721-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000090	0.00010	0.0000011	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000018	0.00010	0.00000091	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000032	0.000052	0.00000066	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000041	0.000052	0.00000039	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000024	0.000052	0.00000071	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000026	0.000052	0.00000051	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000038	0.000052	0.00000086	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000032	0.000052	0.00000051	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000039	0.000052	0.00000092	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000042	0.000052	0.00000056	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000034	0.000052	0.00000081	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000030	0.000052	0.00000072	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000030	0.000052	0.0000012	ug/L	J,DX	J	DNQ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000030	0.000052	0.00000055	ug/L	J,DXMB	U	B
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000027	0.000052	0.00000078	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000068	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.0000018	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000055	0.000052	0.00000066	ug/L	J,DXqMB	UJ	B, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000041	0.000052	0.00000039	ug/L	J,DXMB	U	B
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000013	0.000052	0.00000051	ug/L	J,DXMB	U	B
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000011	0.000052	0.00000081	ug/L	J,DXqMB	J	B, *III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000057	0.000052	0.00000072	ug/L	J,DX	J	DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000030	0.000052	0.0000012	ug/L	J,DX	J	DNQ
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000068	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.0000018	ug/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263721-1
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/7/2020 4:54:19 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 4:54:19 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263721-1	Outfall002_20200327_Comp	Water	03/27/20 08:45	03/27/20 14:15	
440-263721-3	Outfall002_20200327_Comp_F	Water	03/27/20 08:45	03/27/20 14:15	

Job ID: 440-263721-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263721-1

Comments
No additional comments.

Receipt
The samples were received on 3/27/2020 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 0.9º C, 1.4º C, 2.1º C and 3.3º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20200327_Comp (440-263721-1), (CCV 320-369380/2), (LCS 320-369142/2-A) and (MB 320-369142/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20200327_Comp_F (440-263721-3), Outfall002_20200327_Comp_F (440-263721-3[MS]) and Outfall002_20200327_Comp_F (440-263721-3[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

03/27/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for analytical batch 440-603103 contained Magnesium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall002_20200327_Comp (440-263721-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-369142

Job ID: 440-263721-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200327_Comp

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.6	0.11	ug/L		03/30/20 06:05	04/01/20 12:52	1
Bis(2-ethylhexyl) phthalate	ND		5.5	2.2	ug/L		03/30/20 06:05	04/01/20 12:52	1
N-Nitrosodimethylamine	ND		5.5	0.33	ug/L		03/30/20 06:05	04/01/20 12:52	1
Pentachlorophenol	ND		5.5	1.1	ug/L		03/30/20 06:05	04/01/20 12:52	1
2,4-Dinitrotoluene	ND		5.5	2.2	ug/L		03/30/20 06:05	04/01/20 12:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*104*		*60 - 120*	*03/30/20 06:05*	*04/01/20 12:52*	*1*
2-Fluorobiphenyl	*86*		*51 - 120*	*03/30/20 06:05*	*04/01/20 12:52*	*1*
2-Fluorophenol	*84*		*43 - 120*	*03/30/20 06:05*	*04/01/20 12:52*	*1*
Nitrobenzene-d5	*97*		*53 - 150*	*03/30/20 06:05*	*04/01/20 12:52*	*1*
Phenol-d5	*74*		*45 - 150*	*03/30/20 06:05*	*04/01/20 12:52*	*1*
Terphenyl-d14	*118*		*12 - 142*	*03/30/20 06:05*	*04/01/20 12:52*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.11	0.021	ug/L		03/31/20 05:34	03/31/20 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*10 - 104*	*03/31/20 05:34*	*03/31/20 16:23*	*1*
DCB Decachlorobiphenyl (Surr)	*74*		*18 - 134*	*03/31/20 05:34*	*03/31/20 16:23*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.4**		0.50	0.25	mg/L			03/27/20 17:28	1
Nitrate as N	**0.15**		0.11	0.055	mg/L			03/27/20 17:28	1
Nitrite as N	ND		0.15	0.025	mg/L			03/27/20 17:28	1

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**98**		2.5	1.3	mg/L			03/27/20 17:56	5

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/30/20 11:29	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.15**		0.15	0.055	mg/L			03/31/20 10:22	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000018	ug/L		04/01/20 07:34	04/02/20 00:10	1
2,3,7,8-TCDF	ND		0.000010	0.00000068	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,7,8-PeCDD	**0.0000030**	**J,DX**	0.000052	0.0000012	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,7,8-PeCDF	**0.0000030**	**J,DX**	0.000052	0.00000072	ug/L		04/01/20 07:34	04/02/20 00:10	1
2,3,4,7,8-PeCDF	**0.0000027**	**J,DX**	0.000052	0.00000078	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,4,7,8-HxCDD	**0.0000038**	**J,DX q MB**	0.000052	0.00000086	ug/L		04/01/20 07:34	04/02/20 00:10	1

Client Sample ID: Outfall002_20200327_Comp

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,6,7,8-HxCDD	0.0000039	J,DX MB	0.000052	0.00000092	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,7,8,9-HxCDD	0.0000034	J,DX	0.000052	0.00000081	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,4,7,8-HxCDF	0.0000026	J,DX MB	0.000052	0.00000051	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,6,7,8-HxCDF	0.0000032	J,DX MB	0.000052	0.00000051	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,7,8,9-HxCDF	0.0000042	J,DX MB	0.000052	0.00000056	ug/L		04/01/20 07:34	04/02/20 00:10	1
2,3,4,6,7,8-HxCDF	0.0000030	J,DX MB	0.000052	0.00000055	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,4,6,7,8-HpCDD	0.0000041	J,DX MB	0.000052	0.00000039	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,4,6,7,8-HpCDF	0.0000032	J,DX MB	0.000052	0.00000066	ug/L		04/01/20 07:34	04/02/20 00:10	1
1,2,3,4,7,8,9-HpCDF	0.0000024	J,DX q	0.000052	0.00000071	ug/L		04/01/20 07:34	04/02/20 00:10	1
OCDD	0.000018	J,DX MB	0.00010	0.00000091	ug/L		04/01/20 07:34	04/02/20 00:10	1
OCDF	0.0000090	J,DX MB	0.00010	0.0000011	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total TCDD	ND		0.000010	0.0000018	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total TCDF	ND		0.000010	0.00000068	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total PeCDD	0.0000030	J,DX	0.000052	0.0000012	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total PeCDF	0.0000057	J,DX	0.000052	0.00000072	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total HxCDD	0.000011	J,DX q MB	0.000052	0.00000081	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total HxCDF	0.000013	J,DX MB	0.000052	0.00000051	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total HpCDD	0.0000041	J,DX MB	0.000052	0.00000039	ug/L		04/01/20 07:34	04/02/20 00:10	1
Total HpCDF	0.0000055	J,DX q MB	0.000052	0.00000066	ug/L		04/01/20 07:34	04/02/20 00:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*87*		*25 - 164*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-2,3,7,8-TCDF	*91*		*24 - 169*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,7,8-PeCDD	*93*		*25 - 181*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,7,8-PeCDF	*94*		*24 - 185*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-2,3,4,7,8-PeCDF	*101*		*21 - 178*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,4,7,8-HxCDD	*96*		*32 - 141*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,6,7,8-HxCDD	*85*		*28 - 130*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,4,7,8-HxCDF	*107*		*26 - 152*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,6,7,8-HxCDF	*99*		*26 - 123*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,7,8,9-HxCDF	*94*		*29 - 147*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-2,3,4,6,7,8-HxCDF	*95*		*28 - 136*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*92*		*23 - 140*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*98*		*28 - 143*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*101*		*26 - 138*	*04/01/20 07:34*	*04/02/20 00:10*	*1*
13C-OCDD	*87*		*17 - 157*	*04/01/20 07:34*	*04/02/20 00:10*	*1*

Client Sample ID: Outfall002_20200327_Comp

Lab Sample ID: 440-263721-1

Date Collected: 03/27/20 08:45

Matrix: Water

Date Received: 03/27/20 14:15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*85*		*35 - 197*	*04/01/20 07:34*	*04/02/20 00:10*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		03/30/20 09:20	03/30/20 22:16	1
Zinc	ND		20	12	ug/L		03/30/20 09:20	03/30/20 22:16	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/30/20 09:30	03/30/20 15:18	1
Copper	**2.1**		2.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:18	1
Lead	ND		1.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:18	1
Selenium	ND		2.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:18	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:51	03/30/20 20:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.74**		0.10	0.040	NTU			03/27/20 14:32	1
Total Dissolved Solids	**250**		10	5.0	mg/L			03/30/20 10:08	1
Total Suspended Solids	ND		1.0	0.50	mg/L			03/27/20 18:00	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/02/20 12:47	04/03/20 12:13	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/07/20 12:40	1
Methylene Blue Active Substances	**0.10**		0.10	0.050	mg/L			03/27/20 17:20	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/27/20 17:13	1

Client Sample ID: Outfall002_20200327_Comp_F

Lab Sample ID: 440-263721-3

Date Collected: 03/27/20 08:45

Matrix: Water

Date Received: 03/27/20 14:15

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		03/27/20 17:53	03/31/20 14:14	1
Zinc	ND		20	12	ug/L		03/27/20 17:53	03/31/20 14:14	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 17:49	03/27/20 22:11	1
Copper	**1.8**	**J,DX**	2.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:11	1
Lead	ND		1.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:11	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:11	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:47	03/30/20 20:42	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Client Sample ID: Outfall002_20200327_Comp

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			910 mL	2.0 mL	602872	03/30/20 06:05	NAM	TAL IRV
Total/NA	Analysis	625.1		1			603269	04/01/20 12:52	JS1	TAL IRV
Total/NA	Prep	608			945 mL	2 mL	603028	03/31/20 05:34	L1H	TAL IRV
Total/NA	Analysis	608.3		1			603114	03/31/20 16:23	D1D	TAL IRV
Total/NA	Analysis	300.0		1			602657	03/27/20 17:28	NTN	TAL IRV
Total/NA	Analysis	300.0		1			602658	03/27/20 17:28	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			602657	03/27/20 17:56	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			602658	03/27/20 17:56	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602901	03/30/20 11:29	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			603121	03/31/20 10:22	TLN	TAL IRV
Total/NA	Prep	1613B			967.5 mL	20 uL	369142	04/01/20 07:34	RDR	TAL SAC
Total/NA	Analysis	1613B		1			369380	04/02/20 00:10	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602763	03/30/20 09:20	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			603103	03/30/20 22:16	KE	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602761	03/30/20 09:30	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			603011	03/30/20 15:18	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602979	03/30/20 13:51	MEM	TAL IRV
Total/NA	Analysis	245.1		1			603125	03/30/20 20:19	MEM	TAL IRV
Total/NA	Analysis	180.1		1			602755	03/27/20 14:32	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	602929	03/30/20 10:08	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	602742	03/27/20 18:00	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	603465	04/02/20 12:47	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			603643	04/03/20 12:13	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	604043	04/07/20 12:40	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	602782	03/27/20 17:20	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	602744	03/27/20 17:13	MMP	TAL IRV

Client Sample ID: Outfall002_20200327_Comp_F

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602775	03/27/20 16:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602786	03/27/20 17:53	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			603167	03/31/20 14:14	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602775	03/27/20 16:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602785	03/27/20 17:49	M1G	TAL IRV
Dissolved	Analysis	200.8		1			602891	03/27/20 22:11	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	602774	03/27/20 16:47	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	602975	03/30/20 13:47	MEM	TAL IRV
Dissolved	Analysis	245.1		1			603021	03/30/20 20:42	MEM	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602872/1-A
Matrix: Water
Analysis Batch: 603269

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602872

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		03/30/20 06:05	04/01/20 12:04	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/30/20 06:05	04/01/20 12:04	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		03/30/20 06:05	04/01/20 12:04	1
Pentachlorophenol	ND		5.0	1.0	ug/L		03/30/20 06:05	04/01/20 12:04	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/30/20 06:05	04/01/20 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*83*		*60 - 120*	*03/30/20 06:05*	*04/01/20 12:04*	*1*
2-Fluorobiphenyl	*80*		*51 - 120*	*03/30/20 06:05*	*04/01/20 12:04*	*1*
2-Fluorophenol	*76*		*43 - 120*	*03/30/20 06:05*	*04/01/20 12:04*	*1*
Nitrobenzene-d5	*88*		*53 - 150*	*03/30/20 06:05*	*04/01/20 12:04*	*1*
Phenol-d5	*76*		*45 - 150*	*03/30/20 06:05*	*04/01/20 12:04*	*1*
Terphenyl-d14	*98*		*12 - 142*	*03/30/20 06:05*	*04/01/20 12:04*	*1*

Lab Sample ID: LCS 440-602872/2-A
Matrix: Water
Analysis Batch: 603269

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	15.0	15.4		ug/L		103	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	14.6		ug/L		98	29 - 137
N-Nitrosodimethylamine	15.0	12.3		ug/L		82	60 - 140
Pentachlorophenol	30.0	28.3		ug/L		94	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*105*		*60 - 120*
2-Fluorobiphenyl	*88*		*51 - 120*
2-Fluorophenol	*78*		*43 - 120*
Nitrobenzene-d5	*89*		*53 - 150*
Phenol-d5	*82*		*45 - 150*
Terphenyl-d14	*108*		*12 - 142*

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603269

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 602872

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	ND		16.0	15.0		ug/L		93	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.0	14.8		ug/L		93	8 - 158
N-Nitrosodimethylamine	ND		16.0	13.1		ug/L		82	60 - 140
Pentachlorophenol	ND		32.1	31.3		ug/L		98	14 - 176

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*95*		*60 - 120*
2-Fluorobiphenyl	*76*		*51 - 120*
2-Fluorophenol	*74*		*43 - 120*
Nitrobenzene-d5	*87*		*53 - 150*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603269

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 602872

Surrogate	MS %Recovery	MS Qualifier	Limits
Phenol-d5	*72*		*45 - 150*
Terphenyl-d14	*113*		*12 - 142*

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 603269

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 602872

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	ND		16.3	15.9		ug/L		97	37 - 144	6	58
Bis(2-ethylhexyl) phthalate	ND		16.3	17.0		ug/L		104	8 - 158	13	82
N-Nitrosodimethylamine	ND		16.3	14.1		ug/L		86	60 - 140	7	35
Pentachlorophenol	ND		32.6	34.5		ug/L		106	14 - 176	10	86

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	*103*		*60 - 120*
2-Fluorobiphenyl	*79*		*51 - 120*
2-Fluorophenol	*79*		*43 - 120*
Nitrobenzene-d5	*90*		*53 - 150*
Phenol-d5	*80*		*45 - 150*
Terphenyl-d14	*112*		*12 - 142*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-603028/1-A
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603028

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/31/20 05:34	03/31/20 14:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	*75*		*10 - 104*	*03/31/20 05:34*	*03/31/20 14:38*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*18 - 134*	*03/31/20 05:34*	*03/31/20 14:38*	*1*

Lab Sample ID: LCS 440-603028/2-A
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603028

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC			0.400	0.307		ug/L		77	37 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	*70*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*83*		*18 - 134*

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 603028

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
alpha-BHC	ND		0.421	0.279		ug/L		66	37 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*60*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*78*		*18 - 134*

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 603028

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC	ND		0.419	0.282		ug/L		67	37 - 140	1	36

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*60*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*77*		*18 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-602657/6
Matrix: Water
Analysis Batch: 602657

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/27/20 10:29	1
Nitrite as N	ND		0.15	0.025	mg/L			03/27/20 10:29	1

Lab Sample ID: LCS 440-602657/5
Matrix: Water
Analysis Batch: 602657

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.14		mg/L		101	90 - 110
Nitrite as N	1.52	1.47		mg/L		97	90 - 110

Lab Sample ID: MB 440-602658/6
Matrix: Water
Analysis Batch: 602658

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/27/20 10:29	1
Sulfate	ND		0.50	0.25	mg/L			03/27/20 10:29	1

Lab Sample ID: LCS 440-602658/5
Matrix: Water
Analysis Batch: 602658

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.76		mg/L		95	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-602658/5
Matrix: Water
Analysis Batch: 602658

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			5.00	4.94		mg/L		99	90 - 110		

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 602657

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N - DL	ND		5.65	5.69		mg/L		101	80 - 120		
Nitrite as N - DL	ND		7.61	7.17		mg/L		94	80 - 120		

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 602657

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N - DL	ND		5.65	5.66		mg/L		100	80 - 120	1	20
Nitrite as N - DL	ND		7.61	7.13		mg/L		94	80 - 120	0	20

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 602658

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride - DL	7.1		25.0	31.8		mg/L		99	80 - 120		
Sulfate - DL	98		25.0	127		mg/L		115	80 - 120		

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 602658

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride - DL	7.1		25.0	31.6		mg/L		98	80 - 120	1	20
Sulfate - DL	98		25.0	126		mg/L		112	80 - 120	1	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602901/6
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/30/20 10:33	1

Lab Sample ID: LCS 440-602901/5
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			25.0	24.6		ug/L		98	85 - 115		

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MRL 440-602901/4
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			1.00	1.05	J,DX	ug/L		105	75 - 125		

Lab Sample ID: MRL 440-602901/8
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			4.00	4.30		ug/L		107	75 - 125		

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	ND		25.0	24.7		ug/L		99	80 - 120		

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 602901

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	25.2		ug/L		101	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-369142/1-A
Matrix: Water
Analysis Batch: 369380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 369142

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000016	ug/L		04/01/20 07:34	04/01/20 22:34	1
2,3,7,8-TCDF	ND		0.000010	0.00000062	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000012	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000071	ug/L		04/01/20 07:34	04/01/20 22:34	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000071	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,4,7,8-HxCDD	0.00000218	J,DX q	0.000050	0.00000082	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,6,7,8-HxCDD	0.00000105	J,DX q	0.000050	0.00000087	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000078	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,4,7,8-HxCDF	0.000000937	J,DX q	0.000050	0.00000052	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,6,7,8-HxCDF	0.00000101	J,DX q	0.000050	0.00000049	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,7,8,9-HxCDF	0.00000175	J,DX	0.000050	0.00000047	ug/L		04/01/20 07:34	04/01/20 22:34	1
2,3,4,6,7,8-HxCDF	0.000000703	J,DX q	0.000050	0.00000040	ug/L		04/01/20 07:34	04/01/20 22:34	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-369142/1-A
Matrix: Water
Analysis Batch: 369380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 369142

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.00000201	J,DX	0.000050	0.00000042	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,4,6,7,8-HpCDF	0.00000149	J,DX q	0.000050	0.00000079	ug/L		04/01/20 07:34	04/01/20 22:34	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000081	ug/L		04/01/20 07:34	04/01/20 22:34	1
OCDD	0.00000819	J,DX	0.00010	0.00000098	ug/L		04/01/20 07:34	04/01/20 22:34	1
OCDF	0.00000399	J,DX	0.00010	0.0000012	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total TCDD	ND		0.000010	0.0000016	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total TCDF	ND		0.000010	0.00000062	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total PeCDD	ND		0.000050	0.0000012	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total PeCDF	ND		0.000050	0.00000071	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total HxCDD	0.00000323	J,DX q	0.000050	0.00000078	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total HxCDF	0.00000439	J,DX q	0.000050	0.00000040	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total HpCDD	0.00000291	J,DX q	0.000050	0.00000042	ug/L		04/01/20 07:34	04/01/20 22:34	1
Total HpCDF	0.00000222	J,DX q	0.000050	0.00000079	ug/L		04/01/20 07:34	04/01/20 22:34	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*86*		*25 - 164*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-2,3,7,8-TCDF	*86*		*24 - 169*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,7,8-PeCDD	*86*		*25 - 181*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,7,8-PeCDF	*77*		*24 - 185*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-2,3,4,7,8-PeCDF	*94*		*21 - 178*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,4,7,8-HxCDD	*90*		*32 - 141*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,6,7,8-HxCDD	*81*		*28 - 130*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,4,7,8-HxCDF	*89*		*26 - 152*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,6,7,8-HxCDF	*82*		*26 - 123*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,7,8,9-HxCDF	*86*		*29 - 147*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-2,3,4,6,7,8-HxCDF	*99*		*28 - 136*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*82*		*23 - 140*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*80*		*28 - 143*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*87*		*26 - 138*	*04/01/20 07:34*	*04/01/20 22:34*	*1*
13C-OCDD	*76*		*17 - 157*	*04/01/20 07:34*	*04/01/20 22:34*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*86*		*35 - 197*	*04/01/20 07:34*	*04/01/20 22:34*	*1*

Lab Sample ID: LCS 320-369142/2-A
Matrix: Water
Analysis Batch: 369380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 369142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000218		ug/L		109	67 - 158
2,3,7,8-TCDF	0.000200	0.000255		ug/L		128	75 - 158

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-369142/2-A
Matrix: Water
Analysis Batch: 369380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 369142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,7,8-PeCDD	0.00100	0.00107		ug/L		107	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00120		ug/L		120	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00114		ug/L		114	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00105	MB	ug/L		105	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00115	MB	ug/L		115	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00107		ug/L		107	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00110	MB	ug/L		110	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00119	MB	ug/L		119	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00123	MB	ug/L		123	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00121	MB	ug/L		121	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00104	MB	ug/L		104	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00109	MB	ug/L		109	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00100		ug/L		100	78 - 138
OCDD	0.00200	0.00206	MB	ug/L		103	78 - 144
OCDF	0.00200	0.00245	MB	ug/L		122	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*85*		*20 - 175*
13C-2,3,7,8-TCDF	*88*		*22 - 152*
13C-1,2,3,7,8-PeCDD	*93*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*85*		*21 - 192*
13C-2,3,4,7,8-PeCDF	*101*		*13 - 328*
13C-1,2,3,4,7,8-HxCDD	*89*		*21 - 193*
13C-1,2,3,6,7,8-HxCDD	*83*		*25 - 163*
13C-1,2,3,4,7,8-HxCDF	*84*		*19 - 202*
13C-1,2,3,6,7,8-HxCDF	*77*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*92*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*92*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*73*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*79*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*81*		*20 - 186*
13C-OCDD	*73*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*84*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602763/1-A
Matrix: Water
Analysis Batch: 603103

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		03/30/20 09:20	03/30/20 22:10	1
Zinc	ND		20	12	ug/L		03/30/20 09:20	03/30/20 22:10	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-602763/2-A
Matrix: Water
Analysis Batch: 603103

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602763

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			0.500	0.471		mg/L		94	85 - 115		
Zinc			500	491		ug/L		98	85 - 115		

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603103

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total Recoverable
Prep Batch: 602763

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	ND		0.500	0.584		mg/L		117	70 - 130		
Zinc	ND		500	496		ug/L		99	70 - 130		

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 603103

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total Recoverable
Prep Batch: 602763

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	ND		0.500	0.536		mg/L		107	70 - 130	9	20
Zinc	ND		500	489		ug/L		98	70 - 130	1	20

Lab Sample ID: MB 440-602775/1-C
Matrix: Water
Analysis Batch: 603167

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602786

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		03/27/20 17:53	03/31/20 14:09	1
Zinc	ND		20	12	ug/L		03/27/20 17:53	03/31/20 14:09	1

Lab Sample ID: LCS 440-602775/2-C
Matrix: Water
Analysis Batch: 603167

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602786

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			0.500	0.470		mg/L		94	85 - 115		
Zinc			500	482		ug/L		96	85 - 115		

Lab Sample ID: 440-263721-3 MS
Matrix: Water
Analysis Batch: 603167

Client Sample ID: Outfall002_20200327_Comp_F
Prep Type: Dissolved
Prep Batch: 602786

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	ND		0.500	0.482		mg/L		96	70 - 130		
Zinc	ND		500	482		ug/L		96	70 - 130		

Lab Sample ID: 440-263721-3 MSD
Matrix: Water
Analysis Batch: 603167

Client Sample ID: Outfall002_20200327_Comp_F
Prep Type: Dissolved
Prep Batch: 602786

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	ND		0.500	0.479		mg/L		96	70 - 130	1	20
Zinc	ND		500	487		ug/L		97	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602761/1-A
Matrix: Water
Analysis Batch: 603011

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/30/20 09:30	03/30/20 15:13	1
Copper	ND		2.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:13	1
Lead	ND		1.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:13	1
Selenium	ND		2.0	0.50	ug/L		03/30/20 09:30	03/30/20 15:13	1

Lab Sample ID: LCS 440-602761/2-A
Matrix: Water
Analysis Batch: 603011

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	82.8		ug/L		104	85 - 115
Copper	80.0	82.6		ug/L		103	85 - 115
Lead	80.0	81.0		ug/L		101	85 - 115
Selenium	80.0	80.9		ug/L		101	85 - 115

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603011

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total Recoverable
Prep Batch: 602761

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	78.9		ug/L		99	70 - 130
Copper	2.1		80.0	82.1		ug/L		100	70 - 130
Lead	ND		80.0	78.1		ug/L		98	70 - 130
Selenium	ND		80.0	75.2		ug/L		94	70 - 130

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 603011

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total Recoverable
Prep Batch: 602761

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	81.6		ug/L		102	70 - 130	3	20
Copper	2.1		80.0	83.7		ug/L		102	70 - 130	2	20
Lead	ND		80.0	82.2		ug/L		103	70 - 130	5	20
Selenium	ND		80.0	78.5		ug/L		98	70 - 130	4	20

Lab Sample ID: MB 440-602775/1-B
Matrix: Water
Analysis Batch: 602891

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602785

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 17:49	03/27/20 22:07	1
Copper	ND		2.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:07	1
Lead	ND		1.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:07	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 17:49	03/27/20 22:07	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-602775/2-B
Matrix: Water
Analysis Batch: 602891

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602785

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium			80.0	69.3		ug/L		87	85 - 115		
Copper			80.0	68.9		ug/L		86	85 - 115		
Lead			80.0	69.8		ug/L		87	85 - 115		
Selenium			80.0	69.7		ug/L		87	85 - 115		

Lab Sample ID: 440-263721-3 MS
Matrix: Water
Analysis Batch: 602891

Client Sample ID: Outfall002_20200327_Comp_F
Prep Type: Dissolved
Prep Batch: 602785

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium	ND		80.0	68.2		ug/L		85	70 - 130		
Copper	1.8	J,DX	80.0	70.2		ug/L		85	70 - 130		
Lead	ND		80.0	69.7		ug/L		87	70 - 130		
Selenium	ND		80.0	67.5		ug/L		84	70 - 130		

Lab Sample ID: 440-263721-3 MSD
Matrix: Water
Analysis Batch: 602891

Client Sample ID: Outfall002_20200327_Comp_F
Prep Type: Dissolved
Prep Batch: 602785

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	68.1		ug/L		85	70 - 130	0	20
Copper	1.8	J,DX	80.0	70.1		ug/L		85	70 - 130	0	20
Lead	ND		80.0	68.7		ug/L		86	70 - 130	1	20
Selenium	ND		80.0	69.2		ug/L		87	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602979/1-A
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602979

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:51	03/30/20 20:15	1

Lab Sample ID: LCS 440-602979/2-A
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602979

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			4.00	3.83		ug/L		96	85 - 115		

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 602979

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		4.00	3.76		ug/L		94	75 - 125		

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263721-1 MSD — **Client Sample ID: Outfall002_20200327_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 603125 — **Prep Batch: 602979**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.84		ug/L		96	75 - 125	2	20

Lab Sample ID: MB 440-602774/1-B — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 603021 — **Prep Batch: 602975**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:47	03/30/20 20:38	1

Lab Sample ID: LCS 440-602774/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 603021 — **Prep Batch: 602975**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.97		ug/L		99	85 - 115

Lab Sample ID: 440-263721-3 MS — **Client Sample ID: Outfall002_20200327_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 603021 — **Prep Batch: 602975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.05		ug/L		101	75 - 125

Lab Sample ID: 440-263721-3 MSD — **Client Sample ID: Outfall002_20200327_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 603021 — **Prep Batch: 602975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.10		ug/L		103	75 - 125	1	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-602755/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 602755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/27/20 14:32	1

Lab Sample ID: 320-59844-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 602755

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	1.9		1.96		NTU		3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-602929/1
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/30/20 10:08	1

Lab Sample ID: LCS 440-602929/2
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1000		mg/L		100	90 - 110

Lab Sample ID: 590-12964-B-1 DU
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1400		1380		mg/L		3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602742/1
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/27/20 18:00	1

Lab Sample ID: LCS 440-602742/2
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	921		mg/L		92	85 - 115

Lab Sample ID: 440-263646-B-1 DU
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	220		235		mg/L		7	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-603465/1-A
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603465

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/02/20 12:47	04/03/20 12:13	1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCS 440-603465/2-A
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	98.3		ug/L		98	75 - 125

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	106		ug/L		106	75 - 125	8	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-604043/10
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			04/07/20 12:29	1

Lab Sample ID: LCS 440-604043/11
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	4.940		mg/L		99	90 - 110

Lab Sample ID: MRL 440-604043/9
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.1640	J,DX	mg/L		82	50 - 150

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND		5.00	4.950		mg/L		99	90 - 110

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND		5.00	4.740		mg/L		95	90 - 110	4	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-602782/4
Matrix: Water
Analysis Batch: 602782

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/27/20 17:19	1

Lab Sample ID: LCS 440-602782/5
Matrix: Water
Analysis Batch: 602782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.239		mg/L		95	90 - 110

Lab Sample ID: MRL 440-602782/3
Matrix: Water
Analysis Batch: 602782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.0918	J,DX	mg/L		92	50 - 150

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 602782

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.10		0.250	0.325		mg/L		90	50 - 125

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 602782

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.10		0.250	0.363		mg/L		105	50 - 125	11	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-602744/3
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/27/20 13:01	1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-602744/7
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			199	196		mg/L		99	85 - 115		

Lab Sample ID: LCSD 440-602744/8
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	189		mg/L		95	85 - 115	3	20

Lab Sample ID: LCSD 440-602744/9
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	188		mg/L		95	85 - 115	4	20

Lab Sample ID: 440-263671-J-1 DU
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	ND			ND		mg/L				NC	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

GC/MS Semi VOA

Prep Batch: 602872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	625	
MB 440-602872/1-A	Method Blank	Total/NA	Water	625	
LCS 440-602872/2-A	Lab Control Sample	Total/NA	Water	625	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	625	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	625	

Analysis Batch: 603269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	625.1	602872
MB 440-602872/1-A	Method Blank	Total/NA	Water	625.1	602872
LCS 440-602872/2-A	Lab Control Sample	Total/NA	Water	625.1	602872
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	625.1	602872
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	625.1	602872

GC Semi VOA

Prep Batch: 603028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	608	
MB 440-603028/1-A	Method Blank	Total/NA	Water	608	
LCS 440-603028/2-A	Lab Control Sample	Total/NA	Water	608	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	608	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	608	

Analysis Batch: 603114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	608.3	603028
MB 440-603028/1-A	Method Blank	Total/NA	Water	608.3	603028
LCS 440-603028/2-A	Lab Control Sample	Total/NA	Water	608.3	603028
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	608.3	603028
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	608.3	603028

HPLC/IC

Analysis Batch: 602657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	300.0	
440-263721-1 - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	
MB 440-602657/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602657/5	Lab Control Sample	Total/NA	Water	300.0	
440-263721-1 MS - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	
440-263721-1 MSD - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	

Analysis Batch: 602658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	300.0	
440-263721-1 - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	
MB 440-602658/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602658/5	Lab Control Sample	Total/NA	Water	300.0	
440-263721-1 MS - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	
440-263721-1 MSD - DL	Outfall002_20200327_Comp	Total/NA	Water	300.0	

HPLC/IC

Analysis Batch: 602901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	314.0	
MB 440-602901/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602901/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602901/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602901/8	Lab Control Sample	Total/NA	Water	314.0	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	314.0	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	314.0	

Analysis Batch: 603121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 369142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	1613B	
MB 320-369142/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-369142/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 369380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	1613B	369142
MB 320-369142/1-A	Method Blank	Total/NA	Water	1613B	369142
LCS 320-369142/2-A	Lab Control Sample	Total/NA	Water	1613B	369142

Metals

Prep Batch: 602761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	
MB 440-602761/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602761/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263721-1 MS	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	
440-263721-1 MSD	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	

Prep Batch: 602763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	
MB 440-602763/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602763/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263721-1 MS	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	
440-263721-1 MSD	Outfall002_20200327_Comp	Total Recoverable	Water	200.2	

Filtration Batch: 602774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602774/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602774/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	

Metals

Filtration Batch: 602775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602775/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-602775/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602775/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-602775/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 602785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775
MB 440-602775/1-B	Method Blank	Dissolved	Water	200.2	602775
LCS 440-602775/2-B	Lab Control Sample	Dissolved	Water	200.2	602775
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775

Prep Batch: 602786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775
MB 440-602775/1-C	Method Blank	Dissolved	Water	200.2	602775
LCS 440-602775/2-C	Lab Control Sample	Dissolved	Water	200.2	602775
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	200.2	602775

Analysis Batch: 602891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	200.8	602785
MB 440-602775/1-B	Method Blank	Dissolved	Water	200.8	602785
LCS 440-602775/2-B	Lab Control Sample	Dissolved	Water	200.8	602785
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	200.8	602785
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	200.8	602785

Prep Batch: 602975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602774
MB 440-602774/1-B	Method Blank	Dissolved	Water	245.1	602774
LCS 440-602774/2-B	Lab Control Sample	Dissolved	Water	245.1	602774
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602774
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602774

Prep Batch: 602979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	245.1	
MB 440-602979/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602979/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	245.1	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	245.1	

Analysis Batch: 603011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total Recoverable	Water	200.8	602761

Metals (Continued)

Analysis Batch: 603011 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602761/1-A	Method Blank	Total Recoverable	Water	200.8	602761
LCS 440-602761/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602761
440-263721-1 MS	Outfall002_20200327_Comp	Total Recoverable	Water	200.8	602761
440-263721-1 MSD	Outfall002_20200327_Comp	Total Recoverable	Water	200.8	602761

Analysis Batch: 603021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602975
MB 440-602774/1-B	Method Blank	Dissolved	Water	245.1	602975
LCS 440-602774/2-B	Lab Control Sample	Dissolved	Water	245.1	602975
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602975
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	245.1	602975

Analysis Batch: 603103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total Recoverable	Water	200.7 Rev 4.4	602763
MB 440-602763/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602763
LCS 440-602763/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602763
440-263721-1 MS	Outfall002_20200327_Comp	Total Recoverable	Water	200.7 Rev 4.4	602763
440-263721-1 MSD	Outfall002_20200327_Comp	Total Recoverable	Water	200.7 Rev 4.4	602763

Analysis Batch: 603125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	245.1	602979
MB 440-602979/1-A	Method Blank	Total/NA	Water	245.1	602979
LCS 440-602979/2-A	Lab Control Sample	Total/NA	Water	245.1	602979
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	245.1	602979
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	245.1	602979

Analysis Batch: 603167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-3	Outfall002_20200327_Comp_F	Dissolved	Water	200.7 Rev 4.4	602786
MB 440-602775/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	602786
LCS 440-602775/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	602786
440-263721-3 MS	Outfall002_20200327_Comp_F	Dissolved	Water	200.7 Rev 4.4	602786
440-263721-3 MSD	Outfall002_20200327_Comp_F	Dissolved	Water	200.7 Rev 4.4	602786

General Chemistry

Analysis Batch: 602742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM 2540D	
MB 440-602742/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602742/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263646-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 602744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM5210B	
USB 440-602744/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-602744/7	Lab Control Sample	Total/NA	Water	SM5210B	

General Chemistry (Continued)

Analysis Batch: 602744 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 440-602744/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-602744/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263671-J-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 602755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	180.1	
MB 440-602755/5	Method Blank	Total/NA	Water	180.1	
320-59844-A-1 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 602782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM 5540C	
MB 440-602782/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-602782/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-602782/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	SM 5540C	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 602929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM 2540C	
MB 440-602929/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-602929/2	Lab Control Sample	Total/NA	Water	SM 2540C	
590-12964-B-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 603465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	Distill/CN	
MB 440-603465/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-603465/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	Distill/CN	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 603643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 CN E	603465
MB 440-603465/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	603465
LCS 440-603465/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	603465
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 CN E	603465
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 CN E	603465

Analysis Batch: 604043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-604043/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-604043/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-604043/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 NH3 G	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263721-1
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Test America

CHAIN OF CUSTODY FORM

440-263721 Chain of Custody

3/27/20 LD

Client Name/Address. Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager. Mark Dominick 978.234 5033, 818.599.0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	R TCDD (and all congeners) (E1613B)	R BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	R Surfactants (MBAS) (SM5540C/E425 1)	R Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	R Turbidity, TDS (SM2540C/E180 1)	R TSS (160 2 (SM2540D))	R Ammonia-N (350 2)	R alpha-BHC (E608)	R 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R Total Recoverable Metals Mercury (E245 1)	C [illegible]		Comments
Outfall 002	Outfall002_20200327_Comp	3/27/2020 0845	WM	500 mL Poly	3	HNO_3	90	Yes	X										X	X		[redacted] RH
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	6	None	120	Yes				X										
			WM	500 mL Poly	6	None	130	Yes					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X						
			WM	1 L Glass Amber	6	None	170	Yes									X					
			WM	1 L Glass Amber	6	None	180	Yes										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall002_20200327_Comp_Extra	3/27/2020 0845	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Mark Dominick	3-27-2020/1120	H A	[illegible] EC-IRV	3-27-20 11.20
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible]	3-27-20	1415 EC-IRV	JD	EC-IRV 1415 3/27/20

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

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4/7/2020
2019-2020 Rainy Season
Version 2

1.2/0.2 1.4/1.4
0.3/0.3 2.1/2.1 IR-89
0.9/0.9 3.3/3.3

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	R R R R R C
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		
TestAmerica's services under the CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904.8944 (cell)	
Sampler Dan Smith	Field Manager. Mark Dominick 978.234.5033, 818.599 0702 (cell)	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	Total Dissolved Metals Mercury (E245 1)	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, As, Mn, Ni	Comments
Outfall 002	Outfall002_20200327_Comp_F	3/27/2020 0845	WM	1L Poly	3	None	200	Yes	X				X	Filtered and preserved for dissolved metals (Cu, Ni, Zn, As, Mn, Pb, Cd, Se) Filtered and preserved for Hg Filtered for Cr6 RH
			WM	borosilicate vials	3	None	320	Yes				X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200327_Comp	3/27/2020 0845	WM	500 mL Poly	3	NaOH	220	Yes		X				
			WM	2 5 Gal Cube	3	None	225	Yes			X			Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	3	None	230	Yes						
			~~WM~~	~~1 Gal Cube~~	~~6~~	~~None~~	~~235~~	~~No~~						~~Only test if first or second run exceeds 3x the year Deliverable: RC Lab in Irvine, CA~~ RH

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-27-2020/1120	H; A	[signature] EC-IRV	3-27-20 11:20
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-27-20	1415 EC-IRV	[signature] EC-IRV	3/27/20 1415

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154549.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263721-1
Address: 880 Riverside Parkway, .	Due Date Requested: 4/8/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20200327_Comp (440-263721-1)	3/27/20	08:45 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/30/20 1700	EC 112 U		3/31/20 1015	ETA - SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ● Yes Δ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 1.3°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263721-1

Login Number: 263721
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263721-1

Login Number: 263721
List Number: 2
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/31/20 11:49 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263721-1	Outfall002_20200327_Comp	87	91	93	94	101	96	85	107
MB 320-369142/1-A	Method Blank	86	86	86	77	94	90	81	89

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263721-1	Outfall002_20200327_Comp	99	94	95	92	98	101	87
MB 320-369142/1-A	Method Blank	82	86	99	82	80	87	76

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-369142/2-A	Lab Control Sample	85	88	93	85	101	89	83	84

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-369142/2-A	Lab Control Sample	77	92	92	73	79	81	73

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento Sample Receiving Notes


440-263721 Field Sheet

Job: ___

Tracking # 1540 4107 5641

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other ___

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: ___

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel ___ Other ___

Cooler Custody Seal: seal

Cooler ID: —

Temp Observed: 1.3 °C Corrected: 1.3 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: PK Date: 3/31/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/31/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4").

WTD

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263721-2
Client Project/Site: Routine Outfall 002 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/29/2020 12:19:21 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/29/2020 12:19:21 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263721-1	Outfall002_20200327_Comp	Water	03/27/20 08:45	03/27/20 14:15	

Job ID: 440-263721-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263721-2

Comments
No additional comments.

Receipt
The samples were received on 3/27/2020 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 0.9º C, 1.4º C, 2.1º C and 3.3º C.

RAD
Method 900.0: Gross Alpha Beta Prep Batch 160-466721

The matrix spike recovery (MS, 53%) was outside the lower limit (60%). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466721/2-A), (LCSB 160-466721/3-A), (MB 160-466721/1-A), (440-263721-S-1-I DU), (440-263721-S-1-G MSBT) and (440-263721-S-1-H MSBTD)

Method 900.0: Gross Alpha Beta Prep Batch 160-466721
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466721/2-A), (LCSB 160-466721/3-A), (MB 160-466721/1-A), (440-263721-S-1-I DU), (440-263721-S-1-G MSBT) and (440-263721-S-1-H MSBTD)

Method 901.1: Gamma Prep Batch 160-466487
Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Job ID: 440-263721-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200327_Comp (440-263721-1), (LCS 160-466487/2-A), (MB 160-466487/1-A) and (440-263721-S-1-B DU)

Methods 903.0, 9315: Radium-226 Prep Batch 160-466701
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466701/1-A) and (MB 160-466701/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-466705

The following batch contained a method blank (MB) that had activity above the MDC/RL. The LCS, MS and MSD were all within limits. The data has been reported with this narrative.

Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466705/1-A) and (MB 160-466705/20-A)

Methods 904.0, 9320: Ra-228 Prep Batch 160-466705
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466705/1-A) and (MB 160-466705/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-466705

The detection goal was not met for the following samples due to insufficient sample available for analysis: Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466705/1-A) and (MB 160-466705/20-A). The samples were prepared at a reduced aliquot due to limited volume; see prep NCM 160-193431. Due to limited volume, Job 400-186042 Samples 1-8 are unable to be re-extracted. Analytical results are reported with the detection limit achieved.

Method 905: Strontium-90 Prep Batch 160-466697
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-466697/1-A) and (MB 160-466697/7-A)

Method 906.0: LSC Tritium Prep Batch 160-467441

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Job ID: 440-263721-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-467441/2-A) and (MB 160-467441/1-A)

Methods A-01-R, U-02-RC: Isotopic Uranium Prep Batch 160-468046
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]), Outfall002_20200327_Comp (440-263721-1[MSD]), (LCS 160-468046/2-A) and (MB 160-468046/1-A)

Method ExtChrom: Uranium Prep Batch 160-468046:
The following samples have matrix observations: Outfall002_20200327_Comp (440-263721-1), Outfall002_20200327_Comp (440-263721-1[MS]) and Outfall002_20200327_Comp (440-263721-1[MSD]). Samples 440-263721-1, 1 MS, and 1 MSD, 550-140782-1 and 3, 440-264162-1, 1 MS, and 1 MSD, and 440-264517-1, 1 MS, and 1 MSD are pale yellow. Samples 440-264182-1, 440-264370-1, and 440-264634-1 were medium yellow. Sample 440-264510-1 is yellow with sediment and was prepared at a reduced aliquot. Sample 160-37759-4 had thick brown sediment and was prepared at a reduced aliquot. Sample 160-37794-1 was pale brown in color with a small amount of sediment. Sample 160-37794-2 was thick brown with sediment and other plant-like particulates with a sewage smell and was prepared at a reduced aliquot.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall002_20200327_Comp

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.99	U F	1.47	1.49	3.00	2.12	pCi/L	04/06/20 08:53	04/12/20 23:25	1
Gross Beta	**3.46**		0.947	1.01	4.00	1.16	pCi/L	04/06/20 08:53	04/12/20 23:25	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-1.39	U	10.3	10.3	20.0	13.2	pCi/L	04/02/20 05:11	04/02/20 06:14	1
Potassium-40	-13.8	U	129	129		188	pCi/L	04/02/20 05:11	04/02/20 06:14	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0419	U	0.0586	0.0587	1.00	0.0992	pCi/L	04/06/20 07:59	04/29/20 06:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.7*		*40 - 110*	*04/06/20 07:59*	*04/29/20 06:41*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.707**		0.314	0.321	1.00	0.452	pCi/L	04/06/20 08:15	04/20/20 13:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.7*		*40 - 110*	*04/06/20 08:15*	*04/20/20 13:39*	*1*
Y Carrier	*79.6*		*40 - 110*	*04/06/20 08:15*	*04/20/20 13:39*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	**0.289**		0.180	0.181	3.00	0.273	pCi/L	04/06/20 06:47	04/14/20 06:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*84.8*		*40 - 110*	*04/06/20 06:47*	*04/14/20 06:54*	*1*
Y Carrier	*91.6*		*40 - 110*	*04/06/20 06:47*	*04/14/20 06:54*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	32.4	U	162	162	500	289	pCi/L	04/12/20 10:05	04/15/20 06:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.237**		0.154	0.155	1.00	0.150	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Client Sample ID: Outfall002_20200327_Comp
Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1
Matrix: Water

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	94.7		30 - 110	04/17/20 17:03	04/24/20 09:34	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Client Sample ID: Outfall002_20200327_Comp

Date Collected: 03/27/20 08:45
Date Received: 03/27/20 14:15

Lab Sample ID: 440-263721-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			163.39 mL	1.0 g	466721	04/06/20 08:53	RJD	TAL SL
Total/NA	Analysis	900.0		1			467461	04/12/20 23:25	KLS	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	466487	04/02/20 05:11	EJQ	TAL SL
Total/NA	Analysis	901.1		1			466528	04/02/20 06:14	AJD	TAL SL
Total/NA	Prep	PrecSep-21			1000.21 mL	1.0 g	466701	04/06/20 07:59	EJQ	TAL SL
Total/NA	Analysis	903.0		1			469141	04/29/20 06:41	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.21 mL	1.0 g	466705	04/06/20 08:15	EJQ	TAL SL
Total/NA	Analysis	904.0		1			468146	04/20/20 13:39	KLS	TAL SL
Total/NA	Prep	PrecSep-7			1000.72 mL	1.0 g	466697	04/06/20 06:47	EJQ	TAL SL
Total/NA	Analysis	905		1			467676	04/14/20 06:54	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			99.9 mL	1.0 g	467441	04/12/20 10:05	MMO	TAL SL
Total/NA	Analysis	906.0		1			467877	04/15/20 06:03	JS	TAL SL
Total/NA	Prep	ExtChrom			499.66 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468753	04/24/20 09:34	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-466721/1-A
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466721

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.3662	U	0.551	0.553	3.00	0.945	pCi/L	04/06/20 08:53	04/12/20 18:45	1
Gross Beta	0.05776	U	0.433	0.433	4.00	0.767	pCi/L	04/06/20 08:53	04/12/20 18:45	1

Lab Sample ID: LCS 160-466721/2-A
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	38.42		6.10	3.00	1.98	pCi/L	78	75 - 125

Lab Sample ID: LCSB 160-466721/3-A
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.5	76.51		8.19	4.00	1.06	pCi/L	91	75 - 125

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	1.99	U F	60.7	33.96	F1	5.88	3.00	2.27	pCi/L	53	60 - 140

Lab Sample ID: 440-263721-1 MSBT
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	3.46		103	99.40		10.6	4.00	1.19	pCi/L	93	60 - 140

Lab Sample ID: 440-263721-1 MSBTD
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	3.46		103	101.8		10.8	4.00	1.10	pCi/L	95	60 - 140	0.11	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.99	U F	60.6	39.05		6.49	3.00	2.34	pCi/L	61	60 - 140	0.41	1

Lab Sample ID: 440-263721-1 DU
Matrix: Water
Analysis Batch: 467461

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466721

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	1.99	U F	1.309	U	1.57	3.00	2.56	pCi/L	0.22	1
Gross Beta	3.46		3.181		0.972	4.00	1.16	pCi/L	0.14	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-466487/1-A
Matrix: Water
Analysis Batch: 466530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466487

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.165	U	9.91	9.92	20.0	11.9	pCi/L	04/02/20 05:11	04/02/20 07:21	1
Potassium-40	28.67	U	144	144		192	pCi/L	04/02/20 05:11	04/02/20 07:21	1

Lab Sample ID: LCS 160-466487/2-A
Matrix: Water
Analysis Batch: 466529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466487

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	132600		15300		533	pCi/L	98	90 - 111
Cesium-137	43800	42790		4300	20.0	142	pCi/L	98	90 - 111
Cobalt-60	26400	25440		2520		105	pCi/L	96	89 - 110

Lab Sample ID: 440-263721-1 DU
Matrix: Water
Analysis Batch: 466529

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466487

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-1.39	U	-5.200	U G	17.1	20.0	20.3	pCi/L	0.14	1
Potassium-40	-13.8	U	-20.17	U	158		228	pCi/L	0.02	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-466701/20-A
Matrix: Water
Analysis Batch: 469145

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466701

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03608	U	0.0879	0.0880	1.00	0.162	pCi/L	04/06/20 07:59	04/29/20 06:56	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*04/06/20 07:59*	*04/29/20 06:56*	*1*

Lab Sample ID: LCS 160-466701/1-A
Matrix: Water
Analysis Batch: 469141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466701

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	11.41		1.21	1.00	0.114	pCi/L	75	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 469141

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466701

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0419	U	11.3	8.994		0.957	1.00	0.102	pCi/L	79	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*94.2*		*40 - 110*

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 469141

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466701

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0419	U	11.4	9.402		0.992	1.00	0.0985	pCi/L	82	75 - 138	0.21	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*95.4*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-466705/20-A
Matrix: Water
Analysis Batch: 468134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466705

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.334		0.552	0.566	1.00	0.786	pCi/L	04/06/20 08:15	04/20/20 13:42	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.0		40 - 110	04/06/20 08:15	04/20/20 13:42	1
Y Carrier	69.5		40 - 110	04/06/20 08:15	04/20/20 13:42	1

Lab Sample ID: LCS 160-466705/1-A
Matrix: Water
Analysis Batch: 468146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466705

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			11.9	11.04		1.35	1.00	0.598	pCi/L	93	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	99.1		40 - 110
Y Carrier	80.0		40 - 110

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 468146

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466705

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.707		8.91	9.282		1.11	1.00	0.412	pCi/L	96	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	94.2		40 - 110
Y Carrier	80.0		40 - 110

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 468146

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466705

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.707		8.92	9.342		1.11	1.00	0.425	pCi/L	97	45 - 150	0.03	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	95.4		40 - 110
Y Carrier	81.9		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-466697/7-A
Matrix: Water
Analysis Batch: 467676

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466697

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.2930	U	0.197	0.199	3.00	0.305	pCi/L	04/06/20 06:47	04/14/20 06:55	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-466697/7-A
Matrix: Water
Analysis Batch: 467676

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466697

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	88.3		40 - 110	04/06/20 06:47	04/14/20 06:55	1
Y Carrier	86.4		40 - 110	04/06/20 06:47	04/14/20 06:55	1

Lab Sample ID: LCS 160-466697/1-A
Matrix: Water
Analysis Batch: 467676

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466697

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	7.636		0.810	3.00	0.303	pCi/L	97	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	89.5		40 - 110
Y Carrier	92.3		40 - 110

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 467676

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466697

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.289		7.88	8.174		0.857	3.00	0.272	pCi/L	100	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	87.1		40 - 110
Y Carrier	92.0		40 - 110

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 467676

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 466697

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.289		7.88	8.601		0.931	3.00	0.339	pCi/L	105	19 - 150	0.24	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	77.0		40 - 110
Y Carrier	86.0		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-467441/1-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467441

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	232.9	U	182	183	500	282	pCi/L	04/12/20 10:05	04/15/20 02:12	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-467441/2-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467441

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2470	2679		430	500	289	pCi/L	108	75 - 114		

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	32.4	U	2480	2526		414	500	287	pCi/L	101	67 - 130		

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	32.4	U	2470	2530		408	500	275	pCi/L	101	67 - 130	0.01	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-468046/1-A
Matrix: Water
Analysis Batch: 468749

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468046

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.03978	U	0.1101	0.1102	1.00	0.152	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*92.6*		*30 - 110*	*04/17/20 17:03*	*04/24/20 09:34*	*1*

Lab Sample ID: LCS 160-468046/2-A
Matrix: Water
Analysis Batch: 468752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468046

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			12.7	13.10		1.50	1.00	0.150	pCi/L	103	75 - 125		
Uranium-238			13.0	13.96		1.58	1.00	0.0962	pCi/L	107	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*81.2*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263721-1 MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 468046

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.0485	U	12.7	12.44		1.46	1.00	0.164	pCi/L	97	65 - 146		
Uranium-238	0.150		13.0	14.35		1.63	1.00	0.129	pCi/L	109	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*65.3*		*30 - 110*

Lab Sample ID: 440-263721-1 MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Outfall002_20200327_Comp
Prep Type: Total/NA
Prep Batch: 468046

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.0485	U	12.8	13.87		1.59	1.00	0.158	pCi/L	108	65 - 146	0.47	1
Uranium-238	0.150		13.0	12.82		1.50	1.00	0.141	pCi/L	97	68 - 143	0.49	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*65.1*		*30 - 110*

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Rad

Prep Batch: 466487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-466487/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-466487/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263721-1 DU	Outfall002_20200327_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 466697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-7	
MB 160-466697/7-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-466697/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-7	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 466701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-21	
MB 160-466701/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-466701/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-21	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 466705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	PrecSep_0	
MB 160-466705/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-466705/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	PrecSep_0	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 466721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	
MB 160-466721/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-466721/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-466721/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	
440-263721-1 MSBT	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	
440-263721-1 MSBTD	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	
440-263721-1 DU	Outfall002_20200327_Comp	Total/NA	Water	Evaporation	

Prep Batch: 467441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-467441/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-467441/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	LSC_Dist_Susp	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	LSC_Dist_Susp	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Rad

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263721-1	Outfall002_20200327_Comp	Total/NA	Water	ExtChrom	
MB 160-468046/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-468046/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263721-1 MS	Outfall002_20200327_Comp	Total/NA	Water	ExtChrom	
440-263721-1 MSD	Outfall002_20200327_Comp	Total/NA	Water	ExtChrom	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263721-2
Project/Site: Routine Outfall 002 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America



CHAIN OF CUSTODY FORM

3/27/20 LD

Client Name/Address.	Project:	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)	
Sampler: Dan Smith	Field Manager. Mark Dominick 978.234 5033, 818.599.0702 (cell)	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)	[illegible]	[illegible]	Comments
									R	R	R	R	R	R	R	R	R	R	C			
Outfall 002	Outfall002_20200327_Comp	3/27/2020 0845	WM	500 mL Poly	3	HNO_3	90	Yes	X										X	X		[illegible] RH
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	6	None	120	Yes				X										
			WM	500 mL Poly	6	None	130	Yes					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	3	H_2SO_4	160	Yes								X						
			WM	1 L Glass Amber	6	None	170	Yes									X					
			WM	1 L Glass Amber	6	None	180	Yes										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall002_20200327_Comp_Extra	3/27/2020 0845	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Mark Dominick	3-27-2020/1120	H A	[illegible] EC-IRV	3-27-20 11.20
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible]	3-27-20	1415 EC-IRV	JD	EC-IRV 1415 3/27/20

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

0.2/0.2 1.4/1.4
0.3/0.3 2.1/2.1 IR-89
0.9/0.9 3.3/3.3

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp	R R R R R C
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904.8944 (cell)	
Sampler Dan Smith	Field Manager. Mark Dominick 978.234.5033, 818.599 0702 (cell)	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	Total Dissolved Metals Mercury (E245 1)	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, As, Mn, Ni	Comments
Outfall 002	Outfall002_20200327_Comp_F	3/27/2020 0845	WM	1L Poly	3	None	200	Yes	X				X	Filtered and preserved for dissolved metals (Cu, Ni, Zn) RH
			WM	borosilicate vials	3	None	320	Yes					X	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20200327_Comp	3/27/2020 0845	WM	500 mL Poly	3	NaOH	220	Yes		X				
			WM	2 5 Gal Cube	3	None	225	Yes			X			Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	3	None	230	Yes						
			~~WM~~	~~1 Gal Cube~~	~~6~~	~~None~~	~~235~~	~~No~~						~~Only test if first or second run exceeds 2x the year Delivered to BC Lab in Hayward, CA~~ RH

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-27-2020/1120	H; A	[signature] EC-IRV	3-27-20 11:20
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-27-20	1415 EC-IRV	[signature] EC-IRV	3/27/20 1415

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154550.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263721-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/8/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall002_20200327_Comp (440-263721-1)	3/27/20	08:45 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200327_Comp (440-263721-1MS)	3/27/20	08:45 Pacific	MS	Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall002_20200327_Comp (440-263721-1MSD)	3/27/20	08:45 Pacific	MSD	Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	FED EX	3/30/20 1700	EC IRV	FED EX		
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 3/31/2020 0831	Company ETA STL
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: GTA Irvine

Initiated by: LAM Date: 3/31/2020 Time: 0831 Shipper: FedEx Package Quantity: 2

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids
If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 5593	192688461	2.3	
2.	1540 4107 5608		-1.4	
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	(Y) N N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #:
4.	(Y) N	Sample received with Chain of Custody?	11.	(Y) N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes:
Cubitainers were received unpreserved

pH Adjustment (if needed)

Initial pH and pH strip lot#: HC904495
Final pH and pH strip lot#: HC904495

Date/Time of Preservation: 3/31/2020 21:00
Preservative and lot#: HNO_3 | 244827
Amount of Preservative: 12mL

Sample Labels Applied By: MK

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263721-2

Login Number: 263721
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263721-2

Login Number: 263721
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/31/20 06:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263721-1	Outfall002_20200327_Comp	92.7
440-263721-1 MS	Outfall002_20200327_Comp	94.2
440-263721-1 MSD	Outfall002_20200327_Comp	95.4
LCS 160-466701/1-A	Lab Control Sample	99.1
MB 160-466701/20-A	Method Blank	85.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263721-1	Outfall002_20200327_Comp	92.7	79.6
440-263721-1 MS	Outfall002_20200327_Comp	94.2	80.0
440-263721-1 MSD	Outfall002_20200327_Comp	95.4	81.9
LCS 160-466705/1-A	Lab Control Sample	99.1	80.0
MB 160-466705/20-A	Method Blank	85.0	69.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263721-1	Outfall002_20200327_Comp	84.8	91.6
440-263721-1 MS	Outfall002_20200327_Comp	87.1	92.0
440-263721-1 MSD	Outfall002_20200327_Comp	77.0	86.0
LCS 160-466697/1-A	Lab Control Sample	89.5	92.3
MB 160-466697/7-A	Method Blank	88.3	86.4

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263721-1	Outfall002_20200327_Comp	94.7
440-263721-1 MS	Outfall002_20200327_Comp	65.3
440-263721-1 MSD	Outfall002_20200327_Comp	65.1
LCS 160-468046/2-A	Lab Control Sample	81.2
MB 160-468046/1-A	Method Blank	92.6

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-263721-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes


440-263721 Field Sheet

Job: ____

Tracking # 1540 4107 5641

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other ____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: ____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.3 °C Corrected: 1.3 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: PK Date: 3/31/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/31/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4").

WTD

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-262968-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-262968-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL008_20200313_GRAB	440-262968-1	Water	3/13/20 8:30	E1664, E624, SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-262968-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COCs.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- According to the Login Sample Receipt Checklists, custody seals were absent on the coolers upon receipt at both laboratories; however, no evidence of tampering was noted.
- The case narrative indicated that two of three vials for the VOC analysis of the trip blank were received with headspace. A third vial without headspace remained for analysis. No qualification was necessary.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

E. Wessling of MEC[X] reviewed the SDG on April 8, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes were not evaluated as part of a Level II validation.

Calibration criteria were not evaluated as part of a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC[X] evaluated method accuracy based on the associated LCS results.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200313 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. Internal Standards Performance

The internal standard retention times and area counts were not evaluated as part of a Level II validation.

III.6. Compound Identification

Compound identification was not evaluated as part of a Level II validation. The laboratory analyzed for 38 target compounds by Method 624.1.

III.7. Compound Quantification and Reported Detection Limits

Compound quantification was not evaluated as part of a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. Tentatively Identified Compounds

The laboratory did not report TICs for this SDG.

III.9. System Performance

Review of the raw data was not performed as part of a Level II validation.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 1664, Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. Holding Times

The QAPP holding times, as listed below, were met.

- 28 days for Oil and Grease (HEM, Method 1664)
- 8 hours per COC for *E.Coli* (Method 9221F)

IV.2. Calibration

Instrument calibration review is not performed at Level II validation.

IV.3. Quality Control Samples

IV.3.1. *Method Blanks*

The method blank had no detections for Method 1664. The negative control sample was acceptable for the *E. Coli* analysis.

IV.3.2. *Laboratory Control Samples*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory

control limits for Method 1664. The presumptive test was analyzed with positive detects for *E. Coli*.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402629681

Analysis Method E1664

Sample Name OUTFALL008_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 8:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-262968-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	5.3	1.5	mg/L	U	U	

Analysis Method E624

Sample Name OUTFALL008_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 8:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-262968-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1,1-Trichloroethane	N	71-55-6	ND	0.50	0.25	ug/L	U	U	
1,1,2,2-Tetrachloroethane	N	79-34-5	ND	0.50	0.25	ug/L	U	U	
1,1,2-Trichloroethane	N	79-00-5	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethane	N	75-34-3	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloropropane	N	78-87-5	ND	0.50	0.25	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.50	0.25	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	ND	0.50	0.25	ug/L	U	U	
2-Chloroethyl vinyl ether	N	110-75-8	ND	2.0	1.0	ug/L	U	U	
Acrolein	N	107-02-8	ND	5.0	2.5	ug/L	U	U	
Acrylonitrile	N	107-13-1	ND	2.0	1.0	ug/L	U	U	
Benzene	N	71-43-2	ND	0.50	0.25	ug/L	U	U	
Bromodichloromethane	N	75-27-4	ND	0.50	0.25	ug/L	U	U	
Bromoform	N	75-25-2	ND	1.0	0.40	ug/L	U	U	
Bromomethane (Methyl Bromide)	N	74-83-9	ND	0.50	0.25	ug/L	U	U	
Carbon tetrachloride	N	56-23-5	ND	0.50	0.25	ug/L	U	U	
Chlorobenzene	N	108-90-7	ND	0.50	0.25	ug/L	U	U	
Chloroethane	N	75-00-3	ND	1.0	0.40	ug/L	U	U	
Chloroform (Trichloromethane)	N	67-66-3	ND	0.50	0.25	ug/L	U	U	
Chloromethane (Methyl Chloride)	N	74-87-3	ND	0.50	0.25	ug/L	U	U	
cis-1,2-Dichloroethene	N	156-59-2	ND	0.50	0.25	ug/L	U	U	
cis-1,3-Dichloropropene	N	10061-01-5	ND	0.50	0.25	ug/L	U	U	
Dibromochloromethane	N	124-48-1	ND	0.50	0.25	ug/L	U	U	
Ethylbenzene	N	100-41-4	ND	0.50	0.25	ug/L	U	U	
m,p-Xylenes	N	179601-23-1	ND	1.0	0.50	ug/L	U	U	

Analysis Method E624

Methylene chloride	N	75-09-2	ND	2.0	0.88	ug/L	U	**U**
Naphthalene	N	91-20-3	ND	1.0	0.40	ug/L	U	**U**
o-Xylene	N	95-47-6	ND	0.50	0.25	ug/L	U	**U**
Tetrachloroethene	N	127-18-4	ND	0.50	0.25	ug/L	U	**U**
Toluene	N	108-88-3	ND	0.50	0.25	ug/L	U	**U**
trans-1,2-Dichloroethene	N	156-60-5	ND	0.50	0.25	ug/L	U	**U**
trans-1,3-Dichloropropene	N	10061-02-6	ND	0.50	0.25	ug/L	U	**U**
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	**U**
Trichlorofluoromethane (CFC-11)	N	75-69-4	ND	0.50	0.25	ug/L	U	**U**
Vinyl chloride	N	75-01-4	ND	0.50	0.25	ug/L	U	**U**
Xylene (total)	N	1330-20-7	ND	1.0	0.50	ug/L	U	**U**

Analysis Method SM9221F

Sample Name OUTFALL008_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 8:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-262968-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
e. coli			490	1.8		MPN/10			

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-262968-1
Client Project/Site: Annual Outfall 008 Grab
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/30/2020 10:12:03 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/30/2020 10:12:03 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-262968-1	Outfall008_20200313_Grab	Water	03/13/20 08:30	03/13/20 15:30	
440-262968-3	TB-20200313	Water	03/13/20 08:30	03/13/20 15:30	

Job ID: 440-262968-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-262968-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.6º C, 0.7º C, 1.0º C and 1.1º C.

Receipt Exceptions
The following sample was received with headspace in the sample container: TB-20200313 (440-262968-3). Received for TB- two VOA vials HCL and one VOA vial UP with headspace more than 6 mm.

GC/MS VOA
Method 624.1: The continuing calibration verification (CCV) associated with batch 440-600639 recovered above the upper control limit for Chloromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601885 and analytical batch 440-601925. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A/B.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Client Sample ID: Outfall008_20200313_Grab
Date Collected: 03/13/20 08:30
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262968-1
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 12:46	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 12:46	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 12:46	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 12:46	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 12:46	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 12:46	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 12:46	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 12:46	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*60 - 140*		*03/16/20 12:46*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*03/16/20 12:46*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*03/16/20 12:46*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		5.0	2.5	ug/L			03/16/20 12:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*60 - 140*		*03/16/20 12:17*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*03/16/20 12:17*	*1*

Client Sample ID: Outfall008_20200313_Grab

Lab Sample ID: 440-262968-1

Date Collected: 03/13/20 08:30
Date Received: 03/13/20 15:30

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*116*		*60 - 140*		*03/16/20 12:17*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		03/23/20 08:41	03/23/20 11:27	1

Client Sample ID: TB-20200313

Lab Sample ID: 440-262968-3

Date Collected: 03/13/20 08:30
Date Received: 03/13/20 15:30

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 13:16	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 13:16	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 13:16	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 13:16	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 13:16	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 13:16	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 13:16	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 13:16	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 13:16	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Client Sample ID: TB-20200313
Date Collected: 03/13/20 08:30
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262968-3
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*60 - 140*		*03/16/20 13:16*	*1*
Dibromofluoromethane (Surr)	*103*		*60 - 140*		*03/16/20 13:16*	*1*
Toluene-d8 (Surr)	*106*		*60 - 140*		*03/16/20 13:16*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		5.0	2.5	ug/L			03/16/20 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*60 - 140*		*03/16/20 12:45*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*03/16/20 12:45*	*1*
Toluene-d8 (Surr)	*112*		*60 - 140*		*03/16/20 12:45*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
Subcontract	9221F- E. Coli	None	Enthalpy
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Client Sample ID: Outfall008_20200313_Grab

Lab Sample ID: 440-262968-1

Date Collected: 03/13/20 08:30

Matrix: Water

Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600639	03/16/20 12:46	MML	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	600626	03/16/20 12:17	TCN	TAL IRV
Total/NA	Prep	1664A			950 mL	1000 mL	601885	03/23/20 08:41	JC1	TAL IRV
Total/NA	Analysis	1664A		1			601925	03/23/20 11:27	JC1	TAL IRV

Client Sample ID: TB-20200313

Lab Sample ID: 440-262968-3

Date Collected: 03/13/20 08:30

Matrix: Water

Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600639	03/16/20 13:16	MML	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	600626	03/16/20 12:45	TCN	TAL IRV

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-600626/5
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		5.0	2.5	ug/L			03/16/20 08:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*60 - 140*		*03/16/20 08:36*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*03/16/20 08:36*	*1*
Toluene-d8 (Surr)	*115*		*60 - 140*		*03/16/20 08:36*	*1*

Lab Sample ID: LCS 440-600626/1004
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acrolein			24.7	20.2		ug/L		82	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*
Dibromofluoromethane (Surr)	*94*		*60 - 140*
Toluene-d8 (Surr)	*107*		*60 - 140*

Lab Sample ID: 440-262951-D-1 MS
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acrolein	ND		9.88	12.9		ug/L		130	40 - 160		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Lab Sample ID: 440-262951-D-1 MSD
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acrolein	ND		9.88	14.3		ug/L		145	40 - 160	11	60

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*
Dibromofluoromethane (Surr)	*109*		*60 - 140*
Toluene-d8 (Surr)	*92*		*60 - 140*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-600639/5
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 09:14	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 09:14	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 09:14	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 09:14	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 09:14	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 09:14	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 09:14	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 09:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*60 - 140*		*03/16/20 09:14*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*03/16/20 09:14*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*03/16/20 09:14*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-600639/1002
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	29.8		ug/L		119	69 - 151
1,1,2,2-Tetrachloroethane	25.0	25.2		ug/L		101	68 - 136
1,1,2-Trichloroethane	25.0	24.1		ug/L		96	75 - 136
1,1-Dichloroethane	25.0	30.0		ug/L		120	71 - 143
1,1-Dichloroethene	25.0	24.1		ug/L		96	19 - 212
1,2-Dichlorobenzene	25.0	25.4		ug/L		101	59 - 174
1,2-Dichloroethane	25.0	27.3		ug/L		109	72 - 137
1,2-Dichloropropane	25.0	28.2		ug/L		113	19 - 181
1,3-Dichlorobenzene	25.0	26.7		ug/L		107	75 - 144
1,4-Dichlorobenzene	25.0	26.5		ug/L		106	59 - 174
2-Chloroethyl vinyl ether	25.0	17.0		ug/L		68	10 - 252
Acrylonitrile	250	285		ug/L		114	50 - 150
Benzene	25.0	25.4		ug/L		102	75 - 125
Bromodichloromethane	25.0	25.8		ug/L		103	50 - 140
Bromoform	25.0	22.4		ug/L		90	57 - 156
Bromomethane	25.0	31.0		ug/L		124	10 - 206
Carbon tetrachloride	25.0	26.3		ug/L		105	65 - 125
Chlorobenzene	25.0	25.6		ug/L		102	82 - 137
Chloroethane	25.0	30.3		ug/L		121	42 - 202
Chloroform	25.0	25.2		ug/L		101	68 - 121
Chloromethane	25.0	35.8		ug/L		143	10 - 230
cis-1,2-Dichloroethene	25.0	25.2		ug/L		101	60 - 140
cis-1,3-Dichloropropene	25.0	26.8		ug/L		107	5 - 195
Dibromochloromethane	25.0	24.3		ug/L		97	69 - 133
Ethylbenzene	25.0	25.1		ug/L		101	75 - 134
m,p-Xylene	25.0	25.8		ug/L		103	60 - 140
Methylene Chloride	25.0	24.5		ug/L		98	10 - 205
Naphthalene	25.0	26.0		ug/L		104	60 - 140
o-Xylene	25.0	26.0		ug/L		104	60 - 140
Tetrachloroethene	25.0	23.7		ug/L		95	70 - 130
Toluene	25.0	24.8		ug/L		99	75 - 134
trans-1,2-Dichloroethene	25.0	28.0		ug/L		112	70 - 130
trans-1,3-Dichloropropene	25.0	28.0		ug/L		112	38 - 162
Trichloroethene	25.0	26.9		ug/L		108	75 - 138
Trichlorofluoromethane	25.0	30.0		ug/L		120	45 - 158
Vinyl chloride	25.0	31.1		ug/L		124	10 - 218
Xylenes, Total	50.0	51.8		ug/L		104	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*60 - 140*
Dibromofluoromethane (Surr)	*98*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-600639/1003
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*
Dibromofluoromethane (Surr)	*102*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Lab Sample ID: 440-262957-D-1 MS
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		10.0	11.0		ug/L		110	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	12.0		ug/L		120	46 - 157
1,1,2-Trichloroethane	ND		10.0	11.3		ug/L		113	52 - 150
1,1-Dichloroethane	ND		10.0	11.3		ug/L		113	59 - 155
1,1-Dichloroethene	ND		10.0	9.71		ug/L		97	10 - 234
1,2-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190
1,2-Dichloroethane	ND		10.0	11.9		ug/L		119	49 - 155
1,2-Dichloropropane	ND		10.0	11.6		ug/L		116	10 - 210
1,3-Dichlorobenzene	ND		10.0	11.0		ug/L		110	59 - 156
1,4-Dichlorobenzene	ND		10.0	11.5		ug/L		115	18 - 190
2-Chloroethyl vinyl ether	ND		10.0	7.11		ug/L		71	10 - 305
Acrylonitrile	ND		100	123		ug/L		123	40 - 160
Benzene	ND		10.0	10.2		ug/L		102	37 - 151
Bromodichloromethane	ND		10.0	10.7		ug/L		107	35 - 155
Bromoform	ND		10.0	9.19		ug/L		92	45 - 169
Bromomethane	ND		10.0	12.1		ug/L		121	10 - 242
Carbon tetrachloride	ND		10.0	9.76		ug/L		98	70 - 140
Chlorobenzene	ND		10.0	10.8		ug/L		108	37 - 160
Chloroethane	ND		10.0	13.7		ug/L		137	14 - 230
Chloroform	ND		10.0	9.96		ug/L		100	51 - 138
Chloromethane	ND		10.0	14.3		ug/L		143	10 - 273
cis-1,2-Dichloroethene	ND		10.0	10.3		ug/L		103	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.5		ug/L		115	10 - 227
Dibromochloromethane	ND		10.0	10.1		ug/L		101	53 - 149
Ethylbenzene	ND		10.0	10.8		ug/L		108	37 - 162
m,p-Xylene	ND		10.0	10.3		ug/L		103	60 - 140
Methylene Chloride	ND		10.0	10.0		ug/L		100	10 - 221
Naphthalene	ND		10.0	10.9		ug/L		109	60 - 140
o-Xylene	ND		10.0	11.0		ug/L		110	60 - 140
Tetrachloroethene	ND		10.0	10.1		ug/L		101	64 - 148
Toluene	ND		10.0	10.5		ug/L		105	47 - 150
trans-1,2-Dichloroethene	ND		10.0	10.1		ug/L		101	54 - 156
trans-1,3-Dichloropropene	ND		10.0	12.3		ug/L		123	17 - 183
Trichloroethene	ND		10.0	10.6		ug/L		106	70 - 157
Trichlorofluoromethane	ND		10.0	11.3		ug/L		113	17 - 181
Vinyl chloride	ND		10.0	12.7		ug/L		127	10 - 251
Xylenes, Total	ND		20.0	21.3		ug/L		107	

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262957-D-1 MS
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*108*		*60 - 140*
Dibromofluoromethane (Surr)	*99*		*60 - 140*
Toluene-d8 (Surr)	*103*		*60 - 140*

Lab Sample ID: 440-262957-D-1 MSD
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	11.0		ug/L		110	52 - 162	0	36
1,1,2,2-Tetrachloroethane	ND		10.0	11.5		ug/L		115	46 - 157	4	61
1,1,2-Trichloroethane	ND		10.0	11.5		ug/L		115	52 - 150	1	45
1,1-Dichloroethane	ND		10.0	11.7		ug/L		117	59 - 155	3	40
1,1-Dichloroethene	ND		10.0	9.12		ug/L		91	10 - 234	6	32
1,2-Dichlorobenzene	ND		10.0	9.95		ug/L		99	18 - 190	8	57
1,2-Dichloroethane	ND		10.0	11.3		ug/L		113	49 - 155	5	49
1,2-Dichloropropane	ND		10.0	11.8		ug/L		118	10 - 210	2	55
1,3-Dichlorobenzene	ND		10.0	10.7		ug/L		107	59 - 156	2	43
1,4-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190	7	57
2-Chloroethyl vinyl ether	ND		10.0	5.08		ug/L		51	10 - 305	33	71
Acrylonitrile	ND		100	123		ug/L		123	40 - 160	0	60
Benzene	ND		10.0	9.99		ug/L		100	37 - 151	2	61
Bromodichloromethane	ND		10.0	10.1		ug/L		101	35 - 155	6	56
Bromoform	ND		10.0	9.43		ug/L		94	45 - 169	3	42
Bromomethane	ND		10.0	12.1		ug/L		121	10 - 242	0	61
Carbon tetrachloride	ND		10.0	9.19		ug/L		92	70 - 140	6	41
Chlorobenzene	ND		10.0	11.0		ug/L		110	37 - 160	2	53
Chloroethane	ND		10.0	11.8		ug/L		118	14 - 230	15	78
Chloroform	ND		10.0	9.76		ug/L		98	51 - 138	2	54
Chloromethane	ND		10.0	14.1		ug/L		141	10 - 273	1	60
cis-1,2-Dichloroethene	ND		10.0	9.59		ug/L		96	60 - 140	7	35
cis-1,3-Dichloropropene	ND		10.0	10.9		ug/L		109	10 - 227	5	58
Dibromochloromethane	ND		10.0	10.5		ug/L		105	53 - 149	4	50
Ethylbenzene	ND		10.0	10.8		ug/L		108	37 - 162	0	63
m,p-Xylene	ND		10.0	10.3		ug/L		103	60 - 140	0	35
Methylene Chloride	ND		10.0	10.3		ug/L		103	10 - 221	3	28
Naphthalene	ND		10.0	10.8		ug/L		108	60 - 140	1	35
o-Xylene	ND		10.0	10.7		ug/L		107	60 - 140	3	35
Tetrachloroethene	ND		10.0	9.34		ug/L		93	64 - 148	8	39
Toluene	ND		10.0	10.4		ug/L		104	47 - 150	1	41
trans-1,2-Dichloroethene	ND		10.0	9.66		ug/L		97	54 - 156	5	45
trans-1,3-Dichloropropene	ND		10.0	11.6		ug/L		116	17 - 183	6	86
Trichloroethene	ND		10.0	10.7		ug/L		107	70 - 157	1	48
Trichlorofluoromethane	ND		10.0	11.1		ug/L		111	17 - 181	2	84
Vinyl chloride	ND		10.0	12.9		ug/L		129	10 - 251	2	66
Xylenes, Total	ND		20.0	21.0		ug/L		105		1	

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262957-D-1 MSD
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*
Dibromofluoromethane (Surr)	*99*		*60 - 140*
Toluene-d8 (Surr)	*105*		*60 - 140*

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-601885/1-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601885

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/23/20 08:41	03/23/20 11:27	1

Lab Sample ID: LCS 440-601885/2-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601885

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	34.4		mg/L		86	78 - 114		

Lab Sample ID: LCSD 440-601885/3-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601885

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	33.7		mg/L		84	78 - 114	2	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

GC/MS VOA

Analysis Batch: 600626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262968-1 - RA	Outfall008_20200313_Grab	Total/NA	Water	624.1	
440-262968-3 - RA	TB-20200313	Total/NA	Water	624.1	
MB 440-600626/5	Method Blank	Total/NA	Water	624.1	
LCS 440-600626/1004	Lab Control Sample	Total/NA	Water	624.1	
440-262951-D-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-262951-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

Analysis Batch: 600639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262968-1	Outfall008_20200313_Grab	Total/NA	Water	624.1	
440-262968-3	TB-20200313	Total/NA	Water	624.1	
MB 440-600639/5	Method Blank	Total/NA	Water	624.1	
LCS 440-600639/1002	Lab Control Sample	Total/NA	Water	624.1	
LCS 440-600639/1003	Lab Control Sample	Total/NA	Water	624.1	
440-262957-D-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-262957-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Prep Batch: 601885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262968-1	Outfall008_20200313_Grab	Total/NA	Water	1664A	
MB 440-601885/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-601885/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-601885/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 601925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262968-1	Outfall008_20200313_Grab	Total/NA	Water	1664A	601885
MB 440-601885/1-A	Method Blank	Total/NA	Water	1664A	601885
LCS 440-601885/2-A	Lab Control Sample	Total/NA	Water	1664A	601885
LCSD 440-601885/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	601885

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Grab

Job ID: 440-262968-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262968-1
Project/Site: Annual Outfall 008 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

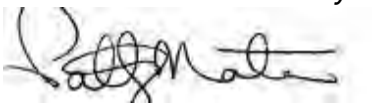
Lab Job Number: 425967
Report Level: II
Report Date: 03/24/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - Boeing SSFL NPDES

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614		Lab Job #: Project No: Location: Date Received:	425967 BOEING SSFL NPDES Boeing SSFL NPDES 03/13/20

Sample ID	Lab ID	Collected	Matrix
OUTFALL008_20200313_GRAB (440-262968-1)	425967-001	03/13/20 08:30	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine	Lab Job Number: 425967
17461 Derian Ave, Ste 100	Project No: BOEING SSFL NPDES
Irvine, CA 92614	Location: Boeing SSFL NPDES
Christian Bondoc	Date Received: 03/13/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/13/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

Test America

CHAIN OF CUSTODY FORM

425967

| | | |

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Calscience Irvine Project: Boeing-SSFL NPDES

Date Received: 3/13/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 1.1 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 1.1 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 3/13/20

ENTHALPY ANALYTICAL

Analysis Results for 425967

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 425967
Project No: BOEING SSFL NPDES
Location: Boeing SSFL NPDES
Date Received: 03/13/20

Sample ID: OUTFALL008_20200313_GRAB (440-262968-1) **Lab ID:** 425967-001 **Collected:** 03/13/20 08:30
Matrix: Water

425967-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**490**		MPN/100ml	1.8	1	243386	03/13/20 15:30	03/16/20 14:10	CCO

Results for any subcontracted analyses are not included in this section.

Test America

CHAIN OF CUSTODY FORM

440-262968 Chain of Custody

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel. 949-260-3218

TestAmerica s services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [008]
Outfall 008
Grab

Project Manager: Katherine Miller
520 289 8606, 520.904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818.599 0702 (cell)

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 08:05

pH 8.24 pH unit
Temp 11.54 °C °F

Field readings QC
Checked by: RH
Date/Time: 03/13/20 0830

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357)	E coli (SM9221)	Oil & Grease (E1664A-HEM)	VOCs PP + xylenes, Freon 11 (E624)	VOCs - only A+A+2CVE (E624)					Comments
Outfall 008	Outfall008_20200313_Grab	3/13/2020 0830	WM	125 mL Sterile Poly	1	None	5	No	X									[illegible]
			WM	125 mL Sterile Poly	3	Na2S2O3	10	No		X								[illegible]
			WM	1 L Glass Amber	2	HCl	15	No			X							
			WM	40 mL VOA	3	HCl	40	No				X						
			WM	40 mL VOA	3	None	55	No					X					
	Outfall008_20200313_Grab_Extra	3/13/2020 0830	WM	1 L Glass Amber	2	HCl	15	No			H							Hold
			WM	40 mL VOA	3	HCl	40	No				H						Hold
			WM	40 mL VOA	3	None	55	No					H					Hold
Trip Blanks	TB-20200313	3/13/2020 0830	WQ	40 mL VOA	2	HCl	40	No				X						
			WQ	40 mL VOA	2	None	55	No					X					

LB 3/13/20

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/13/2020 1211	H&A RH	JOSE Angulo	3/13/20 DCS
JOSE Angulo	3/13/20 DCS 2:53		[signature]	3/13/20 1453
JOSE Angulo	3/13/20 DCS 3:30		[signature] EC-IPU	3/13/20 1530

Turn-around time. (Check)
24 Hour: ____ 72 Hour: ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal: ____

Sample Integrity (Check)
Intact: ____ On ice ____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: ____ All Level IV: X

0.4/0.6 0.5/0.7 0.9/1.1
0.8/1.0 IR93

2019-2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262968-1

Login Number: 262968
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263044-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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2 – Data Qualifier Reference

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I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263044-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL008_20200314_COMP	440-263044-1	N/A	Water	3/14/20 9:20 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263044-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (968 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, OCDD and OCDF, and for totals HxCDD, HxCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 968 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDD and 1,2,3,7,8-PeCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals, including HpCDD included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402630441

Analysis Method E1613B

Sample Name OUTFALL008_20200314_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 9:20:00 AM **Validation Level:** 9

Lab Sample Name: 440-263044-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000082	0.00010	0.00000085	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000024	0.00010	0.0000011	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000032	0.000052	0.00000070	ug/L	J,DX	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000043	0.000052	0.00000030	ug/L	J,DXqMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000028	0.000052	0.00000082	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000021	0.000052	0.00000047	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000046	0.000052	0.00000096	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000025	0.000052	0.00000052	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000031	0.000052	0.0000010	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000031	0.000052	0.00000052	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000025	0.000052	0.00000091	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000018	0.000052	0.00000063	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.00000082	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000024	0.000052	0.00000047	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000019	0.000052	0.00000068	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000032	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000089	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000059	0.000052	0.00000070	ug/L	J,DXq	J	*III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000075	0.000052	0.00000030	ug/L	J,DXqMB	J	B, *III, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000010	0.000052	0.00000047	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000010	0.000052	0.00000091	ug/L	J,DXqMB	J	B, *III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000037	0.000052	0.00000063	ug/L	J,DXq	J	*III, DNQ

Analysis Method	*E1613B*							
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000052	0.00000082	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000032	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000089	ug/L	U	U

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263044-1
Client Project/Site: Annual Outfall 008 Comp
Revision: 2

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/21/2020 1:06:22 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/21/2020 1:06:22 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263044-1	Outfall008_20200314_Comp	Water	03/14/20 09:20	03/14/20 17:30	
440-263044-2	Outfall008_20200314_Comp_F	Water	03/14/20 09:20	03/14/20 17:30	

Job ID: 440-263044-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263044-1

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.6º C, 0.8º C and 0.9º C.

GC/MS Semi VOA
Method 625.1: The laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) for preparation batch 440-601122 and 440-601122 and analytical batch 440-601579 recovered below control limits for the following analyte(s): Benzidine and Hexachlorocyclopentadiene. These analytes have been identified as poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed. The results for these analytes may be biased low.

Method 625.1: The matrix spike/matrix spike duplicate (MS/MSD) for preparation batch 440-601122 and analytical batch 440-601579 exceeded control limits for the following analyte(s): 3,3'-Dichlorobenzidine, Hexachlorocyclopentadiene and Benzidine. Note that this analyte is a known poor performer when analyzed using this method.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601089 and analytical batch 440-601412. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-601089/5-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall008_20200314_Comp (440-263044-1), (CCV 320-366401/17), (LCS 320-365527/2-A) and (MB 320-365527/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall008_20200314_Comp_F (440-263044-2). These samples were filtered and preserved upon receipt to the laboratory.

03/16/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for analytical batch 440-601118 contained Calcium above the Method detection limit (MDL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 440-263044-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 625: A LCSD was added due to about 30 mL of the MS spilling during the extraction procedure. The LCSD was added to provide precision data for the batch.

Outfall008_20200314_Comp (440-263044-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall008_20200314_Comp (440-263044-1) were received in wide-mouth amber glass bottles.

preparation batch 320-365527
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Asbestos 100.2: This method was subcontracted to EMSL Analytical Inc - LA Testing - Pasadena. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Weck- 525.2: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Client Sample ID: Outfall008_20200314_Comp
Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1
Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Acenaphthylene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Anthracene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzidine	ND	LR BA	11	5.3	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzo[a]anthracene	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzo[b]fluoranthene	ND		2.1	0.32	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzo[k]fluoranthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzo[a]pyrene	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Bis(2-chloroethoxy)methane	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Bis(2-chloroethyl)ether	ND		0.53	0.053	ug/L		03/18/20 08:11	03/20/20 15:04	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
4-Bromophenyl phenyl ether	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Butyl benzyl phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
4-Chloro-3-methylphenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
2-Chloronaphthalene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
2-Chlorophenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
4-Chlorophenyl phenyl ether	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Chrysene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Dibenz(a,h)anthracene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Di-n-butyl phthalate	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 15:04	1
1,2-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
1,3-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
1,4-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
3,3'-Dichlorobenzidine	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,4-Dichlorophenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Diethyl phthalate	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,4-Dimethylphenol	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 15:04	1
Dimethyl phthalate	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
4,6-Dinitro-2-methylphenol	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,4-Dinitrophenol	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,6-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
Di-n-octyl phthalate	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Fluoranthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Fluorene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Hexachlorobenzene	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Hexachlorobutadiene	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 15:04	1
Hexachloroethane	ND		3.2	0.53	ug/L		03/18/20 08:11	03/20/20 15:04	1
Hexachlorocyclopentadiene	ND	LR	5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.42	ug/L		03/18/20 08:11	03/20/20 15:04	1
Isophorone	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
Naphthalene	ND		1.1	0.053	ug/L		03/18/20 08:11	03/20/20 15:04	1
Nitrobenzene	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
2-Nitrophenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
4-Nitrophenol	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
N-Nitrosodimethylamine	ND		2.1	0.32	ug/L		03/18/20 08:11	03/20/20 15:04	1
N-Nitrosodiphenylamine	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
N-Nitrosodi-n-propylamine	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		2.1	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
Phenanthrene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Phenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Pyrene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
1,2,4-Trichlorobenzene	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 15:04	1
2,4,6-Trichlorophenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1
Benzo[g,h,i]perylene	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:04	1
bis (2-chloroisopropyl) ether	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*78*		*51 - 120*	*03/18/20 08:11*	*03/20/20 15:04*	*1*
2-Fluorophenol	*73*		*43 - 120*	*03/18/20 08:11*	*03/20/20 15:04*	*1*
2,4,6-Tribromophenol	*82*		*60 - 120*	*03/18/20 08:11*	*03/20/20 15:04*	*1*
Nitrobenzene-d5	*85*		*53 - 150*	*03/18/20 08:11*	*03/20/20 15:04*	*1*
Terphenyl-d14	*77*		*12 - 142*	*03/18/20 08:11*	*03/20/20 15:04*	*1*
Phenol-d5	*70*		*45 - 150*	*03/18/20 08:11*	*03/20/20 15:04*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0051	0.0015	ug/L		03/18/20 05:58	03/18/20 23:49	1
alpha-BHC	ND		0.0051	0.0026	ug/L		03/18/20 05:58	03/18/20 23:49	1
beta-BHC	ND		0.010	0.0041	ug/L		03/18/20 05:58	03/18/20 23:49	1
Chlordane (technical)	ND		0.10	0.082	ug/L		03/18/20 05:58	03/18/20 23:49	1
delta-BHC	ND		0.0051	0.0036	ug/L		03/18/20 05:58	03/18/20 23:49	1
Dieldrin	ND		0.0051	0.0021	ug/L		03/18/20 05:58	03/18/20 23:49	1
Endosulfan I	ND		0.0051	0.0031	ug/L		03/18/20 05:58	03/18/20 23:49	1
Endosulfan II	ND		0.0051	0.0021	ug/L		03/18/20 05:58	03/18/20 23:49	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		03/18/20 05:58	03/18/20 23:49	1
Endrin	ND		0.0051	0.0021	ug/L		03/18/20 05:58	03/18/20 23:49	1
Endrin aldehyde	ND		0.010	0.0021	ug/L		03/18/20 05:58	03/18/20 23:49	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		03/18/20 05:58	03/18/20 23:49	1
Heptachlor	ND		0.0092	0.0031	ug/L		03/18/20 05:58	03/18/20 23:49	1
Heptachlor epoxide	ND		0.0051	0.0026	ug/L		03/18/20 05:58	03/18/20 23:49	1
Toxaphene	ND		0.51	0.25	ug/L		03/18/20 05:58	03/18/20 23:49	1
4,4'-DDD	ND		0.0051	0.0041	ug/L		03/18/20 05:58	03/18/20 23:49	1
4,4'-DDE	ND		0.0051	0.0031	ug/L		03/18/20 05:58	03/18/20 23:49	1
4,4'-DDT	ND		0.010	0.0041	ug/L		03/18/20 05:58	03/18/20 23:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*48*		*10 - 104*	*03/18/20 05:58*	*03/18/20 23:49*	*1*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1221	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1232	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1242	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1248	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1254	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1
Aroclor 1260	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:34	1

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*84*		*18 - 134*	*03/18/20 05:58*	*03/19/20 12:34*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/14/20 19:09	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1.6**		0.50	0.25	mg/L			03/14/20 18:31	1
Nitrate as N	**0.86**		0.11	0.055	mg/L			03/14/20 18:31	1
Fluoride	ND		0.50	0.25	mg/L			03/14/20 18:31	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 18:31	1
Sulfate	**1.3**		0.50	0.25	mg/L			03/14/20 18:31	1

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/23/20 10:40	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.86**		0.15	0.055	mg/L			03/20/20 13:26	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000089	ug/L		03/18/20 08:33	03/21/20 13:56	1
2,3,7,8-TCDF	ND		0.000010	0.00000032	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,7,8-PeCDD	ND		0.000052	0.00000082	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,7,8-PeCDF	**0.0000018**	**J,DX q**	0.000052	0.00000063	ug/L		03/18/20 08:33	03/21/20 13:56	1
2,3,4,7,8-PeCDF	**0.0000019**	**J,DX**	0.000052	0.00000068	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,4,7,8-HxCDD	**0.0000046**	**J,DX MB**	0.000052	0.00000096	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,6,7,8-HxCDD	**0.0000031**	**J,DX**	0.000052	0.0000010	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,7,8,9-HxCDD	**0.0000025**	**J,DX q**	0.000052	0.00000091	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,4,7,8-HxCDF	**0.0000021**	**J,DX**	0.000052	0.00000047	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,6,7,8-HxCDF	**0.0000025**	**J,DX**	0.000052	0.00000052	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,7,8,9-HxCDF	**0.0000031**	**J,DX MB**	0.000052	0.00000052	ug/L		03/18/20 08:33	03/21/20 13:56	1
2,3,4,6,7,8-HxCDF	**0.0000024**	**J,DX**	0.000052	0.00000047	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,4,6,7,8-HpCDD	**0.0000043**	**J,DX q MB**	0.000052	0.00000030	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,4,6,7,8-HpCDF	**0.0000032**	**J,DX**	0.000052	0.00000070	ug/L		03/18/20 08:33	03/21/20 13:56	1
1,2,3,4,7,8,9-HpCDF	**0.0000028**	**J,DX q**	0.000052	0.00000082	ug/L		03/18/20 08:33	03/21/20 13:56	1
OCDD	**0.000024**	**J,DX MB**	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 13:56	1

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
OCDF	**0.0000082**	**J,DX MB**	0.00010	0.00000085	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total TCDD	ND		0.000010	0.00000089	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total TCDF	ND		0.000010	0.00000032	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total PeCDD	ND		0.000052	0.00000082	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total PeCDF	**0.0000037**	**J,DX q**	0.000052	0.00000063	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total HxCDD	**0.000010**	**J,DX q MB**	0.000052	0.00000091	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total HxCDF	**0.000010**	**J,DX MB**	0.000052	0.00000047	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total HpCDD	**0.0000075**	**J,DX q MB**	0.000052	0.00000030	ug/L		03/18/20 08:33	03/21/20 13:56	1
Total HpCDF	**0.0000059**	**J,DX q**	0.000052	0.00000070	ug/L		03/18/20 08:33	03/21/20 13:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,7,8-PeCDF	*60*		*24 - 185*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-2,3,4,7,8-PeCDF	*67*		*21 - 178*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,4,7,8-HxCDD	*71*		*32 - 141*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,6,7,8-HxCDD	*67*		*28 - 130*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,4,7,8-HxCDF	*77*		*26 - 152*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,6,7,8-HxCDF	*72*		*26 - 123*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,7,8,9-HxCDF	*70*		*29 - 147*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-2,3,4,6,7,8-HxCDF	*75*		*28 - 136*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*66*		*28 - 143*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*62*		*26 - 138*	*03/18/20 08:33*	*03/21/20 13:56*	*1*
13C-OCDD	*49*		*17 - 157*	*03/18/20 08:33*	*03/21/20 13:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*75*		*35 - 197*	*03/18/20 08:33*	*03/21/20 13:56*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**200**		100	50	ug/L		03/17/20 09:40	03/18/20 02:17	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 02:17	1
Boron	**0.074**		0.050	0.025	mg/L		03/17/20 09:40	03/18/20 02:17	1
Beryllium	ND		2.0	1.0	ug/L		03/17/20 09:40	03/18/20 02:17	1
Chromium	ND		5.0	2.5	ug/L		03/17/20 09:40	03/18/20 02:17	1
Iron	**0.21**		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 02:17	1
Nickel	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 02:17	1
Vanadium	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 02:17	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 02:17	1

Client Sample ID: Outfall008_20200314_Comp

Lab Sample ID: 440-263044-1
Date Collected: 03/14/20 09:20
Matrix: Water
Date Received: 03/14/20 17:30

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/20/20 09:44	03/20/20 16:12	1
Cadmium	ND		1.0	0.25	ug/L		03/20/20 09:44	03/20/20 16:12	1
Copper	**2.2**		2.0	0.50	ug/L		03/20/20 09:44	03/20/20 16:12	1
Lead	ND		1.0	0.50	ug/L		03/20/20 09:44	03/20/20 16:12	1
Antimony	**0.85**	**J,DX**	2.0	0.50	ug/L		03/20/20 09:44	03/20/20 16:12	1
Selenium	ND		2.0	0.50	ug/L		03/20/20 09:44	03/20/20 16:12	1
Thallium	ND		1.0	0.20	ug/L		03/20/20 09:44	03/20/20 16:12	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		03/24/20 14:41	03/25/20 10:41	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**37**		0.33	0.17	mg/L			03/19/20 17:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**100**		10	5.0	mg/L			03/18/20 10:01	1
Total Suspended Solids	**2.6**		1.0	0.50	mg/L			03/20/20 13:33	1
Cyanide, Total	**2.6**	**J,DX**	5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:34	1
Ammonia (as N)	**0.119**	**J,DX**	0.200	0.100	mg/L			03/19/20 13:39	1

Client Sample ID: Outfall008_20200314_Comp_F

Lab Sample ID: 440-263044-2
Date Collected: 03/14/20 09:20
Matrix: Water
Date Received: 03/14/20 17:30

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**100**		100	50	ug/L		03/16/20 16:13	03/17/20 21:08	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 21:08	1
Boron	**0.072**		0.050	0.025	mg/L		03/16/20 16:13	03/17/20 21:08	1
Beryllium	ND		2.0	1.0	ug/L		03/16/20 16:13	03/17/20 21:08	1
Chromium	ND		5.0	2.5	ug/L		03/16/20 16:13	03/17/20 21:08	1
Iron (Dissolved)	**0.093**	**J,DX**	0.10	0.050	mg/L		03/16/20 16:13	03/17/20 21:08	1
Nickel	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 21:08	1
Vanadium	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 21:08	1
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 21:08	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:56	1
Cadmium	ND		1.0	0.25	ug/L		04/08/20 11:01	04/08/20 15:56	1
Copper	**2.6**		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:56	1
Lead	ND		1.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:56	1
Antimony	ND		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:56	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:56	1
Thallium	ND		1.0	0.20	ug/L		04/08/20 11:01	04/08/20 15:56	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Client Sample ID: Outfall008_20200314_Comp_F
Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-2
Matrix: Water

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		03/18/20 08:16	03/18/20 18:07	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**37**		0.33	0.17	mg/L			03/20/20 17:48	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
100.2	EPA 100.2 Asbestos in Drinking Water	EPA	EMSL-LA
EPA	Bioassay	EPA	Aquatic
Subcontract	Weck- 525.2	None	Weck Lab
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
EMSL-LA = EMSL Analytical Inc - LA Testing - Pasadena, 520 Mission Street, South Pasadena, CA 91030
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			945 mL	2.0 mL	601122	03/18/20 08:11	NAM	TAL IRV
Total/NA	Analysis	625.1		1			601579	03/20/20 15:04	HN	TAL IRV
Total/NA	Prep	608			975 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601220	03/18/20 23:49	D1D	TAL IRV
Total/NA	Prep	608			975 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601412	03/19/20 12:34	JM	TAL IRV
Total/NA	Analysis	218.6		1			600565	03/14/20 19:09	NN	TAL IRV
Total/NA	Analysis	300.0		1			600528	03/14/20 18:31	NTN	TAL IRV
Total/NA	Analysis	300.0		1			600529	03/14/20 18:31	NTN	TAL IRV
Total/NA	Analysis	314.0		1			601877	03/23/20 10:40	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601688	03/20/20 13:26	NN	TAL IRV
Total/NA	Prep	1613B			967.9 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			366401	03/21/20 13:56	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	600756	03/17/20 09:40	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			601118	03/18/20 02:17	VS	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	601632	03/20/20 09:44	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			601724	03/20/20 16:12	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602148	03/24/20 14:41	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602304	03/25/20 10:41	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			600047	03/19/20 17:49	P1R	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	601166	03/18/20 10:01	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	601689	03/20/20 13:33	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	601903	03/23/20 10:17	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			601977	03/23/20 15:34	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	601472	03/19/20 13:39	KMY	TAL IRV

Client Sample ID: Outfall008_20200314_Comp_F

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:32	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600775	03/16/20 16:13	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601061	03/17/20 21:08	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:32	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604092	04/08/20 11:01	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604259	04/08/20 15:56	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	600735	03/16/20 13:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	601070	03/18/20 08:16	DB	TAL IRV
Dissolved	Analysis	245.1		1			601310	03/18/20 18:07	DB	TAL IRV
Dissolved	Analysis	SM 2340B		1			600609	03/20/20 17:48	P1R	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

EMSL-LA = EMSL Analytical Inc - LA Testing - Pasadena, 520 Mission Street, South Pasadena, CA 91030

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Acenaphthylene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Anthracene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzidine	ND		10	5.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[a]anthracene	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[b]fluoranthene	ND		2.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[a]pyrene	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-chloroethoxy)methane	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-chloroethyl)ether	ND		0.50	0.050	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Chloro-3-methylphenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Chloronaphthalene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Chlorophenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Chlorophenyl phenyl ether	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Chrysene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Dibenz(a,h)anthracene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Di-n-butyl phthalate	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,4-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dichlorophenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Diethyl phthalate	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dimethylphenol	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Dimethyl phthalate	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
4,6-Dinitro-2-methylphenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrophenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,6-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Di-n-octyl phthalate	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Fluoranthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Fluorene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachloroethane	ND		3.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		03/18/20 08:11	03/20/20 09:01	1
Isophorone	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Naphthalene	ND		1.0	0.050	ug/L		03/18/20 08:11	03/20/20 09:01	1
Nitrobenzene	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Nitrophenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Nitrophenol	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodimethylamine	ND		2.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodiphenylamine	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodi-n-propylamine	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pentachlorophenol	ND		2.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Phenanthrene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Phenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pyrene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2,4-Trichlorobenzene	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[g,h,i]perylene	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
bis (2-chloroisopropyl) ether	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*51 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorophenol	*85*		*43 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2,4,6-Tribromophenol	*82*		*60 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Nitrobenzene-d5	*76*		*53 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Terphenyl-d14	*87*		*12 - 142*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Phenol-d5	*80*		*45 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	15.0	12.3		ug/L		82	60 - 132
Acenaphthylene	15.0	12.6		ug/L		84	54 - 126
Anthracene	15.0	12.3		ug/L		82	43 - 120
Benzidine	15.0	ND	LR	ug/L		0.3	5 - 140
Benzo[a]anthracene	15.0	12.7		ug/L		84	42 - 133
Benzo[b]fluoranthene	15.0	12.4		ug/L		83	42 - 140
Benzo[k]fluoranthene	15.0	12.4		ug/L		83	25 - 146
Benzo[a]pyrene	15.0	12.6		ug/L		84	32 - 148
Bis(2-chloroethoxy)methane	15.0	12.6		ug/L		84	49 - 165
Bis(2-chloroethyl)ether	15.0	10.0		ug/L		67	43 - 126
Bis(2-ethylhexyl) phthalate	15.0	13.3		ug/L		89	29 - 137
4-Bromophenyl phenyl ether	15.0	11.8		ug/L		79	65 - 120
Butyl benzyl phthalate	15.0	13.8		ug/L		92	10 - 140
4-Chloro-3-methylphenol	15.0	14.6		ug/L		98	41 - 128
2-Chloronaphthalene	15.0	12.3		ug/L		82	65 - 120
2-Chlorophenol	15.0	10.1		ug/L		67	36 - 120
4-Chlorophenyl phenyl ether	15.0	12.3		ug/L		82	38 - 145
Chrysene	15.0	12.0		ug/L		80	44 - 140
Dibenz(a,h)anthracene	15.0	12.8		ug/L		86	10 - 200
Di-n-butyl phthalate	15.0	13.8		ug/L		92	8 - 120
1,2-Dichlorobenzene	15.0	9.25		ug/L		62	60 - 140
1,3-Dichlorobenzene	15.0	10.5		ug/L		70	60 - 140
1,4-Dichlorobenzene	15.0	10.4		ug/L		70	60 - 140
3,3'-Dichlorobenzidine	15.0	10.3		ug/L		68	8 - 213
2,4-Dichlorophenol	15.0	12.9		ug/L		86	53 - 122

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diethyl phthalate	15.0	14.7		ug/L		98	10 - 120
2,4-Dimethylphenol	15.0	11.8		ug/L		79	42 - 120
Dimethyl phthalate	15.0	13.1		ug/L		87	10 - 120
4,6-Dinitro-2-methylphenol	30.0	24.5		ug/L		82	53 - 130
2,4-Dinitrophenol	30.0	25.1		ug/L		84	10 - 173
2,4-Dinitrotoluene	15.0	13.6		ug/L		91	48 - 127
2,6-Dinitrotoluene	15.0	13.4		ug/L		89	68 - 137
Di-n-octyl phthalate	15.0	13.9		ug/L		93	19 - 132
1,2-Diphenylhydrazine(as Azobenzene)	15.0	12.9		ug/L		86	60 - 140
Fluoranthene	15.0	13.9		ug/L		93	43 - 121
Fluorene	15.0	12.7		ug/L		85	70 - 120
Hexachlorobenzene	15.0	11.6		ug/L		77	8 - 142
Hexachlorobutadiene	15.0	9.40		ug/L		63	38 - 120
Hexachloroethane	15.0	8.56		ug/L		57	55 - 120
Hexachlorocyclopentadiene	15.0	5.37	LR	ug/L		36	60 - 140
Indeno[1,2,3-cd]pyrene	15.0	13.2		ug/L		88	10 - 151
Isophorone	15.0	14.0		ug/L		93	47 - 180
Naphthalene	15.0	11.6		ug/L		77	36 - 120
Nitrobenzene	15.0	11.2		ug/L		75	54 - 158
2-Nitrophenol	15.0	12.7		ug/L		85	45 - 167
4-Nitrophenol	30.0	22.3		ug/L		74	13 - 129
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
N-Nitrosodiphenylamine	15.0	11.8		ug/L		79	60 - 140
N-Nitrosodi-n-propylamine	15.0	13.6		ug/L		91	14 - 198
Pentachlorophenol	30.0	24.9		ug/L		83	38 - 152
Phenanthrene	15.0	12.1		ug/L		81	65 - 120
Phenol	15.0	11.4		ug/L		76	17 - 120
Pyrene	15.0	13.5		ug/L		90	70 - 120
1,2,4-Trichlorobenzene	15.0	9.84		ug/L		66	57 - 130
2,4,6-Trichlorophenol	15.0	14.2		ug/L		95	52 - 129
Benzo[g,h,i]perylene	15.0	12.3		ug/L		82	10 - 195
bis (2-chloroisopropyl) ether	15.0	11.5		ug/L		77	63 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*84*		*51 - 120*
2-Fluorophenol	*86*		*43 - 120*
2,4,6-Tribromophenol	*91*		*60 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Terphenyl-d14	*89*		*12 - 142*
Phenol-d5	*71*		*45 - 150*

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	15.0	13.3		ug/L		88	60 - 132	7	35
Acenaphthylene	15.0	13.7		ug/L		91	54 - 126	8	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	15.0	13.4		ug/L		90	43 - 120	9	35
Benzidine	15.0	ND	LR BA	ug/L		0.4	5 - 140	36	35
Benzo[a]anthracene	15.0	13.9		ug/L		93	42 - 133	9	35
Benzo[b]fluoranthene	15.0	15.2		ug/L		101	42 - 140	20	35
Benzo[k]fluoranthene	15.0	14.6		ug/L		97	25 - 146	16	35
Benzo[a]pyrene	15.0	14.7		ug/L		98	32 - 148	16	35
Bis(2-chloroethoxy)methane	15.0	13.6		ug/L		91	49 - 165	8	35
Bis(2-chloroethyl)ether	15.0	13.4		ug/L		89	43 - 126	29	35
Bis(2-ethylhexyl) phthalate	15.0	14.8		ug/L		98	29 - 137	10	35
4-Bromophenyl phenyl ether	15.0	12.9		ug/L		86	65 - 120	9	35
Butyl benzyl phthalate	15.0	15.4		ug/L		103	10 - 140	11	35
4-Chloro-3-methylphenol	15.0	15.8		ug/L		105	41 - 128	7	35
2-Chloronaphthalene	15.0	13.3		ug/L		89	65 - 120	7	35
2-Chlorophenol	15.0	13.3		ug/L		89	36 - 120	28	35
4-Chlorophenyl phenyl ether	15.0	13.3		ug/L		89	38 - 145	8	35
Chrysene	15.0	13.1		ug/L		87	44 - 140	9	35
Dibenz(a,h)anthracene	15.0	13.4		ug/L		89	10 - 200	4	35
Di-n-butyl phthalate	15.0	15.5		ug/L		104	8 - 120	12	35
1,2-Dichlorobenzene	15.0	11.8		ug/L		79	60 - 140	24	35
1,3-Dichlorobenzene	15.0	11.0		ug/L		74	60 - 140	5	35
1,4-Dichlorobenzene	15.0	11.4		ug/L		76	60 - 140	8	35
3,3'-Dichlorobenzidine	15.0	10.8		ug/L		72	8 - 213	5	35
2,4-Dichlorophenol	15.0	13.9		ug/L		93	53 - 122	7	35
Diethyl phthalate	15.0	15.5		ug/L		103	10 - 120	5	35
2,4-Dimethylphenol	15.0	13.2		ug/L		88	42 - 120	11	35
Dimethyl phthalate	15.0	13.8		ug/L		92	10 - 120	6	35
4,6-Dinitro-2-methylphenol	30.0	28.0		ug/L		93	53 - 130	14	35
2,4-Dinitrophenol	30.0	27.9		ug/L		93	10 - 173	11	35
2,4-Dinitrotoluene	15.0	14.9		ug/L		99	48 - 127	9	35
2,6-Dinitrotoluene	15.0	14.3		ug/L		96	68 - 137	7	35
Di-n-octyl phthalate	15.0	14.8		ug/L		99	19 - 132	6	35
1,2-Diphenylhydrazine(as Azobenzene)	15.0	13.7		ug/L		91	60 - 140	6	35
Fluoranthene	15.0	15.6		ug/L		104	43 - 121	12	35
Fluorene	15.0	13.6		ug/L		90	70 - 120	7	35
Hexachlorobenzene	15.0	12.8		ug/L		85	8 - 142	10	35
Hexachlorobutadiene	15.0	10.8		ug/L		72	38 - 120	14	35
Hexachloroethane	15.0	10.6		ug/L		71	55 - 120	21	35
Hexachlorocyclopentadiene	15.0	7.30	LR	ug/L		49	60 - 140	30	35
Indeno[1,2,3-cd]pyrene	15.0	13.4		ug/L		90	10 - 151	2	35
Isophorone	15.0	15.0		ug/L		100	47 - 180	7	35
Naphthalene	15.0	12.5		ug/L		83	36 - 120	7	35
Nitrobenzene	15.0	12.5		ug/L		84	54 - 158	11	35
2-Nitrophenol	15.0	14.1		ug/L		94	45 - 167	10	35
4-Nitrophenol	30.0	26.2		ug/L		87	13 - 129	16	35
N-Nitrosodimethylamine	15.0	16.9		ug/L		112	60 - 140	22	35
N-Nitrosodiphenylamine	15.0	12.8		ug/L		85	60 - 140	8	35
N-Nitrosodi-n-propylamine	15.0	16.8		ug/L		112	14 - 198	21	35
Pentachlorophenol	30.0	29.0		ug/L		97	38 - 152	15	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenanthrene			15.0	13.2		ug/L		88	65 - 120	8	35
Phenol			15.0	14.3		ug/L		96	17 - 120	23	35
Pyrene			15.0	14.8		ug/L		99	70 - 120	9	35
1,2,4-Trichlorobenzene			15.0	11.7		ug/L		78	57 - 130	17	35
2,4,6-Trichlorophenol			15.0	15.4		ug/L		103	52 - 129	8	35
Benzo[g,h,i]perylene			15.0	12.4		ug/L		83	10 - 195	1	35
bis (2-chloroisopropyl) ether			15.0	14.0		ug/L		93	63 - 139	19	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*80*		*43 - 120*
2,4,6-Tribromophenol	*99*		*60 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Terphenyl-d14	*97*		*12 - 142*
Phenol-d5	*95*		*45 - 150*

Lab Sample ID: 440-263045-K-1-A MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acenaphthene	ND		16.2	14.2		ug/L		87	47 - 145		
Acenaphthylene	ND		16.2	14.3		ug/L		88	33 - 145		
Anthracene	ND		16.2	13.5		ug/L		83	27 - 133		
Benzidine	ND	LR BA	16.2	ND	LN	ug/L		0	5 - 140		
Benzo[a]anthracene	ND		16.2	14.2		ug/L		87	33 - 143		
Benzo[b]fluoranthene	ND		16.2	15.7		ug/L		97	24 - 159		
Benzo[k]fluoranthene	ND		16.2	14.4		ug/L		89	11 - 162		
Benzo[a]pyrene	ND		16.2	14.0		ug/L		86	17 - 163		
Bis(2-chloroethoxy)methane	ND		16.2	14.8		ug/L		91	33 - 184		
Bis(2-chloroethyl)ether	ND		16.2	16.0		ug/L		99	12 - 158		
Bis(2-ethylhexyl) phthalate	ND		16.2	14.9		ug/L		92	8 - 158		
4-Bromophenyl phenyl ether	ND		16.2	13.4		ug/L		83	53 - 127		
Butyl benzyl phthalate	ND		16.2	16.7		ug/L		103	10 - 152		
4-Chloro-3-methylphenol	ND		16.2	17.3		ug/L		107	22 - 147		
2-Chloronaphthalene	ND		16.2	14.1		ug/L		87	60 - 120		
2-Chlorophenol	ND		16.2	15.5		ug/L		96	23 - 134		
4-Chlorophenyl phenyl ether	ND		16.2	13.9		ug/L		85	25 - 158		
Chrysene	ND		16.2	13.2		ug/L		81	17 - 168		
Dibenz(a,h)anthracene	ND		16.2	12.0		ug/L		74	10 - 227		
Di-n-butyl phthalate	ND		16.2	16.5		ug/L		102	1 - 120		
1,2-Dichlorobenzene	ND		16.2	13.2		ug/L		81	60 - 140		
1,3-Dichlorobenzene	ND		16.2	12.1		ug/L		75	60 - 140		
1,4-Dichlorobenzene	ND		16.2	12.5		ug/L		77	60 - 140		
3,3'-Dichlorobenzidine	ND		16.2	ND	LN	ug/L		0	10 - 262		
2,4-Dichlorophenol	ND		16.2	15.0		ug/L		92	39 - 135		
Diethyl phthalate	ND		16.2	17.0		ug/L		105	10 - 120		
2,4-Dimethylphenol	ND		16.2	15.1		ug/L		93	32 - 120		

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-K-1-A MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethyl phthalate	ND		16.2	14.9		ug/L		92	10 - 120
4,6-Dinitro-2-methylphenol	ND		32.4	29.3		ug/L		90	10 - 181
2,4-Dinitrophenol	ND		32.4	31.5		ug/L		97	10 - 191
2,4-Dinitrotoluene	ND		16.2	16.0		ug/L		99	39 - 139
2,6-Dinitrotoluene	ND		16.2	15.4		ug/L		95	50 - 158
Di-n-octyl phthalate	ND		16.2	14.5		ug/L		90	4 - 146
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.2	13.8		ug/L		85	60 - 140
Fluoranthene	ND		16.2	16.6		ug/L		102	26 - 137
Fluorene	ND		16.2	14.4		ug/L		89	59 - 121
Hexachlorobenzene	ND		16.2	13.2		ug/L		81	10 - 152
Hexachlorobutadiene	ND		16.2	11.4		ug/L		70	24 - 120
Hexachloroethane	ND		16.2	11.9		ug/L		73	40 - 120
Hexachlorocyclopentadiene	ND	LR	16.2	5.58	LN	ug/L		34	60 - 140
Indeno[1,2,3-cd]pyrene	ND		16.2	12.7		ug/L		79	10 - 171
Isophorone	ND		16.2	16.9		ug/L		104	21 - 196
Naphthalene	ND		16.2	13.6		ug/L		84	21 - 133
Nitrobenzene	ND		16.2	13.3		ug/L		82	35 - 180
2-Nitrophenol	ND		16.2	15.3		ug/L		94	29 - 182
4-Nitrophenol	ND		32.4	30.0		ug/L		92	10 - 132
N-Nitrosodimethylamine	ND		16.2	20.3		ug/L		125	60 - 140
N-Nitrosodiphenylamine	ND		16.2	12.4		ug/L		77	60 - 140
N-Nitrosodi-n-propylamine	ND		16.2	20.1		ug/L		124	10 - 230
Pentachlorophenol	ND		32.4	34.1		ug/L		105	14 - 176
Phenanthrene	ND		16.2	14.1		ug/L		87	54 - 120
Phenol	ND		16.2	16.9		ug/L		104	5 - 120
Pyrene	ND		16.2	16.6		ug/L		102	52 - 120
1,2,4-Trichlorobenzene	ND		16.2	12.8		ug/L		79	44 - 142
2,4,6-Trichlorophenol	ND		16.2	16.9		ug/L		104	37 - 144
Benzo[g,h,i]perylene	ND		16.2	12.2		ug/L		75	10 - 219
bis (2-chloroisopropyl) ether	ND		16.2	17.1		ug/L		105	36 - 166

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*51 - 120*
2-Fluorophenol	*97*		*43 - 120*
2,4,6-Tribromophenol	*99*		*60 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Terphenyl-d14	*79*		*12 - 142*
Phenol-d5	*110*		*45 - 150*

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		16.4	13.0		ug/L		79	47 - 145	9	48
Acenaphthylene	ND		16.4	13.4		ug/L		82	33 - 145	7	74
Anthracene	ND		16.4	12.5		ug/L		76	27 - 133	7	66
Benzidine	ND	LR BA	16.4	ND	LN	ug/L		0	5 - 140	NC	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	ND		16.4	12.9		ug/L		79	33 - 143	9	53
Benzo[b]fluoranthene	ND		16.4	14.3		ug/L		87	24 - 159	9	71
Benzo[k]fluoranthene	ND		16.4	13.5		ug/L		82	11 - 162	6	63
Benzo[a]pyrene	ND		16.4	13.0		ug/L		79	17 - 163	7	72
Bis(2-chloroethoxy)methane	ND		16.4	13.8		ug/L		84	33 - 184	7	54
Bis(2-chloroethyl)ether	ND		16.4	14.3		ug/L		87	12 - 158	11	108
Bis(2-ethylhexyl) phthalate	ND		16.4	13.0		ug/L		79	8 - 158	14	82
4-Bromophenyl phenyl ether	ND		16.4	12.4		ug/L		76	53 - 127	8	43
Butyl benzyl phthalate	ND		16.4	14.6		ug/L		89	10 - 152	13	60
4-Chloro-3-methylphenol	ND		16.4	16.1		ug/L		98	22 - 147	7	73
2-Chloronaphthalene	ND		16.4	12.9		ug/L		79	60 - 120	9	24
2-Chlorophenol	ND		16.4	14.0		ug/L		86	23 - 134	10	61
4-Chlorophenyl phenyl ether	ND		16.4	12.8		ug/L		78	25 - 158	8	61
Chrysene	ND		16.4	11.7		ug/L		71	17 - 168	12	87
Dibenz(a,h)anthracene	ND		16.4	10.9		ug/L		66	10 - 227	10	126
Di-n-butyl phthalate	ND		16.4	14.8		ug/L		91	1 - 120	11	47
1,2-Dichlorobenzene	ND		16.4	11.7		ug/L		71	60 - 140	13	35
1,3-Dichlorobenzene	ND		16.4	10.5		ug/L		64	60 - 140	15	35
1,4-Dichlorobenzene	ND		16.4	10.9		ug/L		67	60 - 140	13	35
3,3'-Dichlorobenzidine	ND		16.4	ND	LN	ug/L		0	10 - 262	NC	108
2,4-Dichlorophenol	ND		16.4	14.0		ug/L		86	39 - 135	7	50
Diethyl phthalate	ND		16.4	15.6		ug/L		95	10 - 120	9	100
2,4-Dimethylphenol	ND		16.4	13.9		ug/L		85	32 - 120	8	58
Dimethyl phthalate	ND		16.4	13.8		ug/L		84	10 - 120	8	183
4,6-Dinitro-2-methylphenol	ND		32.8	27.8		ug/L		85	10 - 181	5	203
2,4-Dinitrophenol	ND		32.8	29.7		ug/L		90	10 - 191	6	132
2,4-Dinitrotoluene	ND		16.4	14.9		ug/L		91	39 - 139	7	42
2,6-Dinitrotoluene	ND		16.4	14.3		ug/L		87	50 - 158	8	48
Di-n-octyl phthalate	ND		16.4	13.2		ug/L		81	4 - 146	9	69
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.4	12.9		ug/L		79	60 - 140	7	35
Fluoranthene	ND		16.4	15.3		ug/L		93	26 - 137	8	66
Fluorene	ND		16.4	13.4		ug/L		82	59 - 121	8	38
Hexachlorobenzene	ND		16.4	12.1		ug/L		74	10 - 152	9	55
Hexachlorobutadiene	ND		16.4	9.62		ug/L		59	24 - 120	17	62
Hexachloroethane	ND		16.4	9.93		ug/L		61	40 - 120	18	52
Hexachlorocyclopentadiene	ND	LR	16.4	6.72	LN	ug/L		41	60 - 140	18	35
Indeno[1,2,3-cd]pyrene	ND		16.4	11.7		ug/L		71	10 - 171	9	99
Isophorone	ND		16.4	15.8		ug/L		96	21 - 196	7	93
Naphthalene	ND		16.4	12.3		ug/L		75	21 - 133	10	65
Nitrobenzene	ND		16.4	12.7		ug/L		78	35 - 180	4	62
2-Nitrophenol	ND		16.4	14.3		ug/L		87	29 - 182	7	55
4-Nitrophenol	ND		32.8	27.1		ug/L		83	10 - 132	10	131
N-Nitrosodimethylamine	ND		16.4	18.4		ug/L		112	60 - 140	10	35
N-Nitrosodiphenylamine	ND		16.4	11.1		ug/L		68	60 - 140	11	35
N-Nitrosodi-n-propylamine	ND		16.4	17.7		ug/L		108	10 - 230	13	87
Pentachlorophenol	ND		32.8	31.1		ug/L		95	14 - 176	9	86
Phenanthrene	ND		16.4	12.8		ug/L		78	54 - 120	9	39
Phenol	ND		16.4	15.0		ug/L		92	5 - 120	12	64

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pyrene	ND		16.4	14.7		ug/L		89	52 - 120	12	49
1,2,4-Trichlorobenzene	ND		16.4	11.2		ug/L		68	44 - 142	13	50
2,4,6-Trichlorophenol	ND		16.4	15.4		ug/L		94	37 - 144	9	58
Benzo[g,h,i]perylene	ND		16.4	11.6		ug/L		70	10 - 219	5	97
bis (2-chloroisopropyl) ether	ND		16.4	15.0		ug/L		91	36 - 166	13	76

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*79*		*51 - 120*
2-Fluorophenol	*74*		*43 - 120*
2,4,6-Tribromophenol	*91*		*60 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Terphenyl-d14	*66*		*12 - 142*
Phenol-d5	*92*		*45 - 150*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		03/18/20 05:58	03/18/20 21:10	1
alpha-BHC	ND		0.0050	0.0025	ug/L		03/18/20 05:58	03/18/20 21:10	1
beta-BHC	ND		0.010	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1
Chlordane (technical)	ND		0.10	0.080	ug/L		03/18/20 05:58	03/18/20 21:10	1
delta-BHC	ND		0.0050	0.0035	ug/L		03/18/20 05:58	03/18/20 21:10	1
Dieldrin	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan I	ND		0.0050	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan II	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endrin	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Heptachlor	ND		0.0090	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		03/18/20 05:58	03/18/20 21:10	1
Toxaphene	ND		0.50	0.24	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDT	ND		0.010	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*10 - 104*	*03/18/20 05:58*	*03/18/20 21:10*	*1*

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 440-601089/2-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aldrin			0.400	0.292		ug/L		73	42 - 140		
alpha-BHC			0.400	0.298		ug/L		75	37 - 140		
beta-BHC			0.400	0.300		ug/L		75	17 - 147		
delta-BHC			0.400	0.307		ug/L		77	19 - 140		
Dieldrin			0.400	0.315		ug/L		79	36 - 146		
Endosulfan I			0.400	0.312		ug/L		78	45 - 153		
Endosulfan II			0.400	0.345		ug/L		86	10 - 202		
Endosulfan sulfate			0.400	0.330		ug/L		82	26 - 144		
Endrin			0.400	0.333		ug/L		83	30 - 147		
Endrin aldehyde			0.400	0.280		ug/L		70	60 - 140		
gamma-BHC (Lindane)			0.400	0.300		ug/L		75	32 - 140		
Heptachlor			0.400	0.316		ug/L		79	34 - 140		
Heptachlor epoxide			0.400	0.308		ug/L		77	37 - 142		
4,4'-DDD			0.400	0.314		ug/L		79	31 - 141		
4,4'-DDE			0.400	0.311		ug/L		78	30 - 145		
4,4'-DDT			0.400	0.337		ug/L		84	25 - 160		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*78*		*10 - 104*

Lab Sample ID: 440-263045-H-1-A MSD
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		0.402	0.256		ug/L		64	42 - 140	1	35
alpha-BHC	ND		0.402	0.260		ug/L		65	37 - 140	1	36
beta-BHC	ND		0.402	0.258		ug/L		64	17 - 147	2	44
delta-BHC	ND		0.402	0.264		ug/L		66	19 - 140	2	52
Dieldrin	ND		0.402	0.277		ug/L		69	36 - 146	2	49
Endosulfan I	ND		0.402	0.275		ug/L		68	45 - 153	3	28
Endosulfan II	ND		0.402	0.300		ug/L		75	10 - 202	3	53
Endosulfan sulfate	ND		0.402	0.303		ug/L		75	26 - 144	4	38
Endrin	ND		0.402	0.303		ug/L		75	30 - 147	1	48
Endrin aldehyde	ND		0.402	0.251		ug/L		62	60 - 140	2	30
gamma-BHC (Lindane)	ND		0.402	0.266		ug/L		66	32 - 140	1	39
Heptachlor	ND		0.402	0.277		ug/L		69	34 - 140	1	43
Heptachlor epoxide	ND		0.402	0.271		ug/L		68	37 - 142	2	26
4,4'-DDD	ND		0.402	0.274		ug/L		68	31 - 141	3	39
4,4'-DDE	ND		0.402	0.265		ug/L		66	30 - 145	2	35
4,4'-DDT	ND		0.402	0.304		ug/L		76	25 - 160	3	42

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*75*		*10 - 104*

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-263045-H-1-B MS
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		0.406	0.257		ug/L		63	42 - 140
alpha-BHC	ND		0.406	0.261		ug/L		64	37 - 140
beta-BHC	ND		0.406	0.263		ug/L		65	17 - 147
delta-BHC	ND		0.406	0.269		ug/L		66	19 - 140
Dieldrin	ND		0.406	0.282		ug/L		70	36 - 146
Endosulfan I	ND		0.406	0.283		ug/L		70	45 - 153
Endosulfan II	ND		0.406	0.309		ug/L		76	10 - 202
Endosulfan sulfate	ND		0.406	0.314		ug/L		77	26 - 144
Endrin	ND		0.406	0.308		ug/L		76	30 - 147
Endrin aldehyde	ND		0.406	0.257		ug/L		63	60 - 140
gamma-BHC (Lindane)	ND		0.406	0.268		ug/L		66	32 - 140
Heptachlor	ND		0.406	0.279		ug/L		69	34 - 140
Heptachlor epoxide	ND		0.406	0.277		ug/L		68	37 - 142
4,4'-DDD	ND		0.406	0.283		ug/L		70	31 - 141
4,4'-DDE	ND		0.406	0.272		ug/L		67	30 - 145
4,4'-DDT	ND		0.406	0.312		ug/L		77	25 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*77*		*10 - 104*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1221	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1232	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1242	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1248	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1254	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1260	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*85*		*18 - 134*	*03/18/20 05:58*	*03/19/20 10:48*	*1*

Lab Sample ID: LCS 440-601089/5-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	4.00	3.34		ug/L		83	50 - 140
Aroclor 1260	4.00	3.72		ug/L		93	8 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*18 - 134*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: LCSD 440-601089/6-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016			4.00	3.52		ug/L		88	50 - 140	5	36
Aroclor 1260			4.00	3.89		ug/L		97	8 - 140	5	38

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*94*		*18 - 134*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-600565/6
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/14/20 18:07	1

Lab Sample ID: LCS 440-600565/5
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			50.0	50.0		ug/L		100	90 - 110		

Lab Sample ID: MRL 440-600565/4
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			1.00	0.992	J,DX	ug/L		99	50 - 150		

Lab Sample ID: 440-263044-1 MS
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Outfall008_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		50.0	51.8		ug/L		104	90 - 110		

Lab Sample ID: 440-263044-1 MSD
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Outfall008_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		50.0	51.6		ug/L		103	90 - 110	0	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-600528/6
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/14/20 17:46	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 17:46	1

Lab Sample ID: LCS 440-600528/5
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.10		mg/L		97	90 - 110
Nitrite as N	1.52	1.49		mg/L		98	90 - 110

Lab Sample ID: 440-263076-A-1 MS
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.27		1.13	1.40		mg/L		100	80 - 120
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120

Lab Sample ID: 440-263076-A-1 MSD
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.27		1.13	1.30		mg/L		91	80 - 120	7	20
Nitrite as N	ND		1.52	1.50		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 440-600529/6
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/14/20 17:46	1
Fluoride	ND		0.50	0.25	mg/L			03/14/20 17:46	1
Sulfate	ND		0.50	0.25	mg/L			03/14/20 17:46	1

Lab Sample ID: LCS 440-600529/5
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.80		mg/L		96	90 - 110
Fluoride	5.00	4.78		mg/L		96	90 - 110
Sulfate	5.00	5.05		mg/L		101	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-263076-A-1 MS
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13		5.00	18.5		mg/L		109	80 - 120
Fluoride	ND		5.00	4.53		mg/L		91	80 - 120
Sulfate	310	EY	5.00	323	EY BB	mg/L		170	80 - 120

Lab Sample ID: 440-263076-A-1 MSD
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13		5.00	18.7		mg/L		113	80 - 120	1	20
Fluoride	ND		5.00	4.53		mg/L		91	80 - 120	0	20
Sulfate	310	EY	5.00	322	EY BB	mg/L		154	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-601877/6
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/23/20 09:45	1

Lab Sample ID: LCS 440-601877/5
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	24.7		ug/L		99	85 - 115

Lab Sample ID: MRL 440-601877/4
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	ND		ug/L		79	75 - 125

Lab Sample ID: MRL 440-601877/8
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.19		ug/L		105	75 - 125

Lab Sample ID: 440-263044-1 MS
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Outfall008_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	24.4		ug/L		97	80 - 120

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 440-263044-1 MSD
Matrix: Water
Analysis Batch: 601877

Client Sample ID: Outfall008_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	25.4		ug/L		102	80 - 120	4	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,7,8-TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDD	0.00000318	J,DX	0.000050	0.0000010	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000012	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000070	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000073	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDF	0.00000180	J,DX	0.000050	0.00000076	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDD	0.00000587	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000014	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDD	0.0000202	J,DX	0.00010	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDF	0.00000627	J,DX	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDD	0.00000318	J,DX	0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDF	0.00000180	J,DX	0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDD	0.0000101	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,7,8-TCDF	81		24 - 169	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDD	63		25 - 181	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDD	74		32 - 141	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDF	74		26 - 123	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/18/20 08:33	03/21/20 08:20	1
13C-OCDD	50		17 - 157	03/18/20 08:33	03/21/20 08:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/18/20 08:33	03/21/20 08:20	1

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000234		ug/L		117	67 - 158
2,3,7,8-TCDF	0.000200	0.000262		ug/L		131	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00111		ug/L		111	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00123		ug/L		123	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00114		ug/L		114	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00112		ug/L		112	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00102		ug/L		102	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00110		ug/L		110	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00119		ug/L		119	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00120	MB	ug/L		120	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00117		ug/L		117	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000997	MB	ug/L		100	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00108		ug/L		108	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00102		ug/L		102	78 - 138
OCDD	0.00200	0.00201	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00231	MB	ug/L		115	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	75		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	74		13 - 328
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	79		19 - 202

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,6,7,8-HxCDF	*71*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*69*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*75*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*63*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*68*		*20 - 186*
13C-OCDD	*52*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*81*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-600756/1-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/17/20 09:40	03/18/20 01:47	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 01:47	1
Boron	ND		0.050	0.025	mg/L		03/17/20 09:40	03/18/20 01:47	1
Beryllium	ND		2.0	1.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Chromium	ND		5.0	2.5	ug/L		03/17/20 09:40	03/18/20 01:47	1
Iron	ND		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 01:47	1
Nickel	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Vanadium	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 01:47	1

Lab Sample ID: LCS 440-600756/2-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	497		ug/L		99	85 - 115
Arsenic	500	477		ug/L		95	85 - 115
Boron	0.500	0.473		mg/L		95	85 - 115
Beryllium	500	481		ug/L		96	85 - 115
Chromium	500	496		ug/L		99	85 - 115
Iron	0.500	0.471		mg/L		94	85 - 115
Nickel	500	495		ug/L		99	85 - 115
Vanadium	500	490		ug/L		98	85 - 115
Zinc	500	491		ug/L		98	85 - 115

Lab Sample ID: 440-262764-A-1-C MS
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	230		500	824		ug/L		118	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-262764-A-1-C MS
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	455		ug/L		91	70 - 130
Boron	0.033	J,DX	0.500	0.479		mg/L		89	70 - 130
Beryllium	ND		500	458		ug/L		92	70 - 130
Chromium	ND		500	475		ug/L		95	70 - 130
Iron	0.39		0.500	0.897		mg/L		101	70 - 130
Nickel	ND		500	469		ug/L		94	70 - 130
Vanadium	ND		500	470		ug/L		94	70 - 130
Zinc	190		500	655		ug/L		93	70 - 130

Lab Sample ID: 440-262764-A-1-D MSD
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	230		500	878		ug/L		129	70 - 130	6	20
Arsenic	ND		500	466		ug/L		93	70 - 130	2	20
Boron	0.033	J,DX	0.500	0.496		mg/L		93	70 - 130	3	20
Beryllium	ND		500	474		ug/L		95	70 - 130	3	20
Chromium	ND		500	484		ug/L		97	70 - 130	2	20
Iron	0.39		0.500	0.917		mg/L		105	70 - 130	2	20
Nickel	ND		500	484		ug/L		97	70 - 130	3	20
Vanadium	ND		500	486		ug/L		97	70 - 130	3	20
Zinc	190		500	678		ug/L		98	70 - 130	3	20

Lab Sample ID: MB 440-600737/1-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600775

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/16/20 16:13	03/17/20 20:54	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 20:54	1
Boron	ND		0.050	0.025	mg/L		03/16/20 16:13	03/17/20 20:54	1
Beryllium	ND		2.0	1.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Chromium	ND		5.0	2.5	ug/L		03/16/20 16:13	03/17/20 20:54	1
Iron (Dissolved)	ND		0.10	0.050	mg/L		03/16/20 16:13	03/17/20 20:54	1
Nickel	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Vanadium	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 20:54	1

Lab Sample ID: LCS 440-600737/2-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	477		ug/L		95	85 - 115
Arsenic	500	465		ug/L		93	85 - 115
Boron	0.500	0.464		mg/L		93	85 - 115
Beryllium	500	471		ug/L		94	85 - 115
Chromium	500	482		ug/L		96	85 - 115

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-600737/2-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron (Dissolved)	0.500	0.466		mg/L		93	85 - 115
Nickel	500	482		ug/L		96	85 - 115
Vanadium	500	479		ug/L		96	85 - 115
Zinc	500	475		ug/L		95	85 - 115

Lab Sample ID: 440-263045-D-3-E MS
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		500	536		ug/L		107	70 - 130
Arsenic	ND		500	490		ug/L		98	70 - 130
Boron	0.074		0.500	0.564		mg/L		98	70 - 130
Beryllium	ND		500	489		ug/L		98	70 - 130
Chromium	ND		500	491		ug/L		98	70 - 130
Iron (Dissolved)	ND		0.500	0.512		mg/L		102	70 - 130
Nickel	ND		500	480		ug/L		96	70 - 130
Vanadium	ND		500	500		ug/L		100	70 - 130
Zinc	ND		500	476		ug/L		95	70 - 130

Lab Sample ID: 440-263045-D-3-F MSD
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		500	520		ug/L		104	70 - 130	3	20
Arsenic	ND		500	480		ug/L		96	70 - 130	2	20
Boron	0.074		0.500	0.550		mg/L		95	70 - 130	3	20
Beryllium	ND		500	474		ug/L		95	70 - 130	3	20
Chromium	ND		500	476		ug/L		95	70 - 130	3	20
Iron (Dissolved)	ND		0.500	0.511		mg/L		102	70 - 130	0	20
Nickel	ND		500	464		ug/L		93	70 - 130	3	20
Vanadium	ND		500	484		ug/L		97	70 - 130	3	20
Zinc	ND		500	463		ug/L		93	70 - 130	3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-601632/1-A
Matrix: Water
Analysis Batch: 601724

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 601632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/20/20 09:44	03/20/20 15:55	1
Cadmium	ND		1.0	0.25	ug/L		03/20/20 09:44	03/20/20 15:55	1
Copper	ND		2.0	0.50	ug/L		03/20/20 09:44	03/20/20 15:55	1
Lead	ND		1.0	0.50	ug/L		03/20/20 09:44	03/20/20 15:55	1
Antimony	ND		2.0	0.50	ug/L		03/20/20 09:44	03/20/20 15:55	1
Selenium	ND		2.0	0.50	ug/L		03/20/20 09:44	03/20/20 15:55	1
Thallium	ND		1.0	0.20	ug/L		03/20/20 09:44	03/20/20 15:55	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-601632/2-A
Matrix: Water
Analysis Batch: 601724

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 601632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	79.1		ug/L		99	85 - 115
Cadmium	80.0	78.1		ug/L		98	85 - 115
Copper	80.0	81.6		ug/L		102	85 - 115
Lead	80.0	80.3		ug/L		100	85 - 115
Antimony	80.0	81.9		ug/L		102	85 - 115
Selenium	80.0	78.3		ug/L		98	85 - 115
Thallium	80.0	75.1		ug/L		94	85 - 115

Lab Sample ID: 320-59568-G-1-B MS
Matrix: Water
Analysis Batch: 601724

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 601632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	75.7		ug/L		95	70 - 130
Cadmium	0.40	J,DX	80.0	75.7		ug/L		94	70 - 130
Copper	27		80.0	103		ug/L		95	70 - 130
Lead	10		80.0	86.6		ug/L		96	70 - 130
Antimony	1.5	J,DX	80.0	80.0		ug/L		98	70 - 130
Selenium	ND		80.0	71.6		ug/L		90	70 - 130
Thallium	0.27	J,DX	80.0	69.3		ug/L		86	70 - 130

Lab Sample ID: 320-59568-G-1-C MSD
Matrix: Water
Analysis Batch: 601724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 601632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	79.3		ug/L		99	70 - 130	5	20
Cadmium	0.40	J,DX	80.0	79.3		ug/L		99	70 - 130	5	20
Copper	27		80.0	108		ug/L		101	70 - 130	5	20
Lead	10		80.0	90.8		ug/L		101	70 - 130	5	20
Antimony	1.5	J,DX	80.0	84.4		ug/L		104	70 - 130	5	20
Selenium	ND		80.0	75.4		ug/L		94	70 - 130	5	20
Thallium	0.27	J,DX	80.0	64.6		ug/L		80	70 - 130	7	20

Lab Sample ID: MB 440-600737/1-E
Matrix: Water
Analysis Batch: 604259

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:51	1
Cadmium	ND		1.0	0.25	ug/L		04/08/20 11:01	04/08/20 15:51	1
Copper	ND		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:51	1
Lead	ND		1.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:51	1
Antimony	ND		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:51	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 11:01	04/08/20 15:51	1
Thallium	ND		1.0	0.20	ug/L		04/08/20 11:01	04/08/20 15:51	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-600737/2-E
Matrix: Water
Analysis Batch: 604259

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604092

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	90.8		ug/L		114	85 - 115
Cadmium	80.0	81.8		ug/L		102	85 - 115
Copper	80.0	83.4		ug/L		104	85 - 115
Lead	80.0	81.6		ug/L		102	85 - 115
Antimony	80.0	83.9		ug/L		105	85 - 115
Selenium	80.0	77.8		ug/L		97	85 - 115
Thallium	80.0	76.4		ug/L		96	85 - 115

Lab Sample ID: 440-263044-2 MS
Matrix: Water
Analysis Batch: 604259

Client Sample ID: Outfall008_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 604092

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	90.7		ug/L		113	70 - 130
Cadmium	ND		80.0	82.3		ug/L		103	70 - 130
Copper	2.6		80.0	87.8		ug/L		106	70 - 130
Lead	ND		80.0	82.3		ug/L		103	70 - 130
Antimony	ND		80.0	84.3		ug/L		105	70 - 130
Selenium	ND		80.0	77.9		ug/L		97	70 - 130
Thallium	ND		80.0	77.5		ug/L		97	70 - 130

Lab Sample ID: 440-263044-2 MSD
Matrix: Water
Analysis Batch: 604259

Client Sample ID: Outfall008_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 604092

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	87.1		ug/L		109	70 - 130	4	20
Cadmium	ND		80.0	79.5		ug/L		99	70 - 130	3	20
Copper	2.6		80.0	84.0		ug/L		102	70 - 130	4	20
Lead	ND		80.0	79.8		ug/L		100	70 - 130	3	20
Antimony	ND		80.0	81.1		ug/L		101	70 - 130	4	20
Selenium	ND		80.0	77.1		ug/L		96	70 - 130	1	20
Thallium	ND		80.0	75.2		ug/L		94	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602148/1-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		03/24/20 14:41	03/25/20 01:52	1

Lab Sample ID: LCS 440-602148/2-A
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00400	0.00404		mg/L		101	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263045-G-1-E MS
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00400	0.00399		mg/L		100	75 - 125

Lab Sample ID: 440-263045-G-1-F MSD
Matrix: Water
Analysis Batch: 602304

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602148

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00400	0.00393		mg/L		98	75 - 125	2	20

Lab Sample ID: MB 440-600735/1-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601070

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		03/18/20 08:16	03/18/20 17:54	1

Lab Sample ID: LCS 440-600735/2-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00400	0.00389		mg/L		97	85 - 115

Lab Sample ID: 440-263045-A-3-E MS
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00400	0.00386		mg/L		96	75 - 125

Lab Sample ID: 440-263045-A-3-F MSD
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00400	0.00387		mg/L		97	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-601166/1
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/18/20 10:01	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-601166/2
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	962		mg/L		96	90 - 110		

Lab Sample ID: 440-262945-A-1 DU
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2500			2430		mg/L				3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-601689/1
Matrix: Water
Analysis Batch: 601689

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/20/20 13:33	1

Lab Sample ID: LCS 440-601689/2
Matrix: Water
Analysis Batch: 601689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	1020		mg/L		102	85 - 115		

Lab Sample ID: 440-263176-A-1 DU
Matrix: Water
Analysis Batch: 601689

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	33			33.1		mg/L				0.9	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-601903/1-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:33	1

Lab Sample ID: LCS 440-601903/2-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601903

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	98.0		ug/L		98	80 - 120		

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-263045-F-1-A MS
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	98.8		ug/L		99	75 - 125

Lab Sample ID: 440-263045-F-1-B MSD
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	97.8		ug/L		98	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-601472/10
Matrix: Water
Analysis Batch: 601472

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/19/20 11:34	1

Lab Sample ID: LCS 440-601472/11
Matrix: Water
Analysis Batch: 601472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.210		mg/L		104	90 - 110

Lab Sample ID: MRL 440-601472/9
Matrix: Water
Analysis Batch: 601472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.1970	J,DX	mg/L		99	50 - 150

Lab Sample ID: 440-263291-O-1 MS
Matrix: Water
Analysis Batch: 601472

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.312		5.00	5.130		mg/L		96	90 - 110

Lab Sample ID: 440-263291-O-1 MSD
Matrix: Water
Analysis Batch: 601472

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	0.312		5.00	5.650		mg/L		107	90 - 110	10	15

GC/MS Semi VOA

Prep Batch: 601122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	625	
MB 440-601122/1-A	Method Blank	Total/NA	Water	625	
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625	
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625	
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625	

Analysis Batch: 601579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	625.1	601122
MB 440-601122/1-A	Method Blank	Total/NA	Water	625.1	601122
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625.1	601122
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625.1	601122
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625.1	601122
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625.1	601122

GC Semi VOA

Prep Batch: 601089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	608	
MB 440-601089/1-A	Method Blank	Total/NA	Water	608	
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-601089/5-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-601089/6-A	Lab Control Sample Dup	Total/NA	Water	608	
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608	
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608	

Analysis Batch: 601220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608.3	601089
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	601089
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608.3	601089

Analysis Batch: 601412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/5-A	Lab Control Sample	Total/NA	Water	608.3	601089
LCSD 440-601089/6-A	Lab Control Sample Dup	Total/NA	Water	608.3	601089

HPLC/IC

Analysis Batch: 600528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	300.0	
MB 440-600528/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600528/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263076-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

HPLC/IC

Analysis Batch: 600529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	300.0	
MB 440-600529/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600529/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263076-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 600565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	218.6	
MB 440-600565/6	Method Blank	Total/NA	Water	218.6	
LCS 440-600565/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-600565/4	Lab Control Sample	Total/NA	Water	218.6	
440-263044-1 MS	Outfall008_20200314_Comp	Total/NA	Water	218.6	
440-263044-1 MSD	Outfall008_20200314_Comp	Total/NA	Water	218.6	

Analysis Batch: 601688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 601877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	314.0	
MB 440-601877/6	Method Blank	Total/NA	Water	314.0	
LCS 440-601877/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-601877/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-601877/8	Lab Control Sample	Total/NA	Water	314.0	
440-263044-1 MS	Outfall008_20200314_Comp	Total/NA	Water	314.0	
440-263044-1 MSD	Outfall008_20200314_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 365527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	1613B	
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 366401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	1613B	365527
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	365527
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	365527

Metals

Analysis Batch: 600047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total Recoverable	Water	SM 2340B	

Analysis Batch: 600609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	SM 2340B	

Metals

Filtration Batch: 600735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600735/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 600737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600737/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 440-600737/1-E	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-600737/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263044-2 MS	Outfall008_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263044-2 MSD	Outfall008_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 600756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-262764-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-262764-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 600775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.2	600737
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	200.2	600737
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	600737

Analysis Batch: 601061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600775
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.7 Rev 4.4	600775
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	600775

Prep Batch: 601070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	245.1	600735
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	600735
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	600735
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	600735
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	600735

Metals

Analysis Batch: 601118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600756
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	600756
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	600756
440-262764-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	600756
440-262764-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	600756

Analysis Batch: 601310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	245.1	601070
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	601070
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	601070
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	601070
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	601070

Prep Batch: 601632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-601632/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-601632/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
320-59568-G-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
320-59568-G-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Analysis Batch: 601724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total Recoverable	Water	200.8	601632
MB 440-601632/1-A	Method Blank	Total Recoverable	Water	200.8	601632
LCS 440-601632/2-A	Lab Control Sample	Total Recoverable	Water	200.8	601632
320-59568-G-1-B MS	Matrix Spike	Total Recoverable	Water	200.8	601632
320-59568-G-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	601632

Prep Batch: 602148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	245.1	
MB 440-602148/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602148/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263045-G-1-E MS	Matrix Spike	Total/NA	Water	245.1	
440-263045-G-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 602304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	245.1	602148
MB 440-602148/1-A	Method Blank	Total/NA	Water	245.1	602148
LCS 440-602148/2-A	Lab Control Sample	Total/NA	Water	245.1	602148
440-263045-G-1-E MS	Matrix Spike	Total/NA	Water	245.1	602148
440-263045-G-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	602148

Prep Batch: 604092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-E	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-E	Lab Control Sample	Dissolved	Water	200.2	600737

Metals (Continued)

Prep Batch: 604092 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2 MS	Outfall008_20200314_Comp_F	Dissolved	Water	200.2	600737
440-263044-2 MSD	Outfall008_20200314_Comp_F	Dissolved	Water	200.2	600737

Analysis Batch: 604259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-2	Outfall008_20200314_Comp_F	Dissolved	Water	200.8	604092
MB 440-600737/1-E	Method Blank	Dissolved	Water	200.8	604092
LCS 440-600737/2-E	Lab Control Sample	Dissolved	Water	200.8	604092
440-263044-2 MS	Outfall008_20200314_Comp_F	Dissolved	Water	200.8	604092
440-263044-2 MSD	Outfall008_20200314_Comp_F	Dissolved	Water	200.8	604092

General Chemistry

Analysis Batch: 601166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	SM 2540C	
MB 440-601166/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-601166/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-262945-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 601472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-601472/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-601472/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-601472/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263291-O-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263291-O-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 601689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	SM 2540D	
MB 440-601689/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-601689/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263176-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 601903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	Distill/CN	
MB 440-601903/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 601977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903
MB 440-601903/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	601903
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	601903

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LR	LCS/LCSD recovery below method control limits

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263044-1
Project/Site: Annual Outfall 008 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
625.1	625	Water	1,2-Diphenylhydrazine(as Azobenzene)
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	04-07-20
Pennsylvania	NELAP	68-01272	03-30-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 0C16023

Project: 440-263044-1

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 4/01/2020
Received Date: 3/16/2020
Turnaround Time: Normal
Phones: (949) 261-1022
Fax: (949) 260-3297
P.O. #:
Billing Code:

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 3/16/20 with the Chain-of-Custody document. The samples were received in good condition, at 4.5 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall008_20200314_Comp (440-263044-1) Sampled: 03/14/20 9:20 by Client
0C16023-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M **Batch ID:** W0C0867 **Instr:** GCMS13 **Prepared:** 03/16/20 09:44 **Analyst:** EFC							
Chlorpyrifos	ND	6.9	10	ng/l	1	03/25/20	
Diazinon	ND	5.2	10	ng/l	1	03/25/20	
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*87%*		*76-128*	*Conc: 437*		*03/25/20*	
Triphenyl phosphate	*170%*		*40-163*	*Conc: 848*		*03/25/20*	*S-GC*

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Quality Control Results

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Blank (W0C0867-BLK1)					**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*515*			*ng/l*	*500*		*103*	*76-128*			
Triphenyl phosphate	*711*			*ng/l*	*500*		*142*	*40-163*			
Blank (W0C0867-BLK2)					**Prepared: 03/16/20**	**Analyzed: 03/31/20**					
Chlorpyrifos	ND	6.9	10	ng/l							QC-2
Diazinon	ND	5.2	10	ng/l							QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*573*			*ng/l*	*500*		*115*	*76-128*			*QC-2*
Triphenyl phosphate	*699*			*ng/l*	*500*		*140*	*40-163*			*QC-2*
LCS (W0C0867-BS1)					**Prepared: 03/16/20**	**Analyzed: 03/25/20**					
Chlorpyrifos	68.4	6.9	10	ng/l	50.0		137	37-169			
Diazinon	48.5	5.2	10	ng/l	50.0		97	43-152			
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*425*			*ng/l*	*500*		*85*	*76-128*			
Triphenyl phosphate	*736*			*ng/l*	*500*		*147*	*40-163*			
LCS (W0C0867-BS2)					**Prepared: 03/16/20**	**Analyzed: 03/31/20**					
Chlorpyrifos	108	6.9	10	ng/l	50.0		215	37-169			QC-2
Diazinon	66.7	5.2	10	ng/l	50.0		133	43-152			QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*503*			*ng/l*	*500*		*101*	*76-128*			*QC-2*
Triphenyl phosphate	*740*			*ng/l*	*500*		*148*	*40-163*			*QC-2*
Matrix Spike (W0C0867-MS1)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	3410	340	500	ng/l	2500	*ND*	136	37-168			M-02
Diazinon	2260	260	500	ng/l	2500	*ND*	90	36-153			M-02
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*21400*			*ng/l*	*25000*		*86*	*76-128*			*M-02*
Triphenyl phosphate	*37500*			*ng/l*	*25000*		*150*	*40-163*			*M-02*
Matrix Spike (W0C0867-MS2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Chlorpyrifos	5420	340	500	ng/l	2500	*ND*	217	37-168			M-02, QC-2
Diazinon	3270	260	500	ng/l	2500	*ND*	131	36-153			M-02, QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*23600*			*ng/l*	*25000*		*94*	*76-128*			*M-02, QC-2*
Triphenyl phosphate	*36100*			*ng/l*	*25000*		*144*	*40-163*			*M-02, QC-2*
Matrix Spike Dup (W0C0867-MSD1)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	2970	340	500	ng/l	2500	*ND*	119	37-168	14	30	M-02
Diazinon	2060	260	500	ng/l	2500	*ND*	82	36-153	9	30	M-02
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*23900*			*ng/l*	*25000*		*96*	*76-128*			*M-02*
Triphenyl phosphate	*32900*			*ng/l*	*25000*		*132*	*40-163*			*M-02*
Matrix Spike Dup (W0C0867-MSD2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Chlorpyrifos	4790	340	500	ng/l	2500	*ND*	191	37-168	12	30	M-02, QC-2
Diazinon	3000	260	500	ng/l	2500	*ND*	120	36-153	9	30	M-02, QC-2

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Quality Control Results

(Continued)

Semivolatile Organics - Low Level by Tandem GC/MS/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Matrix Spike Dup (W0C0867-MSD2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*26000*			*ng/l*	*25000*		*104*	*76-128*			*M-02, QC-2*
Triphenyl phosphate	*33300*			*ng/l*	*25000*		*133*	*40-163*			*M-02, QC-2*

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Notes and Definitions

Item	Definition
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect . The data was accepted based on valid recovery of the remaining surrogate.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina M. Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322005338
Customer ID: TEST72
Customer PO:
Project ID:

Attn: Christian M Bondoc
Eurofins Calscience, LLC
17461 Derian Avenue
Suite 100
Irvine, CA 92614

Phone: (949) 261-1022
Fax: (949) 260-3297
Received: 03/18/2020
Analyzed: 03/28/2020

Proj: 440-263044-1 | 440-154043.1 | 44009879 | Boeing NPDES SSFL Outfalls

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)	ASBESTOS					
						Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)		
Outfall008_20200314_Comp (440-263044-1) 322005338-0001	3/19/2020 03:35 PM	5	1288	0.2620	≥ 0.5 µm	None Detected	ND	0.98	<0.98	0.00 - 3.60
					> 10 µm only	None Detected	ND	0.98	<0.98	0.00 - 3.60

Collection Date/Time: *03/14/2020 09:20 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 03/29/2020 12:22:31

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall008_20200314_Comp (440-263044-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.094

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = FAIL % EFFECT = 25.52 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	20-6959-8050	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:10	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	14-0614-5187	**Code:**	CSE0320.094sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 09:20	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall008_20200314_Comp
Sample Age:	77h (2.8 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
03-2145-0575	Cell Density	TST-Welch's t Test	0.6241	100% failed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
03-2145-0575	Cell Density	Control CV	0.03766	<<	0.2	Yes	Passes Criteria
03-2145-0575	Cell Density	Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.232E+6	1.365E+6	1.706E+4	4.826E+4	3.77%	0.00%
100		8	9.544E+5	9.162E+5	9.925E+5	8.820E+5	1.043E+6	1.614E+4	4.565E+4	4.78%	25.52%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		9.520E+5	8.820E+5	9.520E+5	9.650E+5	9.200E+5	1.043E+6	9.530E+5	9.680E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	03-2145-0575	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:18	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	20-6959-8050	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:10	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	14-0614-5187	**Code:**	CSE0320.094sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 09:20	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall008_20200314_Comp
Sample Age:	77h (2.8 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% failed cell density

TST-Welch's t Test

Control vs	Conc-%	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control	100	-0.3232	0.6938	13	CDF	0.6241	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.03766	<<	0.2	Yes	Passes Criteria
Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.277E+11	4.277E+11	1	193.9	<1.0E-37	Significant Effect
Error	3.089E+10	2.206E+09	14			
Total	4.586E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.7617	8.862	0.3975	Equal Variances
	Mod Levene Equality of Variance Test	0.7903	8.862	0.3890	Equal Variances
	Variance Ratio F Test	1.118	8.885	0.8870	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.3759	3.878	0.4169	Normal Distribution
	D'Agostino Skewness Test	0.8855	2.576	0.3759	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1319	0.2471	0.7026	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9484	0.8408	0.4645	Normal Distribution

Cell Density Summary

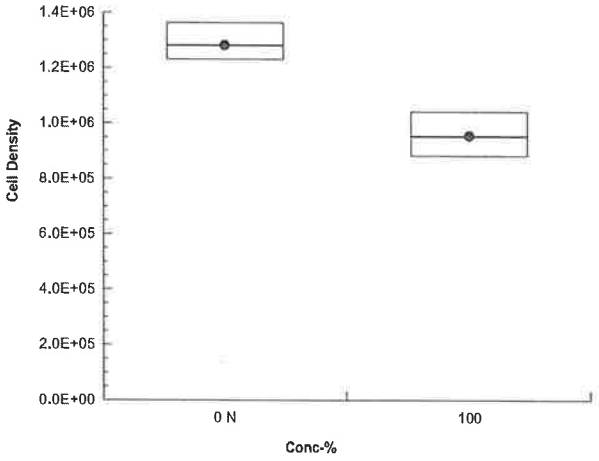
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.283E+6	1.232E+6	1.365E+6	1.706E+4	3.77%	0.00%
100		8	9.544E+5	9.162E+5	9.925E+5	9.525E+5	8.820E+5	1.043E+6	1.614E+4	4.78%	25.52%

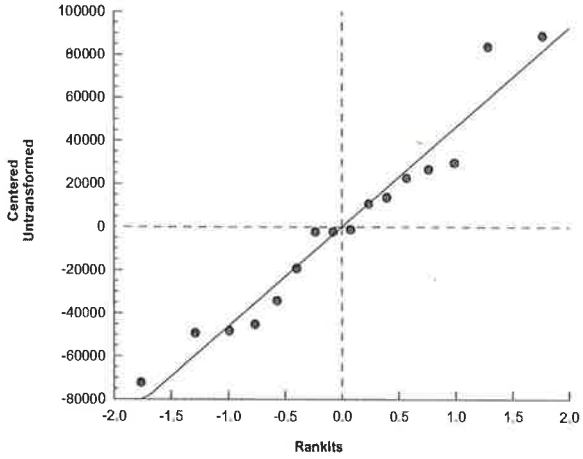
Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		9.520E+5	8.820E+5	9.520E+5	9.650E+5	9.200E+5	1.043E+6	9.530E+5	9.680E+5

Analysis ID: 03-2145-0575 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.5
Analyzed: 25 Mar-20 9:18 **Analysis:** Parametric Bioequivalence-Two Sample **Status Level:** 1

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	20-6959-8050	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:10	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**

Sample ID:	14-0614-5187	**Code:**	CSE0320.094sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 09:20	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall008_20200314_Comp
Sample Age:	77h (2.8 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
100		1	52			52	52	0	0	0.0%	0
Overall		2	52.5	46.15	58.85	52	53	0.5	0.7071	1.35%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	448	443.3	452.7	443	452	1.703	3.808	0.85%	0
100		5	228.4	215	241.8	212	238	4.823	10.78	4.72%	0
Overall		10	338.2	255.2	421.2	212	452	36.68	116	34.30%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
100		1	70			70	70	0	0	0.0%	0
Overall		2	75	11.47	138.5	70	80	5	7.071	9.43%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.734	8.186	7.8	8.2	0.08124	0.1817	2.28%	0
100		5	7.94	7.582	8.298	7.6	8.3	0.1288	0.2881	3.63%	0
Overall		10	7.95	7.787	8.113	7.6	8.3	0.07188	0.2273	2.86%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
100		5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
Overall		10	24.64	24.37	24.91	24	25	0.1204	0.3806	1.55%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalihity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
100				52					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
100				212					
0	N	2		445					
100				223					
0	N	3		450					
100				235					
0	N	4		452					
100				234					
0	N	5		450					
100				238					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
100				70					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
100				8					
0	N	2		7.8					
100				8.1					
0	N	3		8.2					
100				8.3					
0	N	4		7.8					
100				7.6					
0	N	5		7.9					
100				7.7					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24.9					
100				24.9					
0	N	3		25					
100				25					
0	N	4		24.8					
100				24.8					
0	N	5		24.5					
100				24.5					

.094
Temp. deg. C = 2.8

Test America

CHAIN OF CUSTODY FORM

Chlorine (mg/L) = <0.1

NH3 (mg/L) = 0.6

Client Name/Address:	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [008] Outfall 008 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.269.8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Total Recoverable Metals: (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)		Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E335.2)	Priority Pollutants-Pesticides+PCBs (E608)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)				Comments
									R/A	R	R/A	R	A	R/A	R	R	R	R	A	R	R					
Outfall 008	Outfall008_20200314_Comp	3/14/2020 0920	WM	500 mL Poly	1	HNO_3	85	No	X												X					
			WM	1 L Glass Amber	2	None	110	No		X																
			WM	500 mL Poly	2	None	125	No			X															48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X														
			WM	500 mL Poly	1	H2SO4	160	No										X								
			WM	1L Poly	1	None	185	No					X													
			WM	500 mL Poly	1	NaOH	220	No											X							
			WM	2.5 Gal Cube	1	None	225	No																		
			WM	1 L Glass Amber	1	None	230	No							X											Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	6	None	235	No																		
			WM	1 L Glass Amber	2	None	250	No														X				
	Outfall008_20200314_Comp_F	3/14/2020 0920	WM	1L Poly	1	None	195	No						X												Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No															X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall008_20200314_Comp_Extra	3/14/2020 0920	~~WM~~	~~1 L Glass Amber~~	~~2~~	~~None~~	~~110~~	~~No~~	R21	H																Hold
			WM	500 mL Poly	2	None	125	No			H															Hold
			WM	1 L Glass Amber	2	None	260	No														H				Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hahn	03/14/2020	H&A 1515		3.14.2020 1515
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	3.16.2020 1110			03/16/2020; 1116 Am
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal chron tox samples delivered to ABC directly by H&A (M. Dominick)

Test America

CHAIN OF CUSTODY FORM



440-263044 Chain of Custody

Client Name/Address	Project
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [008] Outfall 008 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager Katherine Miller 520.289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R/A Total Recoverable Metals (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	R TCDD (and all congeners) (E1613B)	R/A Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	R TDS (SM2540C/E160.1)	A TSS (160.2 (SM2540D))	R/A Total Dissolved Metals (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	R Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	R	R Ammonia-N (350.2)	R Cyanide (SM4500-CN-E / E335.2)	A Priority Pollutants-Pesticides+PCBs (E608)	R Total Recoverable Metals Mercury (E245.1)	R Total Dissolved Metals Mercury (E245.1)				Comments
Outfall 008	Outfall008_20200314_Comp	3/14/2020 0920	WM	500 mL Poly	1	HNO_3	85	No	X												X					
			WM	1 L Glass Amber	2	None	110	No		X																
			WM	500 mL Poly	2	None	125	No			X															48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X														
			WM	500 mL Poly	1	H2SO4	160	No										X								
			WM	1L Poly	1	None	185	No					X													
			WM	500 mL Poly	1	NaOH	220	No											X							
			WM	2.5 Gal Cube	1	None	225	No																		Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No							X											
			WM	1 Gal Cube	6	None	235	No																		
			WM	1 L Glass Amber	2	None	250	No												X						
	Outfall008_20200314_Comp_F	3/14/2020 0920	WM	1L Poly	1	None	195	No						X												Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No															X			Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall008_20200314_Comp_Extra	3/14/2020 0920	~~WM~~	~~1 L Glass Amber~~	~~2~~	~~None~~	~~110~~	~~No~~	R1	H																Hold
			WM	500 mL Poly	2	None	125	No			H															Hold
			WM	1 L Glass Amber	2	None	250	No												H						Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020	H&A	EC-IRV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

* 1 gal chron tox samples delivered to ABC directly by H&A (M. Dominick)

CHAIN OF CUSTODY FORM

Client Name/Address	Project	Project Manager: Katherine Miller
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [008] Outfall 008 Comp	520.289 8606, 520.904.6944 (cell)
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc		
Sampler Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Priority Pollutants-SVOCs (E625)	Cr (VI), Total (E218.6)	Asbestos (EPA100.2)	Chlorpyrifos, Diazinon (E525.2)	Comments
									A	A	A	A	
Outfall 008	Outfall008_20200314_Comp	3/14/2020 0920	WM	1 L Glass Amber	2	None	175	No	X				
			WM	500 mL Poly	1	None	260	No		X			
			WM	1L Poly	1	None	270	No			X		Only at Outfall 008
			WM	1 L Glass Amber	2	~~HCL~~	275	No				X	Extract within 24-Hours of sampling
	Outfall008_20200314_Comp_Extra	3/14/2020 0920	WM	~~1 L Glass Amber~~	~~2~~	~~None~~	~~175~~	~~No~~	~~H~~	RH			Hold
			WM	1 L Glass Amber	2	~~HCL~~	275	No				H	Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020	H&A	EC-FAV	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 17:00	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity. (Check)
Intact: _____ On Ice _____
Store samples for 6 months.
Data Requirements. (Check)
No Level IV: _____ All Level IV: __X__

0.8/0.8
0.9/0.9
0.6/0.6

IR89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153978.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263044-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 3/26/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall008_20200314_Comp (440-263044-1)	3/14/20	09:20 Pacific		Water			X	1	See QAS, Boeing_w/u to zero; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Teresa [illegible]	Date/Time: 3.16.20 1700	Company: EC IRV	Received by: [illegible]	Date/Time: 3/17/20 920	Company: [illegible]
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: [illegible]		Cooler Temperature(s) °C and Other Remarks: 1.0°C / 2.2°C , 0.9°C / 1.5°C		

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263044-1

Login Number: 263044
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263044-1

Login Number: 263044
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/17/20 01:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 1.8 corr 2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263044-1	Outfall008_20200314_Comp	60	62	57	60	67	71	67	77
MB 320-365527/1-A	Method Blank	73	81	63	67	74	74	66	81

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263044-1	Outfall008_20200314_Comp	72	70	75	60	66	62	49
MB 320-365527/1-A	Method Blank	74	71	78	60	64	63	50

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-365527/2-A	Lab Control Sample	68	75	63	64	74	73	64	79

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-365527/2-A	Lab Control Sample	71	69	75	63	64	68	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes

440-263044 Field Sheet

Tracking #: 1540 4107 1999

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+/-) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☐

Initials: SG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento
Sample Receiving Notes

Place Field Sheet Label Here

Tracking # : 1540 9107 1841

Job: _____

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: Als 7 Corr. Factor: (+) / -) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☐
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263044-2
Client Project/Site: Annual Outfall 008 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/16/2020 9:47:00 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/16/2020 9:47:00 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263044-1	Outfall008_20200314_Comp	Water	03/14/20 09:20	03/14/20 17:30	

Job ID: 440-263044-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263044-2

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.6º C, 0.8º C and 0.9º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465288

The gross alpha detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass. Analytical results are reported with the MDC achieved.
(440-263045-Q-1-E) and (440-263045-Q-1-J DU).

Method 900.0: Gross Alpha/Beta Prep Batch 160-465288
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200314_Comp (440-263044-1), (LCS 160-465288/2-A), (LCSB 160-465288/3-A), (MB 160-465288/1-A), (440-263045-Q-1-E), (440-263045-Q-1-J DU), (440-263045-Q-1-F MS), (440-263045-Q-1-H MSBT), (440-263045-Q-1-I MSBTD) and (440-263045-Q-1-G MSD)

Method 901.1: Gamma Prep Batch 160-464923
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Job ID: 440-263044-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Pb-211
Bi-214 Ra-226
Outfall008_20200314_Comp (440-263044-1), (LCS 160-464923/2-A), (MB 160-464923/1-A), (440-263043-M-1-D) and (440-263043-M-1-E DU)

Method 903.0: Radium-226 Prep Batch 160-464916
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall008_20200314_Comp (440-263044-1), (LCS 160-464916/1-A), (MB 160-464916/12-A), (440-263045-Q-1-A), (440-263045-L-1-A MS) and (440-263045-L-1-B MSD)

Method 904.0: Radium-228 Prep Batch 160-464919
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall008_20200314_Comp (440-263044-1), (LCS 160-464919/1-A), (MB 160-464919/12-A), (440-263045-Q-1-B), (440-263045-L-1-C MS) and (440-263045-L-1-D MSD)

Method 905: Strontium-90 Prep Batch 160-464947
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall008_20200314_Comp (440-263044-1), (LCS 160-464947/1-A), (MB 160-464947/10-A), (440-263045-Q-1-D), (440-263045-L-1-E MS) and (440-263045-L-1-F MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200314_Comp (440-263044-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall008_20200314_Comp (440-263044-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Job ID: 440-263044-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall008_20200314_Comp (440-263044-1), (LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall008_20200314_Comp (440-263044-1).

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall008_20200314_Comp (440-263044-1).

Method PrecSep-21: Radium 226 Prep Batch 160-464916:

The following samples (680-181574-1, 680-181574-2, 160-37616-1, 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS, 440-263045-1MSD and 440-263076-1) were prepared at a reduced aliquot due to yellow discoloration: Outfall008_20200314_Comp (440-263044-1).

Method PrecSep-7: Strontium 90 Prep Batch 160-464947:

The following samples were prepared at a reduced aliquot due to discoloration: Outfall008_20200314_Comp (440-263044-1).Samples 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS and 440-263045-1MSD all have a yellow discoloration. Sample 160-37605-1 has a cloudy appearance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	**1.45**		0.844	0.860	3.00	1.07	pCi/L	03/23/20 11:56	03/28/20 14:41	1
Gross Beta	**1.87**		0.741	0.764	4.00	1.03	pCi/L	03/23/20 11:56	03/28/20 14:41	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-3.91	U	10.3	10.3	20.0	17.9	pCi/L	03/19/20 09:11	03/19/20 10:34	1
Potassium-40	-109	U	130	130		219	pCi/L	03/19/20 09:11	03/19/20 10:34	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0237	U	0.126	0.126	1.00	0.251	pCi/L	03/19/20 08:31	04/12/20 23:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.0*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:11*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0875	U	0.371	0.371	1.00	0.653	pCi/L	03/19/20 08:56	04/10/20 16:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.0*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*
Y Carrier	*83.0*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.237	U	0.588	0.588	3.00	1.09	pCi/L	03/19/20 12:18	03/30/20 11:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*73.0*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*
Y Carrier	*86.4*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-109	U	174	175	500	339	pCi/L	04/05/20 12:18	04/09/20 05:11	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.279	U	0.303	0.304	1.00	0.354	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample ID: Outfall008_20200314_Comp
Lab Sample ID: 440-263044-1
Date Collected: 03/14/20 09:20
Matrix: Water
Date Received: 03/14/20 17:30

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	58.2		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Client Sample ID: Outfall008_20200314_Comp

Date Collected: 03/14/20 09:20
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263044-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.09 g	1.0 g	465288	03/23/20 11:56	RJD	TAL SL
Total/NA	Analysis	900.0		1			466007	03/28/20 14:41	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	464923	03/19/20 09:11	EJQ	TAL SL
Total/NA	Analysis	901.1		1			464854	03/19/20 10:34	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.17 mL	1.0 g	464916	03/19/20 08:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			467460	04/12/20 23:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.17 mL	1.0 g	464919	03/19/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	467453	04/10/20 16:24	KLS	TAL SL
Total/NA	Prep	PrecSep-7			500.14 mL	1.0 g	464947	03/19/20 12:18	RBR	TAL SL
Total/NA	Analysis	905		1			466121	03/30/20 11:35	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.7 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 05:11	JS	TAL SL
Total/NA	Prep	ExtChrom			249.68 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467783	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465288/1-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465288

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4757	U	0.672	0.674	3.00	1.14	pCi/L	03/23/20 11:56	03/28/20 14:39	1
Gross Beta	0.4257	U	0.488	0.490	4.00	0.790	pCi/L	03/23/20 11:56	03/28/20 14:39	1

Lab Sample ID: LCS 160-465288/2-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	56.94		8.37	3.00	2.76	pCi/L	115	75 - 125

Lab Sample ID: LCSB 160-465288/3-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.6	85.51		9.08	4.00	0.751	pCi/L	101	75 - 125

Lab Sample ID: 440-263045-Q-1-F MS
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	1.95	U G	92.5	76.59		12.5	3.00	3.54	pCi/L	81	60 - 140

Lab Sample ID: 440-263045-Q-1-G MSD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.95	U G	92.4	70.83		11.8	3.00	3.95	pCi/L	75	60 - 140	0.24	1

Lab Sample ID: 440-263045-Q-1-H MSBT
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	5.19		158	159.2		16.9	4.00	1.82	pCi/L	97	60 - 140

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263045-Q-1-I MSBTD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	5.19		158	164.1		17.4	4.00	1.98	pCi/L	101	60 - 140	0.14	1

Lab Sample ID: 440-263045-Q-1-J DU
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Gross Alpha	1.95	U G		4.519	G	2.89	3.00	3.88	pCi/L			0.47	1
Gross Beta	5.19			3.726		1.35	4.00	1.66	pCi/L			0.51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-464923/1-A
Matrix: Water
Analysis Batch: 464857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464923

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.012	U	11.7	11.7	20.0	19.7	pCi/L	03/19/20 09:11	03/19/20 10:40	1
Potassium-40	-59.82	U	110	110		177	pCi/L	03/19/20 09:11	03/19/20 10:40	1

Lab Sample ID: LCS 160-464923/2-A
Matrix: Water
Analysis Batch: 464856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464923

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			136000	125800		14500		341	pCi/L	93	90 - 111		
Cesium-137			43800	43420		4350	20.0	103	pCi/L	99	90 - 111		
Cobalt-60			26500	25670		2540		60.2	pCi/L	97	89 - 110		

Lab Sample ID: 440-263043-M-1-E DU
Matrix: Water
Analysis Batch: 464854

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 464923

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Cesium-137	3.88	U		1.483	U	10.2	20.0	18.1	pCi/L			0.14	1
Potassium-40	-104	U		34.87	U	87.0		151	pCi/L			0.57	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-464916/12-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464916

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02504	U	0.127	0.127	1.00	0.269	pCi/L	03/19/20 08:31	04/12/20 23:12	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.3*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:12*	*1*

Lab Sample ID: LCS 160-464916/1-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464916

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.77		1.46	1.00	0.262	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.4*		*40 - 110*

Lab Sample ID: 440-263045-L-1-A MS
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.130	U	15.1	14.11		1.61	1.00	0.251	pCi/L	92	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Lab Sample ID: 440-263045-L-1-B MSD
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.130	U	15.1	13.74		1.59	1.00	0.292	pCi/L	90	75 - 138	0.11	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*84.6*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-464919/12-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464919

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5658		0.362	0.365	1.00	0.556	pCi/L	03/19/20 08:56	04/10/20 16:25	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	03/19/20 08:56	04/10/20 16:25	1
Y Carrier	86.0		40 - 110	03/19/20 08:56	04/10/20 16:25	1

Lab Sample ID: LCS 160-464919/1-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464919

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			11.9	9.552		1.18	1.00	0.433	pCi/L	80	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.4		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 440-263045-L-1-C MS
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.515	U	11.9	10.11		1.30	1.00	0.636	pCi/L	81	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	84.9		40 - 110
Y Carrier	83.7		40 - 110

Lab Sample ID: 440-263045-L-1-D MSD
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.515	U	11.9	10.52		1.37	1.00	0.710	pCi/L	84	45 - 150	0.15	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	77.4		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04215	U	0.247	0.247	3.00	0.434	pCi/L	03/19/20 12:18	03/30/20 11:36	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	84.7		40 - 110	03/19/20 12:18	03/30/20 11:36	1
Y Carrier	92.0		40 - 110	03/19/20 12:18	03/30/20 11:36	1

Lab Sample ID: LCS 160-464947/1-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464947

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	9.212		1.02	3.00	0.426	pCi/L	117	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	88.5		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-263045-L-1-E MS
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.289	U	15.8	18.64		2.21	3.00	1.05	pCi/L	116	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	76.1		40 - 110
Y Carrier	80.7		40 - 110

Lab Sample ID: 440-263045-L-1-F MSD
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.289	U	15.8	21.87		2.55	3.00	1.12	pCi/L	137	19 - 150	0.68	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	64.4		40 - 110
Y Carrier	84.5		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

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Prep Batch: 464916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	PrecSep-21	
MB 160-464916/12-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-464916/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263045-L-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263045-L-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 464919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	PrecSep_0	
MB 160-464919/12-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-464919/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263045-L-1-C MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-263045-L-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 464923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-464923/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-464923/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263043-M-1-E DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 464947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	PrecSep-7	
MB 160-464947/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-464947/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263045-L-1-E MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263045-L-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 465288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	Evaporation	
MB 160-465288/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465288/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465288/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263045-Q-1-F MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-H MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-I MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-J DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Rad

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263044-1	Outfall008_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Qualifiers

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Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

CHAIN OF CUSTODY FORM



440-263044 Chain of Custody

Client Name/Address	Project	Project Manager	Field Manager
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Boeing-SSFL NPDES Permit 2020 Annual Outfall [008] Outfall 008 Comp	Katherine Miller 520.289.8606, 520.904.6944 (cell)	Mark Dominick 978 234.5033, 818.599.0702 (cell)

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) (R/A)	TDS (SM2540C/E160 1) (R)	TSS (160 2 (SM2540D)) (A)	Total Dissolved Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	[illegible] (R)	Ammonia-N (350 2) (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Total Recoverable Metals Mercury (E245 1) (R)	Total Dissolved Metals Mercury (E245 1) (R)				Comments
Outfall 008	Outfall008_20200314_Comp	3/14/2020 0920	WM	500 mL Poly	1	HNO_3	85	No	X											X							
			WM	1 L Glass Amber	2	None	110	No		X																	
			WM	500 mL Poly	2	None	125	No			X																48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X															
			WM	500 mL Poly	1	H2SO4	160	No										X									
			WM	1L Poly	1	None	185	No					X														
			WM	500 mL Poly	1	NaOH	220	No											X								
			WM	2 5 Gal Cube	1	None	225	No																			Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No							X											
			WM	1 Gal Cube	6	None	235	No																			[illegible]
			WM	1 L Glass Amber	2	None	250	No													X						
	Outfall008_20200314_Comp_F	3/14/2020 0920	WM	1L Poly	1	None	195	No						X													Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No															X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall008_20200314_Comp_Extra	3/14/2020 0920	~~WM~~	~~1 L Glass Amber~~	~~2~~	~~None~~	~~110~~	~~No~~	R1	H																	Hold
			WM	500 mL Poly	2	None	125	No			H																Hold
			WM	1 L Glass Amber	2	None	250	No													H						Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020	H&A	[signature] (EC-IRV)	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-14-20	EC-IRV	[signature] EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

* 1 gal chron tox samples delivered to ABC directly by H&A (M. Dominick)

4/16/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address	Project
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [008] Outfall 008 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc	Project Manager. Katherine Miller 520.289 8606, 520.904.6944 (cell)
Sampler Dan Smith	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Priority Pollutants-SVOCs (E625)	Cr (VI), Total (E218.6)	Asbestos (EPA100.2)	Chlorpyrifos, Diazinon (E525.2)	Comments
									A	A	A	A	ANALYSIS REQUIRED
Outfall 008	Outfall008_20200314_Comp	3/14/2020 0920	WM	1 L Glass Amber	2	None	175	No	X				
			WM	500 mL Poly	1	None	260	No		X			
			WM	1L Poly	1	None	270	No			X		Only at Outfall 008
			WM	1 L Glass Amber	2	~~HCL~~	275	No				X	Extract within 24-Hours of sampling
	Outfall008_20200314_Comp_Extra	3/14/2020 0920	WM	~~1 L Glass Amber~~	~~2~~	~~None~~	~~175~~	~~No~~	~~H~~	RH			Hold
			WM	1 L Glass Amber	2	~~HCL~~	275	No				H	Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020	H&A	[signature]	3-14-20 15:15 EC-FAV
[signature]	3-14-20 17:00	EC-IRV	[signature]	3/14/20 1730 EC-IRV

Turn-around time (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity. (Check)
Intact: _____ On Ice _____
Store samples for 6 months.

Data Requirements. (Check)
No Level IV: _____ All Level IV: __X__

0.8/0.8
0.9/0.9
0.6/0.6
IR89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154036.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263044-1
Address: 13715 Rider Trail North,	Due Date Requested: 3/26/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall008_20200314_Comp (440-263044-1)	3/14/20	09:20 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Kenney	3/17/2020 1700	EC-IRV	FE		
FE			Michael Armstrong	3/18/2020 09:50	ETA STL

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience Irvine

Initiated by: MK Date: 3/18/2020 Time: 09:50 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids. If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 2252	921688461	0.5	
2.	1540 4107 2263		0.4	
3.	1540 4107 2274		-1.3	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Sample 440-263044-1 was received unpreserved with a pH=7. Preserved with HNO3.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/18/2020 16:05

Preservative and lot#: HNO3 0000244082

Amount of Preservative: 12mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263044-2

Login Number: 263044
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263044-2

Login Number: 263044
List Number: 3
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/18/20 04:12 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample received with pH=7. Preserved with HNO3.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 008 Comp

Job ID: 440-263044-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263044-1	Outfall008_20200314_Comp	77.0
440-263045-L-1-A MS	Matrix Spike	84.9
440-263045-L-1-B MSD	Matrix Spike Duplicate	84.6
LCS 160-464916/1-A	Lab Control Sample	98.4
MB 160-464916/12-A	Method Blank	94.3

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263044-1	Outfall008_20200314_Comp	77.0	83.0
440-263045-L-1-C MS	Matrix Spike	84.9	83.7
440-263045-L-1-D MSD	Matrix Spike Duplicate	84.6	77.4
LCS 160-464919/1-A	Lab Control Sample	98.4	84.5
MB 160-464919/12-A	Method Blank	94.3	86.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263044-1	Outfall008_20200314_Comp	73.0	86.4
440-263045-L-1-E MS	Matrix Spike	76.1	80.7
440-263045-L-1-F MSD	Matrix Spike Duplicate	64.4	84.5
LCS 160-464947/1-A	Lab Control Sample	88.5	90.8
MB 160-464947/10-A	Method Blank	84.7	92.0

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263044-1	Outfall008_20200314_Comp	58.2
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263044-2
Project/Site: Annual Outfall 008 Comp

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Sacramento
Sample Receiving Notes

440-263044 Field Sheet

Tracking #: 1540 4107 1999

Job: ____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other ____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+/-) 0.4 °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: Sal

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☐

Initials: SG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento Sample Receiving Notes

Place Field Sheet Label Here

Tracking # : 1540 9107 1841

Job: _____

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: Als 7 Corr. Factor: (+) / -) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☐
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263443-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263443-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL008_20200323_GRAB	440-263443-1	Water	3/23/20 7:15	E1664

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-263443-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC[X] reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

III.1. HOLDING TIMES

The QAPP holding time, as listed below, was met.

- 28 days for Oil and Grease (HEM, Method 1664)

III.2. CALIBRATION

Instrument calibration review is not performed at Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

The method blank had no detections.

III.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries and the RPD were within the laboratory control limits.

III.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

III.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402634431

Analysis Method E1664

Sample Name OUTFALL008_20200323_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/23/2020 7:15:00 AM **Validation Level:** 9

Lab Sample Name: 440-263443-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE		5.2	1.5	mg/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263443-1
Client Project/Site: Routine Outfall 008 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
3/26/2020 3:27:48 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
3/26/2020 3:27:48 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263443-1	Outfall008_20200323_Grab	Water	03/23/20 07:15	03/23/20 12:55	

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Job ID: 440-263443-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263443-1

Comments
No additional comments.

Receipt
The samples were received on 3/23/2020 12:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Client Sample ID: Outfall008_20200323_Grab
Date Collected: 03/23/20 07:15
Date Received: 03/23/20 12:55

Lab Sample ID: 440-263443-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		03/26/20 07:06	03/26/20 12:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Client Sample ID: Outfall008_20200323_Grab

Date Collected: 03/23/20 07:15
Date Received: 03/23/20 12:55

Lab Sample ID: 440-263443-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			955 mL	1000 mL	602450	03/26/20 07:06	L1H	TAL IRV
Total/NA	Analysis	1664A		1			602544	03/26/20 12:31	JC1	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-602450/1-A
Matrix: Water
Analysis Batch: 602544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602450

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/26/20 07:06	03/26/20 12:31	1

Lab Sample ID: LCS 440-602450/2-A
Matrix: Water
Analysis Batch: 602544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602450

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	34.8		mg/L		87	78 - 114		

Lab Sample ID: LCSD 440-602450/3-A
Matrix: Water
Analysis Batch: 602544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602450

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	34.3		mg/L		86	78 - 114	1	11

Lab Sample ID: 440-263609-A-1-A MS
Matrix: Water
Analysis Batch: 602544

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602450

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)	ND		41.2	36.4		mg/L		88	78 - 114		

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

General Chemistry

Prep Batch: 602450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263443-1	Outfall008_20200323_Grab	Total/NA	Water	1664A	
MB 440-602450/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-602450/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-602450/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
440-263609-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	

Analysis Batch: 602544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263443-1	Outfall008_20200323_Grab	Total/NA	Water	1664A	602450
MB 440-602450/1-A	Method Blank	Total/NA	Water	1664A	602450
LCS 440-602450/2-A	Lab Control Sample	Total/NA	Water	1664A	602450
LCSD 440-602450/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	602450
440-263609-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	602450

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-263443-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263443-1
Project/Site: Routine Outfall 008 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America

CHAIN OF CUSTODY FORM

VLJOUVET

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [008]
Outfall 008
Grab

Project Manager: Katherine Miller
520 289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 0715
pH 8.21 pH unit
Temp 49.2 °C/F

Field readings QC
Checked by: [signature]
Date/Time: 3-23-2020/0715

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	Comments
Outfall 008	Outfall008_20200323_Grab	3/23/2020/0715	WM	1 L Glass Amber	2	HCl	15	No	X	Extra Bottles
	Outfall008_20200323_Grab_Extra	3/23/2020/0715	WM	1 L Glass Amber	2	HCl	15	No	H	Hold

JLL 3/23/20

440-263443 Chain of Custody

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-2020/1055	H:A	[signature] Erik Derr, DCS, 3/23/20	10:55
[signature] Erik Derr, DCS, 3/23/20	12:55 P			
			[signature] EC IRV 3/23/20 12:55	

Turn-around time. (Check)
24 Hour: ____ 72 Hour: ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal ____

Sample Integrity. (Check)
Intact ____ On Ice: ____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: ____ All Level IV: X

1294 34/36

3/26/2020

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263443-1

Login Number: 263443
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263515-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

II. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263515-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL008_20200324_COMP	440-263515-1	N/A	Water	3/24/2020 7:45:00 AM	E1613B

III. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263515-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (965 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals TCDD, HpCDD and HpCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. The total for HpCDF was comprised of the peak which was qualified for blank contamination; therefore, the total HpCDF was qualified as a nondetect (U). The remaining sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 965 ml sample volume was available for extraction.

Isomers and total HpCDF previously qualified as method blank contamination were not further qualified as EMPCs. Total HpDCD included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402635151

Analysis Method E1613B

Sample Name OUTFALL008_20200324_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/24/2020 7:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-263515-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000037	0.00010	0.0000010	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.0000097	0.00010	0.0000011	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000015	0.000052	0.00000057	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000022	0.000052	0.00000051	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	ND	0.000052	0.00000077	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	ND	0.000052	0.0000015	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000025	0.000052	0.00000085	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000052	0.0000014	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000052	0.00000094	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	ND	0.000052	0.00000091	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	ND	0.000052	0.00000081	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000052	0.00000075	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.00000074	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	ND	0.000052	0.00000086	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000052	0.00000078	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000045	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000055	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000015	0.000052	0.00000057	ug/L	J,DXMBq	U	B
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000041	0.000052	0.00000051	ug/L	J,DXMBq	J	B, *III, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	ND	0.000052	0.00000086	ug/L	U	U	
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000025	0.000052	0.00000081	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000052	0.00000075	ug/L	U	U	

Analysis Method	*E1613B*							
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000052	0.00000074	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000045	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000055	ug/L	U	U

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263515-1
Client Project/Site: Routine Outfall 008 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/15/2020 12:36:56 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/15/2020 12:36:56 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263515-1	Outfall008_20200324_Comp	Water	03/24/20 07:45	03/24/20 12:50	
440-263515-2	Outfall008_20200324_Comp_F	Water	03/24/20 07:45	03/24/20 12:50	

Job ID: 440-263515-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263515-1

Comments
No additional comments.

Receipt
The samples were received on 3/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.1º C, 0.3º C, 1.3º C, 1.6º C, 1.7º C and 2.3º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall008_20200324_Comp (440-263515-1), (CCV 320-368420/27), (LCS 320-367895/2-A) and (MB 320-367895/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall008_20200324_Comp_F (440-263515-2). This was filtered and preserved upon receipt to the laboratory.

03/24/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-602138 and 440-602353 and analytical batch 440-602527 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The method blank for preparation batch 440-602306 and analytical batch 440-602534 contained Copper above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall008_20200324_Comp (440-263515-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-367895
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

Job ID: 440-263515-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work

Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Outfall008_20200324_Comp

Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263515-1

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.8**		0.50	0.25	mg/L			03/24/20 14:03	1
Nitrate as N	**0.17**		0.11	0.055	mg/L			03/24/20 14:03	1
Nitrite as N	ND		0.15	0.025	mg/L			03/24/20 14:03	1
Sulfate	**4.0**		0.50	0.25	mg/L			03/24/20 14:03	1

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	**1.1**	**J,DX**	4.0	0.95	ug/L			03/26/20 11:50	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.17**		0.15	0.055	mg/L			03/26/20 08:04	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000055	ug/L		03/26/20 11:50	03/28/20 13:37	1
2,3,7,8-TCDF	ND		0.000010	0.00000045	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,7,8-PeCDD	ND		0.000052	0.00000074	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,7,8-PeCDF	ND		0.000052	0.00000075	ug/L		03/26/20 11:50	03/28/20 13:37	1
2,3,4,7,8-PeCDF	ND		0.000052	0.00000078	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,4,7,8-HxCDD	**0.0000025**	**J,DX**	0.000052	0.00000085	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,6,7,8-HxCDD	ND		0.000052	0.00000094	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,7,8,9-HxCDD	ND		0.000052	0.00000081	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,4,7,8-HxCDF	ND		0.000052	0.0000015	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,6,7,8-HxCDF	ND		0.000052	0.0000014	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,7,8,9-HxCDF	ND		0.000052	0.00000091	ug/L		03/26/20 11:50	03/28/20 13:37	1
2,3,4,6,7,8-HxCDF	ND		0.000052	0.00000086	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,4,6,7,8-HpCDD	**0.0000022**	**J,DX MB**	0.000052	0.00000051	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,4,6,7,8-HpCDF	**0.0000015**	**J,DX MB q**	0.000052	0.00000057	ug/L		03/26/20 11:50	03/28/20 13:37	1
1,2,3,4,7,8,9-HpCDF	ND		0.000052	0.00000077	ug/L		03/26/20 11:50	03/28/20 13:37	1
OCDD	**0.0000097**	**J,DX MB**	0.00010	0.0000011	ug/L		03/26/20 11:50	03/28/20 13:37	1
OCDF	**0.0000037**	**J,DX MB q**	0.00010	0.0000010	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total TCDD	ND		0.000010	0.00000055	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total TCDF	ND		0.000010	0.00000045	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total PeCDD	ND		0.000052	0.00000074	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total PeCDF	ND		0.000052	0.00000075	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total HxCDD	**0.0000025**	**J,DX**	0.000052	0.00000081	ug/L		03/26/20 11:50	03/28/20 13:37	1

Client Sample ID: Outfall008_20200324_Comp

Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263515-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDF	ND		0.000052	0.00000086	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total HpCDD	**0.0000041**	**J,DX MB q**	0.000052	0.00000051	ug/L		03/26/20 11:50	03/28/20 13:37	1
Total HpCDF	**0.0000015**	**J,DX MB q**	0.000052	0.00000057	ug/L		03/26/20 11:50	03/28/20 13:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-2,3,7,8-TCDF	*51*		*24 - 169*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,7,8-PeCDD	*46*		*25 - 181*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,7,8-PeCDF	*46*		*24 - 185*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-2,3,4,7,8-PeCDF	*48*		*21 - 178*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,4,7,8-HxCDD	*57*		*32 - 141*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,6,7,8-HxCDD	*58*		*28 - 130*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-2,3,4,6,7,8-HxCDF	*55*		*28 - 136*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*70*		*23 - 140*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*70*		*28 - 143*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*72*		*26 - 138*	*03/26/20 11:50*	*03/28/20 13:37*	*1*
13C-OCDD	*54*		*17 - 157*	*03/26/20 11:50*	*03/28/20 13:37*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*75*		*35 - 197*	*03/26/20 11:50*	*03/28/20 13:37*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:55	1
Zinc	**12**	**J,DX**	20	12	ug/L		03/25/20 10:43	03/25/20 17:55	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:59	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 11:06	03/26/20 10:59	1
Copper	**2.5**	**MB**	2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:59	1
Lead	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:59	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:59	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:59	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 11:06	03/26/20 10:59	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 07:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**130**		10	5.0	mg/L			03/25/20 09:44	1
Total Suspended Solids	**4.1**		1.0	0.50	mg/L			03/26/20 15:04	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1
Ammonia (as N)	ND		0.200	0.100	mg/L			03/25/20 11:43	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

Client Sample ID: Outfall008_20200324_Comp_F
Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263515-2
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/24/20 17:28	03/25/20 12:00	1
Zinc	ND		20	12	ug/L		03/24/20 17:28	03/25/20 12:00	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 09:35	03/30/20 09:16	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 09:35	03/30/20 09:16	1
Copper	**2.1**		2.0	0.50	ug/L		03/25/20 09:35	03/30/20 09:16	1
Lead	ND		1.0	0.50	ug/L		03/25/20 09:35	03/30/20 09:16	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 09:35	03/30/20 09:16	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 09:35	03/30/20 09:16	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 09:35	03/30/20 09:16	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:48	03/26/20 06:19	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

Client Sample ID: Outfall008_20200324_Comp

Lab Sample ID: 440-263515-1
Matrix: Water
Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			602057	03/24/20 14:03	NTN	TAL IRV
Total/NA	Analysis	300.0		1			602058	03/24/20 14:03	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602483	03/26/20 11:50	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			602473	03/26/20 08:04	TLN	TAL IRV
Total/NA	Prep	1613B			965.1 mL	20 uL	367895	03/26/20 11:50	NIR	TAL SAC
Total/NA	Analysis	1613B		1			368420	03/28/20 13:37	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602301	03/25/20 10:43	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			602421	03/25/20 17:55	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602306	03/25/20 11:06	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			602534	03/26/20 10:59	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602360	03/25/20 13:54	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602527	03/26/20 07:14	MEM	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	602278	03/25/20 09:44	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	602571	03/26/20 15:04	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	602698	03/27/20 09:59	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			602725	03/27/20 12:12	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	602338	03/25/20 11:43	KMY	TAL IRV

Client Sample ID: Outfall008_20200324_Comp_F

Lab Sample ID: 440-263515-2
Matrix: Water
Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602149	03/24/20 14:42	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602185	03/24/20 17:28	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			602334	03/25/20 12:00	TQN	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	602149	03/24/20 14:42	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602188	03/25/20 09:35	M1G	TAL IRV
Dissolved	Analysis	200.8		1			602903	03/30/20 09:16	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	602138	03/24/20 14:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	602353	03/25/20 13:48	MEM	TAL IRV
Dissolved	Analysis	245.1		1			602527	03/26/20 06:19	MEM	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-602057/6
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/24/20 11:24	1
Nitrite as N	ND		0.15	0.025	mg/L			03/24/20 11:24	1

Lab Sample ID: LCS 440-602057/5
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.16		mg/L		103	90 - 110
Nitrite as N	1.52	1.53		mg/L		100	90 - 110

Lab Sample ID: 440-263518-G-1 MS
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.29		1.13	1.48		mg/L		105	80 - 120
Nitrite as N	ND		1.52	1.42		mg/L		93	80 - 120

Lab Sample ID: 440-263518-G-1 MSD
Matrix: Water
Analysis Batch: 602057

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.29		1.13	1.48		mg/L		105	80 - 120	0	20
Nitrite as N	ND		1.52	1.42		mg/L		93	80 - 120	0	20

Lab Sample ID: MB 440-602058/6
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/24/20 11:24	1
Sulfate	ND		0.50	0.25	mg/L			03/24/20 11:24	1

Lab Sample ID: LCS 440-602058/5
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.91		mg/L		98	90 - 110
Sulfate	5.00	4.95		mg/L		99	90 - 110

Lab Sample ID: 440-263518-G-1 MS
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.0		5.00	7.96		mg/L		100	80 - 120
Sulfate	5.3		5.00	10.4		mg/L		102	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-263518-G-1 MSD
Matrix: Water
Analysis Batch: 602058

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	3.0		5.00	7.95		mg/L		99	80 - 120	0	20
Sulfate	5.3		5.00	10.4		mg/L		102	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602483/6
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/26/20 10:03	1

Lab Sample ID: LCS 440-602483/5
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	10.0	10.2		ug/L		102	85 - 115

Lab Sample ID: MRL 440-602483/4
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	1.16	J,DX	ug/L		116	75 - 125

Lab Sample ID: MRL 440-602483/8
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.89	J,DX	ug/L		97	75 - 125

Lab Sample ID: 440-263523-P-1 MS
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		10.0	9.62		ug/L		96	80 - 120

Lab Sample ID: 440-263523-P-1 MSD
Matrix: Water
Analysis Batch: 602483

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		10.0	9.78		ug/L		98	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,7,8-TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000070	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000010	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000093	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.00000063	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDD	0.00000250	J,DX	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000071	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDD	0.0000101	J,DX	0.00010	0.0000013	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDF	0.00000304	J,DX q	0.00010	0.0000012	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDD	0.00000154	J,DX q	0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDD	0.00000435	J,DX q	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	60		32 - 141	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,6,7,8-HxCDD	60		28 - 130	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,6,7,8-HxCDF	57		26 - 123	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	03/26/20 11:50	03/28/20 10:35	1
13C-2,3,4,6,7,8-HxCDF	59		28 - 136	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,4,6,7,8-HpCDD	66		23 - 140	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,4,6,7,8-HpCDF	67		28 - 143	03/26/20 11:50	03/28/20 10:35	1
13C-1,2,3,4,7,8,9-HpCDF	70		26 - 138	03/26/20 11:50	03/28/20 10:35	1
13C-OCDD	49		17 - 157	03/26/20 11:50	03/28/20 10:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/26/20 11:50	03/28/20 10:35	1

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			0.000200	0.000179		ug/L		90	67 - 158		
2,3,7,8-TCDF			0.000200	0.000179		ug/L		89	75 - 158		
1,2,3,7,8-PeCDD			0.00100	0.000970		ug/L		97	70 - 142		
1,2,3,7,8-PeCDF			0.00100	0.000950		ug/L		95	80 - 134		
2,3,4,7,8-PeCDF			0.00100	0.000884		ug/L		88	68 - 160		
1,2,3,4,7,8-HxCDD			0.00100	0.000867		ug/L		87	70 - 164		
1,2,3,6,7,8-HxCDD			0.00100	0.000956		ug/L		96	76 - 134		
1,2,3,7,8,9-HxCDD			0.00100	0.000911		ug/L		91	64 - 162		
1,2,3,4,7,8-HxCDF			0.00100	0.000887		ug/L		89	72 - 134		
1,2,3,6,7,8-HxCDF			0.00100	0.000974		ug/L		97	84 - 130		
1,2,3,7,8,9-HxCDF			0.00100	0.000977		ug/L		98	78 - 130		
2,3,4,6,7,8-HxCDF			0.00100	0.000962		ug/L		96	70 - 156		
1,2,3,4,6,7,8-HpCDD			0.00100	0.000927	MB	ug/L		93	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.00100	0.000957	MB	ug/L		96	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.00100	0.000899		ug/L		90	78 - 138		
OCDD			0.00200	0.00186	MB	ug/L		93	78 - 144		
OCDF			0.00200	0.00204	MB	ug/L		102	63 - 170		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	53		21 - 227
13C-1,2,3,7,8-PeCDF	54		21 - 192
13C-2,3,4,7,8-PeCDF	57		13 - 328
13C-1,2,3,4,7,8-HxCDD	66		21 - 193
13C-1,2,3,6,7,8-HxCDD	67		25 - 163
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-1,2,3,7,8,9-HxCDF	62		17 - 205

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	77		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	79		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	81		20 - 186
13C-OCDD	63		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	74		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602301/1-A
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/25/20 10:43	03/25/20 17:26	1
Zinc	ND		20	12	ug/L		03/25/20 10:43	03/25/20 17:26	1

Lab Sample ID: LCS 440-602301/2-A
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	502		ug/L		100	85 - 115
Zinc	500	503		ug/L		101	85 - 115

Lab Sample ID: 440-263514-A-1-B MS
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	507		ug/L		101	70 - 130
Zinc	ND		500	531		ug/L		106	70 - 130

Lab Sample ID: 440-263514-A-1-C MSD
Matrix: Water
Analysis Batch: 602421

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 602301

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	519		ug/L		104	70 - 130	2	20
Zinc	ND		500	544		ug/L		109	70 - 130	2	20

Lab Sample ID: MB 440-602149/1-B
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/24/20 17:28	03/25/20 11:43	1
Zinc	ND		20	12	ug/L		03/24/20 17:28	03/25/20 11:43	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: LCS 440-602149/2-B
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602185

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel			500	492		ug/L		98	85 - 115		
Zinc			500	489		ug/L		98	85 - 115		

Lab Sample ID: 440-263499-B-1-C MS
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel	ND		500	496		ug/L		99	70 - 130		
Zinc	54		500	557		ug/L		101	70 - 130		

Lab Sample ID: 440-263499-B-1-D MSD
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602185

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	488		ug/L		98	70 - 130	2	20
Zinc	54		500	547		ug/L		98	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602306/1-A
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 11:06	03/26/20 10:23	1
Copper	0.797	J,DX	2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Lead	ND		1.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 11:06	03/26/20 10:23	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 11:06	03/26/20 10:23	1

Lab Sample ID: LCS 440-602306/2-A
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Silver			80.0	84.3		ug/L		105	85 - 115		
Cadmium			80.0	80.0		ug/L		100	85 - 115		
Copper			80.0	81.2		ug/L		101	85 - 115		
Lead			80.0	77.8		ug/L		97	85 - 115		
Antimony			80.0	83.3		ug/L		104	85 - 115		
Selenium			80.0	78.5		ug/L		98	85 - 115		
Thallium			80.0	77.2		ug/L		97	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-263515-1 MS
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Outfall008_20200324_Comp
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	88.1		ug/L		110	70 - 130
Cadmium	ND		80.0	84.7		ug/L		106	70 - 130
Copper	2.5	MB	80.0	88.4		ug/L		107	70 - 130
Lead	ND		80.0	82.5		ug/L		103	70 - 130
Antimony	ND		80.0	87.8		ug/L		110	70 - 130
Selenium	ND		80.0	84.8		ug/L		106	70 - 130
Thallium	ND		80.0	81.9		ug/L		102	70 - 130

Lab Sample ID: 440-263515-1 MSD
Matrix: Water
Analysis Batch: 602534

Client Sample ID: Outfall008_20200324_Comp
Prep Type: Total Recoverable
Prep Batch: 602306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	89.2		ug/L		111	70 - 130	1	20
Cadmium	ND		80.0	85.4		ug/L		107	70 - 130	1	20
Copper	2.5	MB	80.0	89.6		ug/L		109	70 - 130	1	20
Lead	ND		80.0	83.1		ug/L		104	70 - 130	1	20
Antimony	ND		80.0	88.9		ug/L		111	70 - 130	1	20
Selenium	ND		80.0	80.5		ug/L		101	70 - 130	5	20
Thallium	ND		80.0	83.1		ug/L		104	70 - 130	1	20

Lab Sample ID: MB 440-602149/1-D
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Cadmium	ND		1.0	0.25	ug/L		03/25/20 09:35	03/25/20 22:18	1
Copper	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Lead	ND		1.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Antimony	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Selenium	ND		2.0	0.50	ug/L		03/25/20 09:35	03/25/20 22:18	1
Thallium	ND		1.0	0.20	ug/L		03/25/20 09:35	03/25/20 22:18	1

Lab Sample ID: LCS 440-602149/2-D
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	82.6		ug/L		103	85 - 115
Cadmium	80.0	79.1		ug/L		99	85 - 115
Copper	80.0	81.0		ug/L		101	85 - 115
Lead	80.0	80.8		ug/L		101	85 - 115
Antimony	80.0	83.2		ug/L		104	85 - 115
Selenium	80.0	81.8		ug/L		102	85 - 115
Thallium	80.0	73.2		ug/L		91	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-263515-2 MS
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Outfall008_20200324_Comp_F
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	82.0		ug/L		103	70 - 130
Cadmium	ND		80.0	79.4		ug/L		99	70 - 130
Copper	2.1		80.0	84.6		ug/L		103	70 - 130
Lead	ND		80.0	81.1		ug/L		101	70 - 130
Antimony	ND		80.0	84.5		ug/L		106	70 - 130
Selenium	ND		80.0	82.1		ug/L		103	70 - 130
Thallium	ND		80.0	80.3		ug/L		100	70 - 130

Lab Sample ID: 440-263515-2 MSD
Matrix: Water
Analysis Batch: 602452

Client Sample ID: Outfall008_20200324_Comp_F
Prep Type: Dissolved
Prep Batch: 602188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	82.6		ug/L		103	70 - 130	1	20
Cadmium	ND		80.0	79.8		ug/L		100	70 - 130	1	20
Copper	2.1		80.0	85.2		ug/L		104	70 - 130	1	20
Lead	ND		80.0	81.4		ug/L		102	70 - 130	0	20
Antimony	ND		80.0	85.2		ug/L		107	70 - 130	1	20
Selenium	ND		80.0	82.6		ug/L		103	70 - 130	1	20
Thallium	ND		80.0	80.7		ug/L		101	70 - 130	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602360/1-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 06:37	1

Lab Sample ID: LCS 440-602360/2-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.79		ug/L		95	85 - 115

Lab Sample ID: 440-263076-F-1-D MS
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.94		ug/L		99	75 - 125

Lab Sample ID: 440-263076-F-1-E MSD
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.87		ug/L		97	75 - 125	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602138/1-C
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602353

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:48	03/26/20 06:08	1

Lab Sample ID: LCS 440-602138/2-C
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.03		ug/L		101	85 - 115

Lab Sample ID: 440-263518-B-3-D MS
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	7.69	LM	ug/L		192	75 - 125

Lab Sample ID: 440-263518-B-3-E MSD
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602353

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	7.63	LM	ug/L		191	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-602278/1
Matrix: Water
Analysis Batch: 602278

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/25/20 09:44	1

Lab Sample ID: LCS 440-602278/2
Matrix: Water
Analysis Batch: 602278

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	976		mg/L		98	90 - 110

Lab Sample ID: 440-263526-B-1 DU
Matrix: Water
Analysis Batch: 602278

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	270		274		mg/L		3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602571/1
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/26/20 15:04	1

Lab Sample ID: LCS 440-602571/2
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	857		mg/L		86	85 - 115

Lab Sample ID: 440-263558-B-1 DU
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	490		480		mg/L		3	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-602698/1-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1

Lab Sample ID: LCS 440-602698/2-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	96.0		ug/L		96	80 - 120

Lab Sample ID: 440-263409-C-1-A MS
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	93.0		ug/L		93	75 - 125

Lab Sample ID: 440-263409-C-1-B MSD
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	104		ug/L		104	75 - 125	11	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-602338/10
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/25/20 11:06	1

Lab Sample ID: LCS 440-602338/11
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			5.00	5.130		mg/L		103	90 - 110		

Lab Sample ID: MRL 440-602338/9
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			0.200	0.2080		mg/L		104	50 - 150		

Lab Sample ID: 440-263328-J-1 MS
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	0.560		5.00	5.710		mg/L		103	90 - 110		

Lab Sample ID: 440-263328-J-1 MSD
Matrix: Water
Analysis Batch: 602338

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	0.560		5.00	5.650		mg/L		102	90 - 110	1	15

HPLC/IC

Analysis Batch: 602057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	300.0	
MB 440-602057/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602057/5	Lab Control Sample	Total/NA	Water	300.0	
440-263518-G-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263518-G-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 602058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	300.0	
MB 440-602058/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602058/5	Lab Control Sample	Total/NA	Water	300.0	
440-263518-G-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263518-G-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 602473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 602483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	314.0	
MB 440-602483/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602483/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602483/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602483/8	Lab Control Sample	Total/NA	Water	314.0	
440-263523-P-1 MS	Matrix Spike	Total/NA	Water	314.0	
440-263523-P-1 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 367895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	1613B	
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 368420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	1613B	367895
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	367895
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	367895

Metals

Filtration Batch: 602138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602138/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263518-B-3-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263518-B-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Metals

Filtration Batch: 602149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602149/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-602149/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-263515-2 MS	Outfall008_20200324_Comp_F	Dissolved	Water	FILTRATION	
440-263515-2 MSD	Outfall008_20200324_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 602185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	200.2	602149
MB 440-602149/1-B	Method Blank	Dissolved	Water	200.2	602149
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	200.2	602149
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	200.2	602149
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	602149

Prep Batch: 602188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	200.2	602149
MB 440-602149/1-D	Method Blank	Dissolved	Water	200.2	602149
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	200.2	602149
440-263515-2 MS	Outfall008_20200324_Comp_F	Dissolved	Water	200.2	602149
440-263515-2 MSD	Outfall008_20200324_Comp_F	Dissolved	Water	200.2	602149

Prep Batch: 602301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total Recoverable	Water	200.2	
MB 440-602301/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602301/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263514-A-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263514-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 602306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total Recoverable	Water	200.2	
MB 440-602306/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602306/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263515-1 MS	Outfall008_20200324_Comp	Total Recoverable	Water	200.2	
440-263515-1 MSD	Outfall008_20200324_Comp	Total Recoverable	Water	200.2	

Analysis Batch: 602334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	200.7 Rev 4.4	602185
MB 440-602149/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	602185
LCS 440-602149/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	602185
440-263499-B-1-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	602185
440-263499-B-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	602185

Metals

Prep Batch: 602353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	245.1	602138
MB 440-602138/1-C	Method Blank	Dissolved	Water	245.1	602138
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	245.1	602138
440-263518-B-3-D MS	Matrix Spike	Dissolved	Water	245.1	602138
440-263518-B-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	602138

Prep Batch: 602360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	245.1	
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263076-F-1-D MS	Matrix Spike	Total/NA	Water	245.1	
440-263076-F-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 602421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total Recoverable	Water	200.7 Rev 4.4	602301
MB 440-602301/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602301
LCS 440-602301/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602301
440-263514-A-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	602301
440-263514-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	602301

Analysis Batch: 602452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602149/1-D	Method Blank	Dissolved	Water	200.8	602188
LCS 440-602149/2-D	Lab Control Sample	Dissolved	Water	200.8	602188
440-263515-2 MS	Outfall008_20200324_Comp_F	Dissolved	Water	200.8	602188
440-263515-2 MSD	Outfall008_20200324_Comp_F	Dissolved	Water	200.8	602188

Analysis Batch: 602527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	245.1	602360
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	245.1	602353
MB 440-602138/1-C	Method Blank	Dissolved	Water	245.1	602353
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	602360
LCS 440-602138/2-C	Lab Control Sample	Dissolved	Water	245.1	602353
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	602360
440-263076-F-1-D MS	Matrix Spike	Total/NA	Water	245.1	602360
440-263076-F-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	602360
440-263518-B-3-D MS	Matrix Spike	Dissolved	Water	245.1	602353
440-263518-B-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	602353

Analysis Batch: 602534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total Recoverable	Water	200.8	602306
MB 440-602306/1-A	Method Blank	Total Recoverable	Water	200.8	602306
LCS 440-602306/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602306
440-263515-1 MS	Outfall008_20200324_Comp	Total Recoverable	Water	200.8	602306
440-263515-1 MSD	Outfall008_20200324_Comp	Total Recoverable	Water	200.8	602306

Metals

Analysis Batch: 602903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-2	Outfall008_20200324_Comp_F	Dissolved	Water	200.8	602188

General Chemistry

Analysis Batch: 602278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	SM 2540C	
MB 440-602278/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-602278/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-263526-B-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 602338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-602338/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-602338/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-602338/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263328-J-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263328-J-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 602571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	SM 2540D	
MB 440-602571/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602571/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263558-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 602698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	Distill/CN	
MB 440-602698/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 602725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	SM 4500 CN E	602698
MB 440-602698/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	602698
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	602698
440-263409-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	602698

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263515-1
Project/Site: Routine Outfall 008 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	04-07-20
Pennsylvania	NELAP	68-01272	03-30-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

aquatic bioassay & consulting laboratories, inc

April 14, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall008_20200324_Comp (440-263515-1)
DATE RECEIVED:	24 March - 2020
ABC LAB. NO.:	CSE0320.168

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = -21.43 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	18-3842-7099	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	24 Mar-20 16:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	28 Mar-20 15:22	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	09-0970-2895	**Code:**	CSE0320.168sel	**Project:**	Boeing-SSFL NPDES		
Sample Date:	24 Mar-20 07:45	**Material:**	Sample Water	**Source:**	Bioassay Report		
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall008_20200324_Comp		
Sample Age:	8h (1.8 °C)	**Client:**	Eurofins Calscience				

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
18-9898-3184	Cell Density	TST-Welch's t Test	<1.0E-37	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
18-9898-3184	Cell Density	Control CV	0.05654	<<	0.2	Yes	Passes Criteria
18-9898-3184	Cell Density	Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.189E+6	1.406E+6	2.590E+4	7.325E+4	5.65%	0.00%
100		8	1.573E+6	1.484E+6	1.662E+6	1.388E+6	1.699E+6	3.758E+4	1.063E+5	6.76%	-21.43%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.388E+6	1.463E+6	1.664E+6	1.635E+6	1.545E+6	1.699E+6	1.634E+6	1.557E+6

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	18-9898-3184	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:26	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	18-3842-7099	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	24 Mar-20 16:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	28 Mar-20 15:22	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	09-0970-2895	**Code:**	CSE0320.168sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	24 Mar-20 07:45	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall008_20200324_Comp
Sample Age:	8h (1.8 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	14.22	0.6998	10	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.05654	<<	0.2	Yes	Passes Criteria
Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.083E+11	3.083E+11	1	37	2.8E-05	Significant Effect
Error	1.166E+11	8.332E+09	14			
Total	4.249E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.078	8.862	0.3168	Equal Variances
	Mod Levene Equality of Variance Test	0.9324	8.862	0.3506	Equal Variances
	Variance Ratio F Test	2.106	8.885	0.3470	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2955	3.878	0.6254	Normal Distribution
	D'Agostino Skewness Test	0.8766	2.576	0.3807	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1346	0.2471	0.6629	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9601	0.8408	0.6634	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.288E+6	1.189E+6	1.406E+6	2.590E+4	5.65%	0.00%
100		8	1.573E+6	1.484E+6	1.662E+6	1.596E+6	1.388E+6	1.699E+6	3.758E+4	6.76%	-21.43%

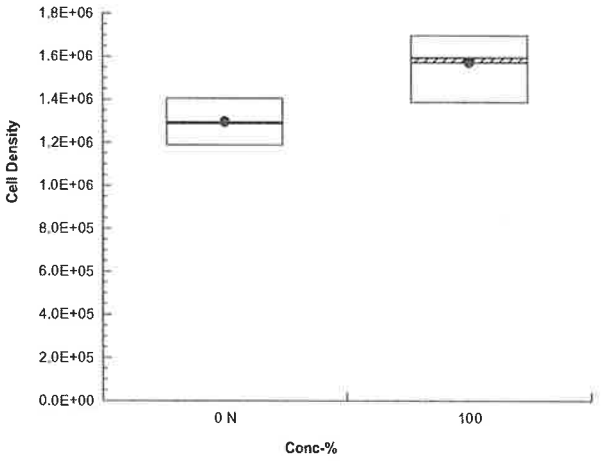
Cell Density Detail

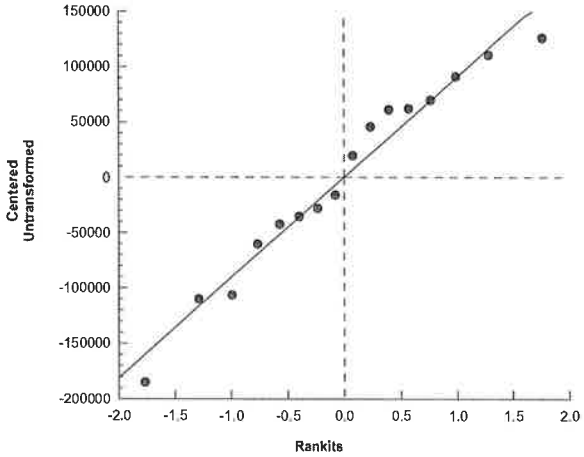
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.388E+6	1.463E+6	1.664E+6	1.635E+6	1.545E+6	1.699E+6	1.634E+6	1.557E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-9898-3184	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:26	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	18-3842-7099	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	24 Mar-20 16:01	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	28 Mar-20 15:22	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	

Sample ID:	09-0970-2895	**Code:**	CSE0320.168sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	24 Mar-20 07:45	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	24 Mar-20 12:50	**CAS (PC):**		**Station:**	Outfall008_20200324_Comp
Sample Age:	8h (1.8 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	58			58	58	0	0	0.0%	0
100		1	93			93	93	0	0	0.0%	0
Overall		2	75.5	-146.9	297.9	58	93	17.5	24.75	32.78%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	475.2	460.2	490.2	454	483	5.398	12.07	2.54%	0
100		5	265.6	263.3	267.9	263	268	0.8124	1.817	0.68%	0
Overall		10	370.4	291.2	449.6	263	483	35.03	110.8	29.91%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	115			115	115	0	0	0.0%	0
100		1	96			96	96	0	0	0.0%	0
Overall		2	105.5	-15.21	226.2	96	115	9.5	13.44	12.73%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.581	8.339	7.8	8.5	0.1364	0.305	3.83%	0
100		5	8	7.709	8.291	7.8	8.4	0.1049	0.2345	2.93%	0
Overall		10	7.98	7.796	8.164	7.8	8.5	0.08138	0.2573	3.23%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
100		5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
Overall		10	24.68	24.47	24.89	24.3	25	0.09286	0.2936	1.19%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		58					
100				93					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		454					
100				263					
0	N	2		483					
100				265					
0	N	3		477					
100				266					
0	N	4		480					
100				266					
0	N	5		482					
100				268					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		115					
100				96					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				8					
0	N	2		8.5					
100				8.4					
0	N	3		7.9					
100				7.8					
0	N	4		7.8					
100				7.9					
0	N	5		7.8					
100				7.9					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.6					
100				24.6					
0	N	2		24.3					
100				24.3					
0	N	3		24.5					
100				24.5					
0	N	4		25					
100				25					
0	N	5		25					
100				25					

Temp. deg. C = 1.4

Chlorine (mg/L) = <0.1

NH3 (mg/L) = 0.1

Test America

CHAIN OF CUSTODY FORM

4/15/2020

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [008]
Outfall 008
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)		Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))		Comments
Outfall 008	Outfall008_20200324_Comp	3/24/2020 0745	WM	500 mL Poly	1	HNO_3	95	No	X											X			
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	500 mL Poly	2	None	130	No			X												48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X											
			WM	500 mL Poly	1	H_2SO_4	160	No									X						
			WM	500 mL Poly	1	NaOH	220	No										X					
			WM	2.5 Gal Cube	1	None	225	No															Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No						X									
			WM	1 Gal Cube	6	None	235	No											.166				*
			WM	1 L Poly	1	None	185	No													X		
	Outfall008_20200324_Comp_F	3/24/2020 0745	WM	1L Poly	1	None	205	No					X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No												X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall008_20200324_Comp_Extra	3/24/2020 0745	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	130	No			H												Hold

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hahn	03/24/2020 1210	H&A	[signature]	3-24-2020 1250
[signature]	3-24-2020 1250	IT	[signature]	03/24/2020 1250

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

* 1 gal cubes delivered to ARC LABS directly by H2A (M. DOMINICK)

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 17 March - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 46.37 ug/l
IC50 = 95.06 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

29 north olive st. ventura, ca 93001 (805) 643 5621 aquabio.org

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
01-5313-8868	Cell Density	Dunnett Multiple Comparison Test		20	40	28.28		7.47%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	TU	S
07-1463-6845	Cell Density	Linear Interpolation (ICPIN)		IC5	14.28	2.725	31.44		1
				IC10	24.24	8.04	34.46		
				IC15	31.31	16.45	40.45		
				IC20	38.37	28.87	47.16		
				IC25	46.37	37.27	55.2		
				IC40	71.17	63.42	81.71		
				IC50	95.06	78.77	110		

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-5313-8868	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
07-1463-6845	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
01-5313-8868	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria
07-1463-6845	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.233E+6	1.365E+6	2.882E+4	5.764E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.092E+6	1.315E+6	4.858E+4	9.717E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	9.880E+5	1.050E+6	1.719E+4	3.438E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	6.560E+5	7.590E+5	2.566E+4	5.132E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.070E+5	5.150E+5	2.591E+4	5.182E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.900E+5	2.010E+5	3.175E+3	6.351E+3	3.25%	84.87%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	01-5313-8868	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	20	40	28.28		7.47%

Dunnett Multiple Comparison Test

Control vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	20	2.256	2.407	96550	6	CDF	0.0662	Non-Significant Effect
	40*	6.813	2.407	96550	6	CDF	3.2E-05	Significant Effect
	80*	14.6	2.407	96550	6	CDF	2.7E-05	Significant Effect
	140*	20.59	2.407	96550	6	CDF	2.7E-05	Significant Effect
	180*	27.34	2.407	96550	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.743E+12	7.485E+11	5	232.6	<1.0E-37	Significant Effect
Error	5.792E+10	3.218E+09	18			
Total	3.800E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.36	15.09	0.0302	Equal Variances
	Levene Equality of Variance Test	4.939	4.248	0.0051	Unequal Variances
	Mod Levene Equality of Variance Test	4.739	4.248	0.0062	Unequal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2623	3.878	0.7305	Normal Distribution
	D'Agostino Kurtosis Test	0.3634	2.576	0.7163	Normal Distribution
	D'Agostino Skewness Test	0.2035	2.576	0.8387	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.1735	9.21	0.9169	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1231	0.2056	0.4534	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9834	0.884	0.9491	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.285E+6	1.233E+6	1.365E+6	2.882E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.200E+6	1.092E+6	1.315E+6	4.858E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	1.018E+6	9.880E+5	1.050E+6	1.719E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	7.050E+5	6.560E+5	7.590E+5	2.566E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.715E+5	4.070E+5	5.150E+5	2.591E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.955E+5	1.900E+5	2.010E+5	3.175E+3	3.25%	84.87%

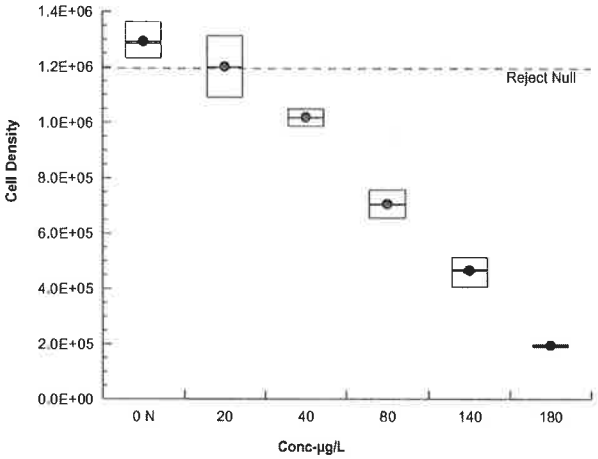
Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

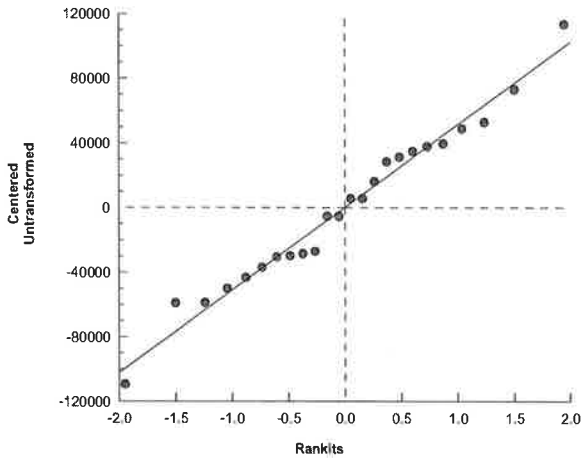
Analysis ID:	01-5313-8868	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	14.28	2.725	31.44
IC10	24.24	8.04	34.46
IC15	31.31	16.45	40.45
IC20	38.37	28.87	47.16
IC25	46.37	37.27	55.2
IC40	71.17	63.42	81.71
IC50	95.06	78.77	110

Cell Density Summary

			Calculated Variate						Isotonic Variate	
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	N	4	1.292E+6	1.233E+6	1.365E+6	5.764E+4	4.46%	0.0%	1292000	0.0%
20		4	1.202E+6	1.092E+6	1.315E+6	9.717E+4	8.09%	7.01%	1202000	7.01%
40		4	1.019E+6	9.880E+5	1.050E+6	3.438E+4	3.38%	21.15%	1019000	21.15%
80		4	7.062E+5	6.560E+5	7.590E+5	5.132E+4	7.27%	45.34%	706200	45.34%
140		4	4.662E+5	4.070E+5	5.150E+5	5.182E+4	11.11%	63.91%	466200	63.91%
180		4	1.955E+5	1.900E+5	2.010E+5	6.351E+3	3.25%	84.87%	195500	84.87%

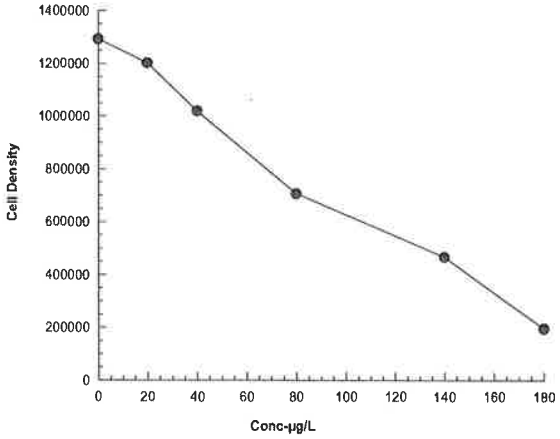
Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
20		1	52			52	52	0	0	0.0%	0
40		1	52			52	52	0	0	0.0%	0
80		1	53			53	53	0	0	0.0%	0
140		1	46			46	46	0	0	0.0%	0
180		1	43			43	43	0	0	0.0%	0
Overall		6	49.83	45.36	54.31	43	53	1.74	4.262	8.55%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	468	410.9	525.1	443	550	20.56	45.98	9.83%	0
20		5	422.4	420.3	424.5	421	425	0.7483	1.673	0.4%	0
40		5	414.2	412.6	415.8	412	415	0.5831	1.304	0.31%	0
80		5	400.4	396.4	404.4	397	405	1.435	3.209	0.8%	0
140		5	386.8	367.9	405.7	360	398	6.822	15.25	3.94%	0
180		5	280.2	250.2	310.2	252	305	10.81	24.18	8.63%	0
Overall		30	395.3	372.3	418.4	252	550	11.26	61.7	15.61%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
20		1	90			90	90	0	0	0.0%	0
40		1	55			55	55	0	0	0.0%	0
80		1	70			70	70	0	0	0.0%	0
140		1	88			88	88	0	0	0.0%	0
180		1	87			87	87	0	0	0.0%	0
Overall		6	78.33	64.09	92.58	55	90	5.542	13.57	17.33%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.651	8.189	7.7	8.2	0.09695	0.2168	2.74%	0
20		5	7.7	7.159	8.241	7.2	8.2	0.1949	0.4359	5.66%	0
40		5	7.74	7.262	8.218	7.3	8.2	0.172	0.3847	4.97%	0
80		5	7.72	7.26	8.18	7.3	8.2	0.1655	0.3701	4.79%	0
140		5	7.74	7.313	8.167	7.4	8.2	0.1536	0.3435	4.44%	0
180		5	7.72	7.333	8.107	7.4	8.1	0.1393	0.3114	4.03%	0
Overall		30	7.757	7.634	7.879	7.2	8.2	0.05982	0.3277	4.22%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
20		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
40		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
80		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
140		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
180		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
Overall		30	24.8	24.73	24.87	24.5	25	0.03523	0.193	0.78%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
20				52					
40				52					
80				53					
140				46					
180				43					

Conductivity-µmhos

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
20				421					
40				412					
80				398					
140				360					
180				260					
0	N	2		445					
20				421					
40				414					
80				397					
140				390					
180				252					
0	N	3		450					
20				422					
40				415					
80				400					
140				393					
180				281					
0	N	4		452					
20				423					
40				415					
80				402					
140				393					
180				303					
0	N	5		550					
20				425					
40				415					
80				405					
140				398					
180				305					

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
20				90					
40				55					
80				70					
140				88					
180				87					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
20				8					
40				8					
80				7.9					
140				7.9					
180				7.9					
0	N	2		7.8					
20				7.8					
40				7.8					
80				7.8					
140				7.8					
180				7.8					
0	N	3		8.2					
20				8.2					
40				8.2					
80				8.2					
140				8.2					
180				8.1					
0	N	4		7.8					
20				7.2					
40				7.3					
80				7.3					
140				7.4					
180				7.4					
0	N	5		7.7					
20				7.3					
40				7.4					
80				7.4					
140				7.4					
180				7.4					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.7					
20				24.7					
40				24.7					
80				24.7					
140				24.7					
180				24.7					
0	N	2		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	3		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	4		24.8					
20				24.8					
40				24.8					
80				24.8					
140				24.8					
180				24.8					
0	N	5		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					

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440-263515 Chain of Custody

CHAIN OF CUSTODY FORM

Page 2 of 2

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [008]
Outfall 008
Comp

Project Manager: Katherine Miller
520 289.8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234.5033, 818.599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160 1)	Total Dissolved Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	[illegible]	Ammonia-N (350 2)	Cyanide (SM4500-CN-E / E335 2)	Total Recoverable Metals Mercury (E245 1)	Total Dissolved Metals Mercury (E245 1)	TSS (160 2 (SM2540D))		Field Readings: Comments
Outfall 008	Outfall008_20200324_Comp	3/24/2020 0745	WM	500 mL Poly	1	HNO_3	95	No	X									X				
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	500 mL Poly	2	None	130	No			X											48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X										
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	500 mL Poly	1	NaOH	220	No									X					
			WM	2 5 Gal Cube	1	None	225	No						X								Unfiltered and unpreserved analysis. Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No														
			WM	1 Gal Cube	6	None	235	No														Only test if first or second pair events of the year Delivered ABC Labs in Ventura CA *
			WM	1 L Poly	1	None	185	No												X		
	Outfall008_20200324_Comp_F	3/24/2020 0745	WM	1L Poly	1	None	205	No					X									Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No											X			Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall008_20200324_Comp_Extra	3/24/2020 0745	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	130	No			H											Hold

LB 3/24/20

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Mohn	03/24/2020 1110	H&A	S. ALI [signature]	03/24/2020 1110 DCS
SHAD ALI [signature]	03/24/2020 1250	DCS		
			[signature] EC-IRV	3/24/20 1250

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months

Data Requirements (Check)
No Level IV _____ All Level IV ___X___

* 1 gal cubes delivered to ABC LABS directly by H&A (M. DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR 89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154338.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263515-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/3/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall008_20200324_Comp (440-263515-1)	3/24/20	07:45 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature] FE	3/24/20 1700	EC-IRV	FE		
2	FE			[signature]	3/25/2020 08:50	ETA STL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience

Initiated by: JNK Date: 3/25/2020 Time: 08:50 Shipper: FE Package Quantity: 1

**Sample must be received at < 6°. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids.
If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1SAD 4107 4244	192688461	0.3	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Samples received with pH=7. Samples were preserved upon receipt.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/25/2020 13:53

Preservative and lot#: HNO3 000024482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154336.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263515-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/3/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall008_20200324_Comp (440-263515-1)	3/24/20	07:45 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/24/20 1700	EC-IRV		3/25/20 935	ETA-SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ▲ Yes △ No	Custody Seal No.: seal	Cooler Temperature(s) °C and Other Remarks: 0-9°C

Ver: 01/16/2019

4/15/2020

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263515-1

Login Number: 263515
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263515-1

Login Number: 263515
List Number: 3
Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/25/20 04:31 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263515-1	Outfall008_20200324_Comp	57	51	46	46	48	57	58	57
MB 320-367895/1-A	Method Blank	63	57	51	50	53	60	60	59

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263515-1	Outfall008_20200324_Comp	54	55	55	70	70	72	54
MB 320-367895/1-A	Method Blank	57	58	59	66	67	70	49

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-367895/2-A	Lab Control Sample	65	60	53	54	57	66	67	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-367895/2-A	Lab Control Sample	61	62	63	77	79	81	63

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

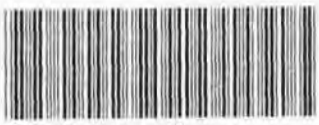
Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes



440-263515 Field Sheet

Tracking # : 1540 4107 4152

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 0.9 °C

From: Temp Blank ☒ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: PK Date: 03/25/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☒

Initials: SO Date: 3/25/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

CW17C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263515-2
Client Project/Site: Routine Outfall 008 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/22/2020 12:05:52 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:05:52 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263515-1	Outfall008_20200324_Comp	Water	03/24/20 07:45	03/24/20 12:50	

Job ID: 440-263515-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263515-2

Comments
No additional comments.

Receipt
The samples were received on 3/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.1º C, 0.3º C, 1.3º C, 1.6º C, 1.7º C and 2.3º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

The laboratory control sample (LCS, 68%) failed below the lower limit (75%). The lab reached out to the client who requested the data be reported.

(LCS 160-465900/2-A)

Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-465900/2-A), (LCSB 160-465900/3-A), (MB 160-465900/1-A), (440-263409-J-1-D), (440-263409-J-1-G DU), (440-263409-F-1-E MS), (440-263409-J-1-E MSBT), (440-263409-J-1-F MSBTD) and (440-263409-F-1-F MSD)

Method 901.1: Gamma Prep Batch 160-465827
Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Job ID: 440-263515-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-465827/2-A), (MB 160-465827/1-A) and (440-263515-K-1-D DU)

Methods 903.0, 9315: Ra-226 Prep Batch 160-465586
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-465586/1-A), (MB 160-465586/20-A), (440-263409-J-1-B), (440-263409-F-1-A MS) and (440-263409-F-1-B MSD)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588

The laboratory control sample (LCS, 73%) failed below the lower limit of 75%. The MB, MS and MSD were within passing limits. The data has been reported with this narrative.

Outfall008_20200324_Comp (440-263515-1) and (MB 160-465588/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall008_20200324_Comp (440-263515-1) and (MB 160-465588/20-A)

Method 905: Strontium-90 Prep Batch 160-465961

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-465961/1-A), (MB 160-465961/11-A), (440-263409-J-1-J), (440-263409-F-1-K MS) and (440-263409-F-1-L MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL

Job ID: 440-263515-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall008_20200324_Comp (440-263515-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall008_20200324_Comp (440-263515-1), (LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall008_20200324_Comp (440-263515-1).

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall008_20200324_Comp (440-263515-1).

Method PrecSep_0: Radium 228 Prep Batch 160-465588:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall008_20200324_Comp (440-263515-1).

Method PrecSep-21: Radium 226 Prep Batch 160-465586:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall008_20200324_Comp (440-263515-1).

Method PrecSep-7: Sr-90 Prep Batch 160-465961:

Samples 160-37640-1, 160-37641-1, and 440-263408-1 were slightly discolored. Samples 440-263409-1, 1MS, 1MSD, 440-263515-1 and 440-263518-1 had a bright yellow discoloration. In addition, sample 440-263518-1 was reduced in volume because it was cloudy.

Outfall008_20200324_Comp (440-263515-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall008_20200324_Comp

Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263515-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.332	U	0.840	0.840	3.00	1.54	pCi/L	03/27/20 11:28	04/03/20 08:24	1
Gross Beta	**2.98**		0.724	0.783	4.00	0.830	pCi/L	03/27/20 11:28	04/03/20 08:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-4.76	U	12.2	12.3	20.0	14.3	pCi/L	03/26/20 17:56	03/26/20 22:43	1
Potassium-40	-59.1	U	135	136		192	pCi/L	03/26/20 17:56	03/26/20 22:43	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0817	U	0.134	0.134	1.00	0.305	pCi/L	03/26/20 06:31	04/17/20 08:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:51*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0757	U	0.284	0.284	1.00	0.499	pCi/L	03/26/20 06:59	04/15/20 13:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:20*	*1*
Y Carrier	*82.6*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:20*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.277	U	0.199	0.201	3.00	0.308	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*70.9*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:14*	*1*
Y Carrier	*91.2*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:14*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-105	U	174	175	500	338	pCi/L	04/05/20 12:18	04/09/20 07:51	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.414**		0.278	0.280	1.00	0.253	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample ID: Outfall008_20200324_Comp
Lab Sample ID: 440-263515-1
Date Collected: 03/24/20 07:45
Matrix: Water
Date Received: 03/24/20 12:50

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	72.6		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-2

Client Sample ID: Outfall008_20200324_Comp

Date Collected: 03/24/20 07:45
Date Received: 03/24/20 12:50

Lab Sample ID: 440-263515-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.13 mL	1.0 g	465900	03/27/20 11:28	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	466614	04/03/20 08:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	465827	03/26/20 17:56	PMS	TAL SL
Total/NA	Analysis	901.1		1			465574	03/26/20 22:43	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.23 mL	1.0 g	465586	03/26/20 06:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			468017	04/17/20 08:51	KRR	TAL SL
Total/NA	Prep	PrecSep_0			750.23 mL	1.0 g	465588	03/26/20 06:59	RBR	TAL SL
Total/NA	Analysis	904.0		1			467720	04/15/20 13:20	CJQ	TAL SL
Total/NA	Prep	PrecSep-7			1000.19 mL	1.0 g	465961	03/29/20 09:20	MMO	TAL SL
Total/NA	Analysis	905		1			467045	04/07/20 10:14	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.1 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 07:51	JS	TAL SL
Total/NA	Prep	ExtChrom			249.84 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467797	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465900/1-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465900

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4046	U	0.519	0.521	3.00	0.861	pCi/L	03/27/20 11:28	04/03/20 08:23	1
Gross Beta	0.4550	U	0.481	0.483	4.00	0.772	pCi/L	03/27/20 11:28	04/03/20 08:23	1

Lab Sample ID: LCS 160-465900/2-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	33.94	*	5.41	3.00	1.58	pCi/L	68	75 - 125

Lab Sample ID: LCSB 160-465900/3-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.6	80.84		8.62	4.00	0.942	pCi/L	96	75 - 125

Lab Sample ID: 440-263409-F-1-E MS
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	-0.0978	U	49.5	36.73		5.47	3.00	1.38	pCi/L	74	60 - 140

Lab Sample ID: 440-263409-F-1-F MSD
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	-0.0978	U	49.5	39.84		5.86	3.00	1.64	pCi/L	80	60 - 140	0.27	1

Lab Sample ID: 440-263409-J-1-E MSBT
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	0.603	U	84.5	78.67		8.39	4.00	0.921	pCi/L	92	60 - 140

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263409-J-1-F MSBTD
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	0.603	U	84.5	74.07		7.92	4.00	0.902	pCi/L	87	60 - 140	0.28	1

Lab Sample ID: 440-263409-J-1-G DU
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	-0.0978	U	1.373	*		3.00	1.00	pCi/L	0.79	1
Gross Beta	0.603	U	0.8697	U		4.00	1.00	pCi/L	0.23	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-465827/1-A
Matrix: Water
Analysis Batch: 465572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465827

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.790	U	5.70	5.70	20.0	7.42	pCi/L	03/26/20 17:56	03/26/20 22:41	1
Potassium-40	-36.96	U	125	126		188	pCi/L	03/26/20 17:56	03/26/20 22:41	1

Lab Sample ID: LCS 160-465827/2-A
Matrix: Water
Analysis Batch: 465573

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465827

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	132800		15300		521	pCi/L	98	90 - 111
Cesium-137	43800	42740		4290	20.0	148	pCi/L	98	90 - 111
Cobalt-60	26400	25750		2560		79.6	pCi/L	97	89 - 110

Lab Sample ID: 440-263515-1 DU
Matrix: Water
Analysis Batch: 466064

Client Sample ID: Outfall008_20200324_Comp
Prep Type: Total/NA
Prep Batch: 465827

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-4.76	U	-3.585	U	12.8	20.0	15.8	pCi/L	0.05	1
Potassium-40	-59.1	U	-61.91	U	160		218	pCi/L	0.01	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-465586/20-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465586

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03638	U	0.0859	0.0860	1.00	0.199	pCi/L	03/26/20 06:31	04/17/20 08:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:55*	*1*

Lab Sample ID: LCS 160-465586/1-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465586

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.27		1.18	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.6*		*40 - 110*

Lab Sample ID: 440-263409-F-1-A MS
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	-0.0860	U	15.1	12.69		1.49	1.00	0.304	pCi/L	84	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-263409-F-1-B MSD
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	-0.0860	U	15.1	13.28		1.56	1.00	0.235	pCi/L	88	75 - 138	0.19	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-465588/20-A
Matrix: Water
Analysis Batch: 467720

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465588

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1859	U	0.267	0.268	1.00	0.447	pCi/L	03/26/20 06:59	04/15/20 13:22	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110	03/26/20 06:59	04/15/20 13:22	1
Y Carrier	79.6		40 - 110	03/26/20 06:59	04/15/20 13:22	1

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-465961/11-A
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465961

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.05867	U	0.135	0.135	3.00	0.258	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110	03/29/20 09:20	04/07/20 10:14	1
Y Carrier	95.3		40 - 110	03/29/20 09:20	04/07/20 10:14	1

Lab Sample ID: LCS 160-465961/1-A
Matrix: Water
Analysis Batch: 467049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465961

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	7.289		0.803	3.00	0.348	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	87.2		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-263409-F-1-K MS
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.216	U	7.88	7.311		0.805	3.00	0.295	pCi/L	90	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	82.3		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 440-263409-F-1-L MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.216	U	7.89	6.434		0.751	3.00	0.297	pCi/L	79	19 - 150	0.56	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-263409-F-1-L MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465961

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	79.5		40 - 110
Y Carrier	83.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	91.7		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

Rad

Prep Batch: 465586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	PrecSep-21	
MB 160-465586/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-465586/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263409-F-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263409-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 465588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	PrecSep_0	
MB 160-465588/20-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 465827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-465827/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-465827/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263515-1 DU	Outfall008_20200324_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 465900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	Evaporation	
MB 160-465900/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465900/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465900/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263409-F-1-E MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-F-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263409-J-1-F MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263409-J-1-G DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 465961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	PrecSep-7	
MB 160-465961/11-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-465961/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263409-F-1-K MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263409-F-1-L MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263515-1	Outfall008_20200324_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Rad (Continued)

Prep Batch: 466637 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-2

Qualifiers

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263515-2
Project/Site: Routine Outfall 008 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

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440-263515 Chain of Custody

CHAIN OF CUSTODY FORM

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [008]
Outfall 008
Comp

Project Manager: Katherine Miller
520 289.8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234.5033, 818.599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160 1)	Total Dissolved Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	[illegible]	Ammonia-N (350 2)	Cyanide (SM4500-CN-E / E335 2)	Total Recoverable Metals Mercury (E245 1)	Total Dissolved Metals Mercury (E245 1)	TSS (160 2 (SM2540D))		Field Readings: Comments
Outfall 008	Outfall008_20200324_Comp	3/24/2020 0745	WM	500 mL Poly	1	HNO_3	95	No	X									X				
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	500 mL Poly	2	None	130	No			X											48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X										
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	500 mL Poly	1	NaOH	220	No									X					
			WM	2 5 Gal Cube	1	None	225	No						X								Unfiltered and unpreserved analysis. Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No														
			WM	1 Gal Cube	6	None	235	No														Only test if first or second pair events of the year Delivered ABC Labs in Ventura CA *
			WM	1 L Poly	1	None	185	No												X		
	Outfall008_20200324_Comp_F	3/24/2020 0745	WM	1L Poly	1	None	205	No					X									Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No											X			Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall008_20200324_Comp_Extra	3/24/2020 0745	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	130	No			H											Hold

LB 3/24/20

Relinquished By	Date/Time	Company	Received By	Date/Time	
Rachel Mohn	03/24/2020 1110	H&A	S. ALI [signature]	03/24/2020 1110	DCS
SHAD ALI [signature]	03/24/2020 1250	DCS			
			[signature] EC-IRV	3/24/20 1250	

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

* 1 gal cubes delivered to ABC LABS directly by H&A (M. DOMINICK)

0.1/0.1, 1.3/1.3, 1.6/1.6, 0.3/0.3, 1.7/1.7, 2.3/2.3 IR 89

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263515-2

Login Number: 263515
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263515-2

Login Number: 263515
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/25/20 02:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Samples received with pH=7. Samples preserved upon receipt.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-263515-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263409-F-1-A MS	Matrix Spike	92.0
440-263409-F-1-B MSD	Matrix Spike Duplicate	83.8
440-263515-1	Outfall008_20200324_Comp	91.4
LCS 160-465586/1-A	Lab Control Sample	93.6
MB 160-465586/20-A	Method Blank	90.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263515-1	Outfall008_20200324_Comp	91.4	82.6
MB 160-465588/20-A	Method Blank	90.5	79.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263409-F-1-K MS	Matrix Spike	82.3	89.3
440-263409-F-1-L MSD	Matrix Spike Duplicate	79.5	83.7
440-263515-1	Outfall008_20200324_Comp	70.9	91.2
LCS 160-465961/1-A	Lab Control Sample	87.2	93.5
MB 160-465961/11-A	Method Blank	86.1	95.3

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

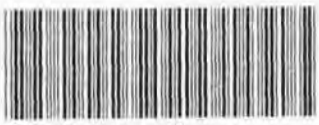
		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
440-263515-1	Outfall008_20200324_Comp	72.6
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes



440-263515 Field Sheet

Tracking # : 1540 4107 4152

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK12 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 0.9 °C

From: Temp Blank ☒ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: PK Date: 03/25/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☒

Initials: SO Date: 3/25/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WTC

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-262957-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-262957-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL009_20200313_GRAB	440-262957-1	Water	3/13/20 9:50	E1664, E624, SM9221F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-262957-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COCs.
- The sample was submitted to Enthalpy Analytical for analysis by Method 9221F.
- According to the Login Sample Receipt Checklists, custody seals were absent on the coolers upon receipt at both laboratories; however, no evidence of tampering was noted.
- The case narrative indicated that two of three vials for the VOC analysis of the trip blank were received with headspace. A third vial without headspace remained for analysis. No qualification was necessary.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

E. Wessling of MEC[X] reviewed the SDG on April 7, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes were not evaluated in a Level II validation.

Calibration criteria were not evaluated in a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG. The RPD for 2-chloroethyl vinyl ether was above the RPD limit of 30%; however, as both recoveries were within laboratory QC limits and the sample was nondetect, no qualification was deemed necessary by the reviewer. The remaining recoveries and RPDs were within QC limits.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200313 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were not evaluated in a Level II validation.

III.6. COMPOUND IDENTIFICATION

Compound identification was not evaluated in a Level II validation. The laboratory analyzed for 38 target compounds by Method 624.1.

III.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was not evaluated in a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

III.9. SYSTEM PERFORMANCE

Review of the raw data not performed in a Level II validation.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 1664, Standard Methods for the Examination of Water and Wastewater 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 28 days for Oil and Grease (HEM, Method 1664)
- 8 hours per COC for *E.Coli* (Method 9221F)

IV.2. CALIBRATION

Instrument calibration review is not performed at Level II validation.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

The method blank had no detections for Method 1664. The negative control sample was acceptable for the *E. Coli* analysis.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for Method 1664. The presumptive test was analyzed with positive detects for *E. Coli*.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402629571

Analysis Method E1664

Sample Name OUTFALL009_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 9:50:00 AM **Validation Level:** 9

Lab Sample Name: 440-262957-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	5.3	1.5	mg/L	U	U	

Analysis Method E624

Sample Name OUTFALL009_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 9:50:00 AM **Validation Level:** 9

Lab Sample Name: 440-262957-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1,1-Trichloroethane	N	71-55-6	ND	0.50	0.25	ug/L	U	U	
1,1,2,2-Tetrachloroethane	N	79-34-5	ND	0.50	0.25	ug/L	U	U	
1,1,2-Trichloroethane	N	79-00-5	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethane	N	75-34-3	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloropropane	N	78-87-5	ND	0.50	0.25	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.50	0.25	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	ND	0.50	0.25	ug/L	U	U	
2-Chloroethyl vinyl ether	N	110-75-8	ND	2.0	1.0	ug/L	U	U	
Acrolein	N	107-02-8	ND	5.0	2.5	ug/L	U	U	
Acrylonitrile	N	107-13-1	ND	2.0	1.0	ug/L	U	U	
Benzene	N	71-43-2	ND	0.50	0.25	ug/L	U	U	
Bromodichloromethane	N	75-27-4	ND	0.50	0.25	ug/L	U	U	
Bromoform	N	75-25-2	ND	1.0	0.40	ug/L	U	U	
Bromomethane (Methyl Bromide)	N	74-83-9	ND	0.50	0.25	ug/L	U	U	
Carbon tetrachloride	N	56-23-5	ND	0.50	0.25	ug/L	U	U	
Chlorobenzene	N	108-90-7	ND	0.50	0.25	ug/L	U	U	
Chloroethane	N	75-00-3	ND	1.0	0.40	ug/L	U	U	
Chloroform (Trichloromethane)	N	67-66-3	ND	0.50	0.25	ug/L	U	U	
Chloromethane (Methyl Chloride)	N	74-87-3	ND	0.50	0.25	ug/L	U	U	
cis-1,2-Dichloroethene	N	156-59-2	ND	0.50	0.25	ug/L	U	U	
cis-1,3-Dichloropropene	N	10061-01-5	ND	0.50	0.25	ug/L	U	U	
Dibromochloromethane	N	124-48-1	ND	0.50	0.25	ug/L	U	U	
Ethylbenzene	N	100-41-4	ND	0.50	0.25	ug/L	U	U	
m,p-Xylenes	N	179601-23-1	ND	1.0	0.50	ug/L	U	U	

Analysis Method E624

Methylene chloride	N	75-09-2	ND	2.0	0.88	ug/L	U	**U**
Naphthalene	N	91-20-3	ND	1.0	0.40	ug/L	U	**U**
o-Xylene	N	95-47-6	ND	0.50	0.25	ug/L	U	**U**
Tetrachloroethene	N	127-18-4	ND	0.50	0.25	ug/L	U	**U**
Toluene	N	108-88-3	ND	0.50	0.25	ug/L	U	**U**
trans-1,2-Dichloroethene	N	156-60-5	ND	0.50	0.25	ug/L	U	**U**
trans-1,3-Dichloropropene	N	10061-02-6	ND	0.50	0.25	ug/L	U	**U**
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	**U**
Trichlorofluoromethane (CFC-11)	N	75-69-4	ND	0.50	0.25	ug/L	U	**U**
Vinyl chloride	N	75-01-4	ND	0.50	0.25	ug/L	U	**U**
Xylene (total)	N	1330-20-7	ND	1.0	0.50	ug/L	U	**U**

Analysis Method SM9221F

Sample Name OUTFALL009_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 9:50:00 AM **Validation Level:** 9

Lab Sample Name: 440-262957-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
e. coli			490	1.8		MPN/10			

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-262957-1
Client Project/Site: Annual Outfall 009 Grab
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/30/2020 9:59:20 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/30/2020 9:59:20 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-262957-1	Outfall009_20200313_Grab	Water	03/13/20 09:50	03/13/20 15:30	
440-262957-3	TB-20200313	Water	03/13/20 09:50	03/13/20 15:30	

Job ID: 440-262957-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-262957-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.6º C, 0.7º C, 1.0º C and 1.1º C.

Receipt Exceptions
The following sample was received with headspace in the sample container: TB-20200313 (440-262957-3). Received two out of two voa vials TB HCL with headspace more than 6 ml .

GC/MS VOA
Method 624.1: The continuing calibration verification (CCV) associated with batch 440-600639 recovered above the upper control limit for Chloromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601885 and analytical batch 440-601925. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A/B.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Outfall009_20200313_Grab

Date Collected: 03/13/20 09:50
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262957-1

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 10:14	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 10:14	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 10:14	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 10:14	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 10:14	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 10:14	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 10:14	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 10:14	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 10:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*		*03/16/20 10:14*	*1*
Dibromofluoromethane (Surr)	*107*		*60 - 140*		*03/16/20 10:14*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*03/16/20 10:14*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		5.0	2.5	ug/L			03/16/20 10:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*60 - 140*		*03/16/20 10:55*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*03/16/20 10:55*	*1*

Client Sample ID: Outfall009_20200313_Grab

Lab Sample ID: 440-262957-1

Date Collected: 03/13/20 09:50
Date Received: 03/13/20 15:30

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*112*		*60 - 140*		*03/16/20 10:55*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		03/23/20 08:41	03/23/20 11:27	1

Client Sample ID: TB-20200313

Lab Sample ID: 440-262957-3

Date Collected: 03/13/20 09:50
Date Received: 03/13/20 15:30

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 11:45	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 11:45	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 11:45	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 11:45	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 11:45	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 11:45	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 11:45	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 11:45	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 11:45	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

Client Sample ID: TB-20200313
Date Collected: 03/13/20 09:50
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262957-3
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*60 - 140*		*03/16/20 11:45*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 140*		*03/16/20 11:45*	*1*
Toluene-d8 (Surr)	*100*		*60 - 140*		*03/16/20 11:45*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		5.0	2.5	ug/L			03/16/20 11:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*60 - 140*		*03/16/20 11:22*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 140*		*03/16/20 11:22*	*1*
Toluene-d8 (Surr)	*111*		*60 - 140*		*03/16/20 11:22*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
Subcontract	9221F- E. Coli	None	Enthalpy
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

Client Sample ID: Outfall009_20200313_Grab

Lab Sample ID: 440-262957-1

Date Collected: 03/13/20 09:50

Matrix: Water

Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600639	03/16/20 10:14	MML	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	600626	03/16/20 10:55	TCN	TAL IRV
Total/NA	Prep	1664A			935 mL	1000 mL	601885	03/23/20 08:41	JC1	TAL IRV
Total/NA	Analysis	1664A		1			601925	03/23/20 11:27	JC1	TAL IRV

Client Sample ID: TB-20200313

Lab Sample ID: 440-262957-3

Date Collected: 03/13/20 09:50

Matrix: Water

Date Received: 03/13/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	600639	03/16/20 11:45	MML	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	600626	03/16/20 11:22	TCN	TAL IRV

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-600626/5
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 08:36	1
Acrolein	ND		5.0	2.5	ug/L			03/16/20 08:36	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 08:36	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 08:36	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 08:36	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 08:36	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 08:36	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 08:36	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 08:36	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 08:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*60 - 140*		*03/16/20 08:36*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*03/16/20 08:36*	*1*
Toluene-d8 (Surr)	*115*		*60 - 140*		*03/16/20 08:36*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-600626/1004
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			25.0	28.1		ug/L		112	19 - 212		
1,2-Dichloroethane			25.0	25.0		ug/L		100	72 - 137		
Acrolein			24.7	20.2		ug/L		82	50 - 150		
Trichloroethene			25.0	21.8		ug/L		87	75 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*
Dibromofluoromethane (Surr)	*94*		*60 - 140*
Toluene-d8 (Surr)	*107*		*60 - 140*

Lab Sample ID: 440-262951-D-1 MS
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	ND		10.0	14.9		ug/L		149	10 - 234		
1,2-Dichloroethane	ND		10.0	14.7		ug/L		147	49 - 155		
Acrolein	ND		9.88	12.9		ug/L		130	40 - 160		
Trichloroethene	ND		10.0	11.3		ug/L		113	70 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Lab Sample ID: 440-262951-D-1 MSD
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	9.41		ug/L		94	52 - 162	5	36
1,1,2,2-Tetrachloroethane	ND		10.0	19.1	LM	ug/L		191	46 - 157	6	61
1,1,2-Trichloroethane	ND		10.0	15.0		ug/L		150	52 - 150	7	45
1,1-Dichloroethane	ND		10.0	12.8		ug/L		128	59 - 155	4	40
1,1-Dichloroethene	ND		10.0	14.3		ug/L		143	10 - 234	5	32
1,2-Dichlorobenzene	ND		10.0	12.2		ug/L		122	18 - 190	3	57
1,2-Dichloroethane	ND		10.0	14.7		ug/L		147	49 - 155	0	49
1,2-Dichloropropane	ND		10.0	14.6		ug/L		146	10 - 210	5	55
1,3-Dichlorobenzene	ND		10.0	11.3		ug/L		113	59 - 156	8	43
1,4-Dichlorobenzene	ND		10.0	11.4		ug/L		114	18 - 190	6	57
2-Chloroethyl vinyl ether	ND	LR	10.0	ND	LN	ug/L		0	10 - 305	NC	71
Acrolein	ND		9.88	14.3		ug/L		145	40 - 160	11	60
Acrylonitrile	ND		100	226	LM	ug/L		226	40 - 160	12	60
Benzene	ND		10.0	13.0		ug/L		130	37 - 151	6	61
Bromodichloromethane	ND		10.0	13.6		ug/L		136	35 - 155	1	56
Bromoform	ND		10.0	9.08		ug/L		91	45 - 169	1	42
Bromomethane	ND		10.0	15.7		ug/L		157	10 - 242	4	61
Carbon tetrachloride	ND	LR	10.0	7.17		ug/L		72	70 - 140	5	41

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262951-D-1 MSD
Matrix: Water
Analysis Batch: 600626

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	ND		10.0	11.1		ug/L		111	37 - 160	15	53
Chloroethane	ND		10.0	16.7		ug/L		167	14 - 230	8	78
Chloroform	ND		10.0	12.6		ug/L		126	51 - 138	6	54
Chloromethane	ND		10.0	13.9		ug/L		139	10 - 273	7	60
cis-1,2-Dichloroethene	ND		10.0	14.0		ug/L		140	60 - 140	5	35
cis-1,3-Dichloropropene	ND		10.0	12.2		ug/L		122	10 - 227	9	58
Dibromochloromethane	ND		10.0	10.4		ug/L		104	53 - 149	9	50
Ethylbenzene	ND		10.0	10.5		ug/L		105	37 - 162	16	63
m,p-Xylene	ND		10.0	10.8		ug/L		108	60 - 140	14	35
Methylene Chloride	ND		10.0	16.4		ug/L		164	10 - 221	1	28
Naphthalene	ND		10.0	11.9		ug/L		119	60 - 140	6	35
o-Xylene	ND		10.0	11.4		ug/L		114	60 - 140	13	35
Tetrachloroethene	ND		10.0	9.26		ug/L		93	64 - 148	18	39
Toluene	ND		10.0	11.2		ug/L		112	47 - 150	14	41
trans-1,2-Dichloroethene	ND		10.0	11.9		ug/L		119	54 - 156	5	45
trans-1,3-Dichloropropene	ND		10.0	13.1		ug/L		131	17 - 183	7	86
Trichloroethene	ND		10.0	10.8		ug/L		108	70 - 157	5	48
Trichlorofluoromethane	ND		10.0	12.2		ug/L		122	17 - 181	6	84
Vinyl chloride	ND		10.0	13.1		ug/L		131	10 - 251	13	66
Xylenes, Total	ND		20.0	22.2		ug/L		111		14	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*
Dibromofluoromethane (Surr)	*109*		*60 - 140*
Toluene-d8 (Surr)	*92*		*60 - 140*

Lab Sample ID: MB 440-600639/5
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/16/20 09:14	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/16/20 09:14	1
Benzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Bromoform	ND		1.0	0.40	ug/L			03/16/20 09:14	1
Bromomethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/16/20 09:14	1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-600639/5
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Chloroethane	ND		1.0	0.40	ug/L			03/16/20 09:14	1
Chloroform	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Chloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/16/20 09:14	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/16/20 09:14	1
Naphthalene	ND		1.0	0.40	ug/L			03/16/20 09:14	1
o-Xylene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Toluene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Trichloroethene	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/16/20 09:14	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/16/20 09:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*60 - 140*		*03/16/20 09:14*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*03/16/20 09:14*	*1*
Toluene-d8 (Surr)	*104*		*60 - 140*		*03/16/20 09:14*	*1*

Lab Sample ID: LCS 440-600639/1002
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	29.8		ug/L		119	69 - 151
1,1,2,2-Tetrachloroethane	25.0	25.2		ug/L		101	68 - 136
1,1,2-Trichloroethane	25.0	24.1		ug/L		96	75 - 136
1,1-Dichloroethane	25.0	30.0		ug/L		120	71 - 143
1,1-Dichloroethene	25.0	24.1		ug/L		96	19 - 212
1,2-Dichlorobenzene	25.0	25.4		ug/L		101	59 - 174
1,2-Dichloroethane	25.0	27.3		ug/L		109	72 - 137
1,2-Dichloropropane	25.0	28.2		ug/L		113	19 - 181
1,3-Dichlorobenzene	25.0	26.7		ug/L		107	75 - 144
1,4-Dichlorobenzene	25.0	26.5		ug/L		106	59 - 174
2-Chloroethyl vinyl ether	25.0	17.0		ug/L		68	10 - 252
Acrylonitrile	250	285		ug/L		114	50 - 150
Benzene	25.0	25.4		ug/L		102	75 - 125
Bromodichloromethane	25.0	25.8		ug/L		103	50 - 140
Bromoform	25.0	22.4		ug/L		90	57 - 156
Bromomethane	25.0	31.0		ug/L		124	10 - 206
Carbon tetrachloride	25.0	26.3		ug/L		105	65 - 125

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-600639/1002
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	25.0	25.6		ug/L		102	82 - 137
Chloroethane	25.0	30.3		ug/L		121	42 - 202
Chloroform	25.0	25.2		ug/L		101	68 - 121
Chloromethane	25.0	35.8		ug/L		143	10 - 230
cis-1,2-Dichloroethene	25.0	25.2		ug/L		101	60 - 140
cis-1,3-Dichloropropene	25.0	26.8		ug/L		107	5 - 195
Dibromochloromethane	25.0	24.3		ug/L		97	69 - 133
Ethylbenzene	25.0	25.1		ug/L		101	75 - 134
m,p-Xylene	25.0	25.8		ug/L		103	60 - 140
Methylene Chloride	25.0	24.5		ug/L		98	10 - 205
Naphthalene	25.0	26.0		ug/L		104	60 - 140
o-Xylene	25.0	26.0		ug/L		104	60 - 140
Tetrachloroethene	25.0	23.7		ug/L		95	70 - 130
Toluene	25.0	24.8		ug/L		99	75 - 134
trans-1,2-Dichloroethene	25.0	28.0		ug/L		112	70 - 130
trans-1,3-Dichloropropene	25.0	28.0		ug/L		112	38 - 162
Trichloroethene	25.0	26.9		ug/L		108	75 - 138
Trichlorofluoromethane	25.0	30.0		ug/L		120	45 - 158
Vinyl chloride	25.0	31.1		ug/L		124	10 - 218
Xylenes, Total	50.0	51.8		ug/L		104	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*60 - 140*
Dibromofluoromethane (Surr)	*98*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Lab Sample ID: LCS 440-600639/1003
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*
Dibromofluoromethane (Surr)	*102*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Lab Sample ID: 440-262957-1 MS
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Outfall009_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		10.0	11.0		ug/L		110	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	12.0		ug/L		120	46 - 157
1,1,2-Trichloroethane	ND		10.0	11.3		ug/L		113	52 - 150
1,1-Dichloroethane	ND		10.0	11.3		ug/L		113	59 - 155
1,1-Dichloroethene	ND		10.0	9.71		ug/L		97	10 - 234
1,2-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190
1,2-Dichloroethane	ND		10.0	11.9		ug/L		119	49 - 155
1,2-Dichloropropane	ND		10.0	11.6		ug/L		116	10 - 210

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262957-1 MS
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Outfall009_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	ND		10.0	11.0		ug/L		110	59 - 156
1,4-Dichlorobenzene	ND		10.0	11.5		ug/L		115	18 - 190
2-Chloroethyl vinyl ether	ND		10.0	7.11		ug/L		71	10 - 305
Acrylonitrile	ND		100	123		ug/L		123	40 - 160
Benzene	ND		10.0	10.2		ug/L		102	37 - 151
Bromodichloromethane	ND		10.0	10.7		ug/L		107	35 - 155
Bromoform	ND		10.0	9.19		ug/L		92	45 - 169
Bromomethane	ND		10.0	12.1		ug/L		121	10 - 242
Carbon tetrachloride	ND		10.0	9.76		ug/L		98	70 - 140
Chlorobenzene	ND		10.0	10.8		ug/L		108	37 - 160
Chloroethane	ND		10.0	13.7		ug/L		137	14 - 230
Chloroform	ND		10.0	9.96		ug/L		100	51 - 138
Chloromethane	ND		10.0	14.3		ug/L		143	10 - 273
cis-1,2-Dichloroethene	ND		10.0	10.3		ug/L		103	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.5		ug/L		115	10 - 227
Dibromochloromethane	ND		10.0	10.1		ug/L		101	53 - 149
Ethylbenzene	ND		10.0	10.8		ug/L		108	37 - 162
m,p-Xylene	ND		10.0	10.3		ug/L		103	60 - 140
Methylene Chloride	ND		10.0	10.0		ug/L		100	10 - 221
Naphthalene	ND		10.0	10.9		ug/L		109	60 - 140
o-Xylene	ND		10.0	11.0		ug/L		110	60 - 140
Tetrachloroethene	ND		10.0	10.1		ug/L		101	64 - 148
Toluene	ND		10.0	10.5		ug/L		105	47 - 150
trans-1,2-Dichloroethene	ND		10.0	10.1		ug/L		101	54 - 156
trans-1,3-Dichloropropene	ND		10.0	12.3		ug/L		123	17 - 183
Trichloroethene	ND		10.0	10.6		ug/L		106	70 - 157
Trichlorofluoromethane	ND		10.0	11.3		ug/L		113	17 - 181
Vinyl chloride	ND		10.0	12.7		ug/L		127	10 - 251
Xylenes, Total	ND		20.0	21.3		ug/L		107	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*60 - 140*
Dibromofluoromethane (Surr)	*99*		*60 - 140*
Toluene-d8 (Surr)	*103*		*60 - 140*

Lab Sample ID: 440-262957-1 MSD
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Outfall009_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	11.0		ug/L		110	52 - 162	0	36
1,1,2,2-Tetrachloroethane	ND		10.0	11.5		ug/L		115	46 - 157	4	61
1,1,2-Trichloroethane	ND		10.0	11.5		ug/L		115	52 - 150	1	45
1,1-Dichloroethane	ND		10.0	11.7		ug/L		117	59 - 155	3	40
1,1-Dichloroethene	ND		10.0	9.12		ug/L		91	10 - 234	6	32
1,2-Dichlorobenzene	ND		10.0	9.95		ug/L		99	18 - 190	8	57
1,2-Dichloroethane	ND		10.0	11.3		ug/L		113	49 - 155	5	49
1,2-Dichloropropane	ND		10.0	11.8		ug/L		118	10 - 210	2	55

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-262957-1 MSD
Matrix: Water
Analysis Batch: 600639

Client Sample ID: Outfall009_20200313_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichlorobenzene	ND		10.0	10.7		ug/L		107	59 - 156	2	43
1,4-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190	7	57
2-Chloroethyl vinyl ether	ND		10.0	5.08		ug/L		51	10 - 305	33	71
Acrylonitrile	ND		100	123		ug/L		123	40 - 160	0	60
Benzene	ND		10.0	9.99		ug/L		100	37 - 151	2	61
Bromodichloromethane	ND		10.0	10.1		ug/L		101	35 - 155	6	56
Bromoform	ND		10.0	9.43		ug/L		94	45 - 169	3	42
Bromomethane	ND		10.0	12.1		ug/L		121	10 - 242	0	61
Carbon tetrachloride	ND		10.0	9.19		ug/L		92	70 - 140	6	41
Chlorobenzene	ND		10.0	11.0		ug/L		110	37 - 160	2	53
Chloroethane	ND		10.0	11.8		ug/L		118	14 - 230	15	78
Chloroform	ND		10.0	9.76		ug/L		98	51 - 138	2	54
Chloromethane	ND		10.0	14.1		ug/L		141	10 - 273	1	60
cis-1,2-Dichloroethene	ND		10.0	9.59		ug/L		96	60 - 140	7	35
cis-1,3-Dichloropropene	ND		10.0	10.9		ug/L		109	10 - 227	5	58
Dibromochloromethane	ND		10.0	10.5		ug/L		105	53 - 149	4	50
Ethylbenzene	ND		10.0	10.8		ug/L		108	37 - 162	0	63
m,p-Xylene	ND		10.0	10.3		ug/L		103	60 - 140	0	35
Methylene Chloride	ND		10.0	10.3		ug/L		103	10 - 221	3	28
Naphthalene	ND		10.0	10.8		ug/L		108	60 - 140	1	35
o-Xylene	ND		10.0	10.7		ug/L		107	60 - 140	3	35
Tetrachloroethene	ND		10.0	9.34		ug/L		93	64 - 148	8	39
Toluene	ND		10.0	10.4		ug/L		104	47 - 150	1	41
trans-1,2-Dichloroethene	ND		10.0	9.66		ug/L		97	54 - 156	5	45
trans-1,3-Dichloropropene	ND		10.0	11.6		ug/L		116	17 - 183	6	86
Trichloroethene	ND		10.0	10.7		ug/L		107	70 - 157	1	48
Trichlorofluoromethane	ND		10.0	11.1		ug/L		111	17 - 181	2	84
Vinyl chloride	ND		10.0	12.9		ug/L		129	10 - 251	2	66
Xylenes, Total	ND		20.0	21.0		ug/L		105		1	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*60 - 140*
Dibromofluoromethane (Surr)	*99*		*60 - 140*
Toluene-d8 (Surr)	*105*		*60 - 140*

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-601885/1-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601885

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/23/20 08:41	03/23/20 11:27	1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 440-601885/2-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601885

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	34.4		mg/L		86	78 - 114		

Lab Sample ID: LCSD 440-601885/3-A
Matrix: Water
Analysis Batch: 601925

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601885

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	33.7		mg/L		84	78 - 114	2	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

GC/MS VOA

Analysis Batch: 600626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262957-1 - RA	Outfall009_20200313_Grab	Total/NA	Water	624.1	
440-262957-3 - RA	TB-20200313	Total/NA	Water	624.1	
MB 440-600626/5	Method Blank	Total/NA	Water	624.1	
LCS 440-600626/1004	Lab Control Sample	Total/NA	Water	624.1	
440-262951-D-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-262951-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

Analysis Batch: 600639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262957-1	Outfall009_20200313_Grab	Total/NA	Water	624.1	
440-262957-3	TB-20200313	Total/NA	Water	624.1	
MB 440-600639/5	Method Blank	Total/NA	Water	624.1	
LCS 440-600639/1002	Lab Control Sample	Total/NA	Water	624.1	
LCS 440-600639/1003	Lab Control Sample	Total/NA	Water	624.1	
440-262957-1 MS	Outfall009_20200313_Grab	Total/NA	Water	624.1	
440-262957-1 MSD	Outfall009_20200313_Grab	Total/NA	Water	624.1	

General Chemistry

Prep Batch: 601885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262957-1	Outfall009_20200313_Grab	Total/NA	Water	1664A	
MB 440-601885/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-601885/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-601885/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 601925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262957-1	Outfall009_20200313_Grab	Total/NA	Water	1664A	601885
MB 440-601885/1-A	Method Blank	Total/NA	Water	1664A	601885
LCS 440-601885/2-A	Lab Control Sample	Total/NA	Water	1664A	601885
LCSD 440-601885/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	601885

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Grab

Job ID: 440-262957-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262957-1
Project/Site: Annual Outfall 009 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

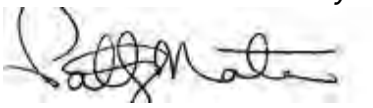
Lab Job Number: 425968
Report Level: II
Report Date: 03/24/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - Boeing SSFL NPDES

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614		Lab Job #: Project No: Location: Date Received:	425968 BOEING SSFL NPDES Boeing SSFL NPDES 03/13/20

Sample ID	Lab ID	Collected	Matrix
OUTFALL_009 _2020313_GRAB (440-262957-1)	425968-001	03/13/20 09:50	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine	Lab Job Number: 425968
17461 Derian Ave, Ste 100	Project No: BOEING SSFL NPDES
Irvine, CA 92614	Location: Boeing SSFL NPDES
Christian Bondoc	Date Received: 03/13/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/13/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

4259168

Test America

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Annual Outfall [003-007, 009, 010] Outfall 009 Grab
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performad in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: MST-Bacteriodales, Human (SAM348-357) (A)	E. coli (SM9221) (A)	Oil & Grease (E1664A-HEM) (R)	VOCs PP + xylenes, Freon 11 (E624) (A)	VOCs - only A+A+2CVE (E624) (A)					Comments
Outfall 009	Outfall009_20200313_Grab	3/13/2020 0950	WM	125 mL Sterile Poly	1	None	5	No	X									Deliver to lab ASAP 8 hr hold time
			WM	125 mL Sterile Poly	3	Na2S2O3	10	No		X								Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No			X							
			WM	40 mL VOA	3	HCl	40	No				X						
			WM	40 mL VOA	3	None	55	No					X					
	Outfall009_20200313_Grab_Extra	3/13/2020 0950	WM	1 L Glass Amber	2	HCl	15	No			H							Hold
			WM	40 mL VOA	3	HCl	40	No				H						Hold
			WM	40 mL VOA	3	None	55	No					H					Hold
Trip Blanks	TB-20200313	3/13/2020 0950	WQ	40 mL VOA	2	HCl	40	No				X						
			WQ	40 mL VOA	2	None	55	No					X					

Legend: R = Routine, A = Annual

Field Readings	Meter serial #
Field Readings: (Include units) Time of Readings: 0922	
pH 8.12 pH unit Temp 10.3i °C/°F	
Field readings QC Checked by: RH Date/Time: 03/13/2020 0955	

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	03/13/2020	H&A	Jose Angulo	3/13/20 DCS
Jose Angulo	3/13/20 DCS 2:53			3/13/20 1453

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

Rainy Season 2019-2020
Version 2

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Calscience Irvine Project: Boeing-SSFL NPDES

Date Received: 3/13/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 1.1 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 1.1 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 3/13/20

ENTHALPY ANALYTICAL

Analysis Results for 425968

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 425968
Project No: BOEING SSFL NPDES
Location: Boeing SSFL NPDES
Date Received: 03/13/20

Sample ID: OUTFALL_009 _2020313_GRAB (440-262957-1)
Lab ID: 425968-001 **Matrix:** Water
Collected: 03/13/20 09:50

425968-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**490**		MPN/100ml	1.8	1	243386	03/13/20 15:30	03/16/20 14:10	CCO

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [003-007, 009, 010] Outfall 009 Grab	A A R A A	Field Readings: (Include units) Time of Readings: 0922	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218			pH 8.12 pH unit Temp 10.81 °C/°F	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)		Field readings QC Checked by: RH Date/Time: 03/13/2020 0955	
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)			

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteriodales, Human (SAM348-357)	E. coli (SM9221)	Oil & Grease (E1664A-HEM)	VOCs PP + xylenes, Freon 11 (E624)	VOCs - only A+A+2CVE (E624)	Comments
Outfall 009	Outfall009_20200313_Grab	3/13/2020 0950	WM	125 mL Sterile Poly	1	None	5	No	X					Deliver to lab ASAP 8 hr hold time
			WM	125 mL Sterile Poly	3	Na2S2O3	10	No		X				Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No			X			
			WM	40 mL VOA	3	HCl	40	No				X		
			WM	40 mL VOA	3	None	55	No					X	
			WM	1 L Glass Amber	2	HCl	15	No			H			Hold
	Outfall009_20200313_Grab_Extra	3/13/2020 0950	WM	40 mL VOA	3	HCl	40	No				H		Hold
			WM	40 mL VOA	3	None	55	No					H	Hold
Trip Blanks	TB-20200313	3/13/2020 0950	WQ	40 mL VOA	2	HCl	40	No				X		
			WQ	40 mL VOA	2	None	55	No					X	

Legend: R = Routine, A = Annual

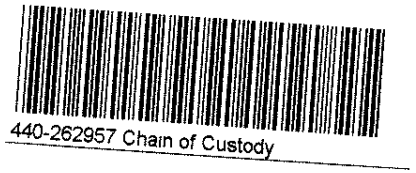
Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Holin	03/13/2020	H&A	Jose Angulo	3/13/20 DCS
Jose Angulo	3/13/20 DCS	2:53		3/13/20 1453
Jose Angulo	3/13/20 DCS	3:30	IRV	3/13/20 1530

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day ___X___
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV ___X___

EC-IRV 0.4/0.6 0.5/0.7 0.9/1.1
0.8/1.0 IR93

L/3 3/13/20



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262957-1

Login Number: 262957
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263043-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263043-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II/IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method	Validation Level
OUTFALL009_20200314_COMP	440-263043-1	N/A	Water	3/14/20 10:15 AM	E1613B	II
					E200.7, E200.8	IV
OUTFALL009_20200314_COMP_F	440-263043-2	N/A	Water	3/14/20 10:15 AM	E200.7, E200.8	IV

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263043-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- The sample was transferred from TA-Irvine to TA-Savannah for analysis of Method 1613B.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (949 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, OCDD and OCDF, and for totals HxCDD, HxCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The method blank concentration for OCDD was not sufficient to qualify the site sample. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. Compound Identification

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 949 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF and 2,3,4,7,8-PeCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals included one or more EMPC peaks and were therefore qualified as estimated (J).

IV. Methods 200.7 and 200.8— Metals

M. Hilchey of MEC^X reviewed the SDG on April 16, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7 and 200.8* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

IV.1. Holding Times

The analytical holding time, six months for metals, was met. Sample OUTFALL009_20200314_COMP_F was filtered and preserved 44 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were qualified as estimated (J for detects, UJ for nondetects).

IV.2. Calibration

Mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.

QAPP calibration criteria were met. A blank and two or three standards were used for calibration of ICP-AES target analytes and a blank and four standards were used for calibration of ICP-MS. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for both methods.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results with the following exception. Selenium was reported in a CCB bracketing dissolved sample analyses at greater than MDL (0.509 µg/L). The associated result for dissolved selenium was a detected below the RL and was qualified as nondetect (U).

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. No interferents were present in the samples for ICP-AES analysis in concentrations comparable to those of the ICS; therefore, matrix interference was not suspected for ICP-AES. All ICP-MS ICSA results for non-spiked analytes were nondetect; therefore, interference was not evaluated for ICP-MS.

IV.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

IV.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

IV.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on sample OUTFALL009_20200314_COMP_F for dissolved metals by ICP-MS. Recoveries and the RPD met QAPP control limits of 70-130% and ≤20%, respectively. MS/MSD analyses were not performed on a sample in this SDG for the remaining analyses.

The laboratory did not perform post-digestion spike analyses.

IV.4. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within 60-125% of the ICP-MS calibration blank.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified, and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

IV.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402630431

Analysis Method E1613B

Sample Name OUTFALL009_20200314_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 10:15:00 AM **Validation Level:** 9

Lab Sample Name: 440-263043-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000033	0.00011	0.0000010	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00014	0.00011	0.0000013	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000012	0.000053	0.0000011	ug/L	J,DX	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000018	0.000053	0.00000035	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000070	0.000053	0.0000011	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000056	0.000053	0.00000060	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000075	0.000053	0.0000011	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000062	0.000053	0.00000065	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000066	0.000053	0.0000012	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000072	0.000053	0.00000062	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000072	0.000053	0.0000011	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000040	0.000053	0.00000061	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000043	0.000053	0.0000011	ug/L	J,DX	J	DNQ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000065	0.000053	0.00000060	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000036	0.000053	0.00000059	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000017	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.00000090	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000022	0.000053	0.0000011	ug/L	J,DXq	J	*III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000032	0.000053	0.00000035	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000026	0.000053	0.00000060	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000021	0.000053	0.0000011	ug/L	J,DXMB	J	B, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000076	0.000053	0.00000059	ug/L	J,DXq	J	*III, DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000043	0.000053	0.0000011	ug/L	J,DX	J	DNQ
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000017	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.00000090	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL009_20200314_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 10:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-263043-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	400	100	50	ug/L			
Boron	T	7440-42-8	0.038	0.050	0.025	mg/L	J,DX	J	DNQ
Calcium	T	7440-70-2	5.3	0.10	0.050	mg/L			
Iron	T	7439-89-6	0.51	0.10	0.050	mg/L			
Magnesium	T	7439-95-4	1.5	0.020	0.010	mg/L			
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Vanadium	T	7440-62-2	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL009_20200314_COMP_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 10:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-263043-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	D	7429-90-5	210	100	50	ug/L		J	H
Boron	D	7440-42-8	0.034	0.050	0.025	mg/L	J,DX	J	H, DNQ
Calcium	D	7440-70-2	5.1	0.10	0.050	mg/L		J	H
Iron	D	7439-89-6	0.23	0.10	0.050	mg/L		J	H
Magnesium	D	7439-95-4	1.4	0.020	0.010	mg/L		J	H
Nickel	D	7440-02-0	ND	10	5.0	ug/L	U	UJ	H
Vanadium	D	7440-62-2	ND	10	5.0	ug/L	U	UJ	H
Zinc	D	7440-66-6	ND	20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name OUTFALL009_20200314_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 10:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-263043-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.50	2.0	0.50	ug/L	J,DX	J	DNQ
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	3.6	2.0	0.50	ug/L			
Lead	T	7439-92-1	1.2	1.0	0.50	ug/L			

Analysis Method E200.8

Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U
Silver	T	7440-22-4	ND	1.0	0.50	ug/L	U	U
Thallium	T	7440-28-0	ND	1.0	0.20	ug/L	U	U

Sample Name OUTFALL009_20200314_COMP_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/14/2020 10:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-263043-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	0.64	2.0	0.50	ug/L	J,DX	J	H, DNQ
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8	3.2	2.0	0.50	ug/L		J	H
Lead	D	7439-92-1	0.66	1.0	0.50	ug/L	J,DX	J	H, DNQ
Selenium	D	7782-49-2	0.69	2.0	0.50	ug/L	J,DX	UJ	H, B
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	H
Thallium	D	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	H

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263043-1
Client Project/Site: Annual Outfall 009 Comp
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/21/2020 12:59:08 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/21/2020 12:59:08 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263043-1	Outfall009_20200314_Comp	Water	03/14/20 10:15	03/14/20 17:30	
440-263043-2	Outfall009_20200314_Comp_F	Water	03/14/20 10:15	03/14/20 17:30	

Job ID: 440-263043-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263043-1

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.8º C, 0.9º C, 1.7º C and 2.0º C.

GC/MS Semi VOA
Method 625.1: The laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) for preparation batch 440-601122 and 440-601122 and analytical batch 440-601579 recovered below control limits for the following analyte(s): Benzidine and Hexachlorocyclopentadiene. These analytes have been identified as poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed. The results for these analytes may be biased low.

Method 625.1: The matrix spike/matrix spike duplicate (MS/MSD) for preparation batch 440-601122 and analytical batch 440-601579 exceeded control limits for the following analyte(s): 3,3'-Dichlorobenzidine, Hexachlorocyclopentadiene and Benzidine. Note that this analyte is a known poor performer when analyzed using this method.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-601089 and analytical batch 440-601412. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-601089/5-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20200314_Comp (440-263043-1), (CCV 320-366401/17), (LCS 320-365527/2-A) and (MB 320-365527/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall009_20200314_Comp_F (440-263043-2). These samples were filtered and preserved upon receipt to the laboratory.

03/16/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries of Thallium for preparation batch 440-600753 and analytical batch 440-601042 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected. The associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for analytical batch 440-601118 contained Calcium above the Method

Job ID: 440-263043-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

detection limit (MDL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 625: A LCSD was added due to about 30 mL of the MS spilling during the extraction procedure. The LCSD was added to provide precision data for the batch.

Outfall009_20200314_Comp (440-263043-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall009_20200314_Comp (440-263043-1) were received in wide-mouth amber glass bottles.

preparation batch 320-365527
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Asbestos 100.2: This method was subcontracted to EMSL Analytical Inc - LA Testing - Pasadena. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Weck- 525.2: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Client Sample ID: Outfall009_20200314_Comp
Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1
Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Acenaphthylene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Anthracene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzidine	ND	LR BA	11	5.3	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzo[a]anthracene	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzo[b]fluoranthene	ND		2.1	0.32	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzo[k]fluoranthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzo[a]pyrene	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Bis(2-chloroethoxy)methane	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Bis(2-chloroethyl)ether	ND		0.53	0.053	ug/L		03/18/20 08:11	03/20/20 14:39	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
4-Bromophenyl phenyl ether	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Butyl benzyl phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
4-Chloro-3-methylphenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
2-Chloronaphthalene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
2-Chlorophenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
4-Chlorophenyl phenyl ether	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Chrysene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Dibenz(a,h)anthracene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Di-n-butyl phthalate	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 14:39	1
1,2-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
1,3-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
1,4-Dichlorobenzene	ND		0.53	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
3,3'-Dichlorobenzidine	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,4-Dichlorophenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Diethyl phthalate	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,4-Dimethylphenol	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 14:39	1
Dimethyl phthalate	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
4,6-Dinitro-2-methylphenol	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,4-Dinitrophenol	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,6-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
Di-n-octyl phthalate	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Fluoranthene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Fluorene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Hexachlorobenzene	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Hexachlorobutadiene	ND		2.1	0.53	ug/L		03/18/20 08:11	03/20/20 14:39	1
Hexachloroethane	ND		3.2	0.53	ug/L		03/18/20 08:11	03/20/20 14:39	1
Hexachlorocyclopentadiene	ND	LR	5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.43	ug/L		03/18/20 08:11	03/20/20 14:39	1
Isophorone	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
Naphthalene	ND		1.1	0.053	ug/L		03/18/20 08:11	03/20/20 14:39	1
Nitrobenzene	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
2-Nitrophenol	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
4-Nitrophenol	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
N-Nitrosodimethylamine	ND		2.1	0.32	ug/L		03/18/20 08:11	03/20/20 14:39	1
N-Nitrosodiphenylamine	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
N-Nitrosodi-n-propylamine	ND		2.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1

Client Sample ID: Outfall009_20200314_Comp

Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		2.1	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
Phenanthrene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Phenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Pyrene	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
1,2,4-Trichlorobenzene	ND		1.1	0.21	ug/L		03/18/20 08:11	03/20/20 14:39	1
2,4,6-Trichlorophenol	ND		1.1	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1
Benzo[g,h,i]perylene	ND		5.3	1.1	ug/L		03/18/20 08:11	03/20/20 14:39	1
bis (2-chloroisopropyl) ether	ND		0.53	0.11	ug/L		03/18/20 08:11	03/20/20 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*92*		*51 - 120*	*03/18/20 08:11*	*03/20/20 14:39*	*1*
2-Fluorophenol	*88*		*43 - 120*	*03/18/20 08:11*	*03/20/20 14:39*	*1*
2,4,6-Tribromophenol	*105*		*60 - 120*	*03/18/20 08:11*	*03/20/20 14:39*	*1*
Nitrobenzene-d5	*100*		*53 - 150*	*03/18/20 08:11*	*03/20/20 14:39*	*1*
Terphenyl-d14	*104*		*12 - 142*	*03/18/20 08:11*	*03/20/20 14:39*	*1*
Phenol-d5	*93*		*45 - 150*	*03/18/20 08:11*	*03/20/20 14:39*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0051	0.0015	ug/L		03/18/20 05:58	03/18/20 23:23	1
alpha-BHC	ND		0.0051	0.0026	ug/L		03/18/20 05:58	03/18/20 23:23	1
beta-BHC	ND		0.010	0.0041	ug/L		03/18/20 05:58	03/18/20 23:23	1
Chlordane (technical)	ND		0.10	0.082	ug/L		03/18/20 05:58	03/18/20 23:23	1
delta-BHC	ND		0.0051	0.0036	ug/L		03/18/20 05:58	03/18/20 23:23	1
Dieldrin	ND		0.0051	0.0020	ug/L		03/18/20 05:58	03/18/20 23:23	1
Endosulfan I	ND		0.0051	0.0031	ug/L		03/18/20 05:58	03/18/20 23:23	1
Endosulfan II	ND		0.0051	0.0020	ug/L		03/18/20 05:58	03/18/20 23:23	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		03/18/20 05:58	03/18/20 23:23	1
Endrin	ND		0.0051	0.0020	ug/L		03/18/20 05:58	03/18/20 23:23	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/18/20 05:58	03/18/20 23:23	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		03/18/20 05:58	03/18/20 23:23	1
Heptachlor	ND		0.0092	0.0031	ug/L		03/18/20 05:58	03/18/20 23:23	1
Heptachlor epoxide	ND		0.0051	0.0026	ug/L		03/18/20 05:58	03/18/20 23:23	1
Toxaphene	ND		0.51	0.24	ug/L		03/18/20 05:58	03/18/20 23:23	1
4,4'-DDD	ND		0.0051	0.0041	ug/L		03/18/20 05:58	03/18/20 23:23	1
4,4'-DDE	ND		0.0051	0.0031	ug/L		03/18/20 05:58	03/18/20 23:23	1
4,4'-DDT	ND		0.010	0.0041	ug/L		03/18/20 05:58	03/18/20 23:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*39*		*10 - 104*	*03/18/20 05:58*	*03/18/20 23:23*	*1*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1221	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1232	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1242	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1248	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1254	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1
Aroclor 1260	ND		0.51	0.26	ug/L		03/18/20 05:58	03/19/20 12:21	1

Client Sample ID: Outfall009_20200314_Comp

Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*109*		*18 - 134*	*03/18/20 05:58*	*03/19/20 12:21*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/14/20 19:26	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1.8**		0.50	0.25	mg/L			03/14/20 18:14	1
Nitrate as N	**0.39**		0.11	0.055	mg/L			03/14/20 18:14	1
Fluoride	ND		0.50	0.25	mg/L			03/14/20 18:14	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 18:14	1
Sulfate	**2.1**		0.50	0.25	mg/L			03/14/20 18:14	1

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 11:24	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.39**		0.15	0.055	mg/L			03/20/20 11:55	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000011	0.00000090	ug/L		03/18/20 08:33	03/21/20 14:44	1
2,3,7,8-TCDF	ND		0.000011	0.00000017	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,7,8-PeCDD	**0.0000043**	**J,DX**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,7,8-PeCDF	**0.0000040**	**J,DX**	0.000053	0.00000061	ug/L		03/18/20 08:33	03/21/20 14:44	1
2,3,4,7,8-PeCDF	**0.0000036**	**J,DX q**	0.000053	0.00000059	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,4,7,8-HxCDD	**0.0000075**	**J,DX MB**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,6,7,8-HxCDD	**0.0000066**	**J,DX**	0.000053	0.0000012	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,7,8,9-HxCDD	**0.0000072**	**J,DX**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,4,7,8-HxCDF	**0.0000056**	**J,DX**	0.000053	0.00000060	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,6,7,8-HxCDF	**0.0000062**	**J,DX**	0.000053	0.00000065	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,7,8,9-HxCDF	**0.0000072**	**J,DX MB**	0.000053	0.00000062	ug/L		03/18/20 08:33	03/21/20 14:44	1
2,3,4,6,7,8-HxCDF	**0.0000065**	**J,DX**	0.000053	0.00000060	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,4,6,7,8-HpCDD	**0.000018**	**J,DX MB**	0.000053	0.00000035	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,4,6,7,8-HpCDF	**0.000012**	**J,DX**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
1,2,3,4,7,8,9-HpCDF	**0.0000070**	**J,DX q**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
OCDD	**0.00014**	**MB**	0.00011	0.0000013	ug/L		03/18/20 08:33	03/21/20 14:44	1
OCDF	**0.000033**	**J,DX MB**	0.00011	0.0000010	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total TCDD	ND		0.000011	0.00000090	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total TCDF	ND		0.000011	0.00000017	ug/L		03/18/20 08:33	03/21/20 14:44	1

Client Sample ID: Outfall009_20200314_Comp

Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PeCDD	**0.0000043**	**J,DX**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total PeCDF	**0.0000076**	**J,DX q**	0.000053	0.00000059	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total HxCDD	**0.000021**	**J,DX MB**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total HxCDF	**0.000026**	**J,DX MB**	0.000053	0.00000060	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total HpCDD	**0.000032**	**J,DX MB**	0.000053	0.00000035	ug/L		03/18/20 08:33	03/21/20 14:44	1
Total HpCDF	**0.000022**	**J,DX q**	0.000053	0.0000011	ug/L		03/18/20 08:33	03/21/20 14:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*56*		*25 - 164*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,7,8-PeCDF	*54*		*24 - 185*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-2,3,4,7,8-PeCDF	*63*		*21 - 178*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,4,7,8-HxCDF	*63*		*26 - 152*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,6,7,8-HxCDF	*58*		*26 - 123*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-2,3,4,6,7,8-HxCDF	*60*		*28 - 136*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*48*		*23 - 140*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*53*		*26 - 138*	*03/18/20 08:33*	*03/21/20 14:44*	*1*
13C-OCDD	*43*		*17 - 157*	*03/18/20 08:33*	*03/21/20 14:44*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*74*		*35 - 197*	*03/18/20 08:33*	*03/21/20 14:44*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**400**		100	50	ug/L		03/17/20 09:40	03/18/20 02:14	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 02:14	1
Boron	**0.038**	**J,DX**	0.050	0.025	mg/L		03/17/20 09:40	03/18/20 02:14	1
Beryllium	ND		2.0	1.0	ug/L		03/17/20 09:40	03/18/20 02:14	1
Chromium	ND		5.0	2.5	ug/L		03/17/20 09:40	03/18/20 02:14	1
Iron	**0.51**		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 02:14	1
Nickel	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 02:14	1
Vanadium	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 02:14	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 02:14	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:52	1
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 17:52	1
Copper	**3.6**		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:52	1
Lead	**1.2**		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:52	1
Antimony	**0.50**	**J,DX**	2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:52	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:52	1
Thallium	ND		1.0	0.20	ug/L		03/17/20 10:00	03/17/20 17:52	1

Client Sample ID: Outfall009_20200314_Comp

Lab Sample ID: 440-263043-1
Date Collected: 03/14/20 10:15
Matrix: Water
Date Received: 03/14/20 17:30

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/26/20 13:34	03/27/20 09:50	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**20**		0.33	0.17	mg/L			03/19/20 17:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**66**		10	5.0	mg/L			03/18/20 10:01	1
Total Suspended Solids	**3.9**		1.0	0.50	mg/L			03/20/20 14:49	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:34	1

Client Sample ID: Outfall009_20200314_Comp_F

Lab Sample ID: 440-263043-2
Date Collected: 03/14/20 10:15
Matrix: Water
Date Received: 03/14/20 17:30

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**		100	50	ug/L		03/16/20 16:13	03/17/20 21:11	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 21:11	1
Boron	**0.034**	**J,DX**	0.050	0.025	mg/L		03/16/20 16:13	03/17/20 21:11	1
Beryllium	ND		2.0	1.0	ug/L		03/16/20 16:13	03/17/20 21:11	1
Chromium	ND		5.0	2.5	ug/L		03/16/20 16:13	03/17/20 21:11	1
Iron	**0.23**		0.10	0.050	mg/L		03/16/20 16:13	03/17/20 21:11	1
Nickel	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 21:11	1
Vanadium	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 21:11	1
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 21:11	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:59	1
Cadmium	ND		1.0	0.25	ug/L		03/16/20 16:07	03/16/20 20:59	1
Copper	**3.2**		2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:59	1
Lead	**0.66**	**J,DX**	1.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:59	1
Antimony	**0.64**	**J,DX**	2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:59	1
Selenium	**0.69**	**J,DX**	2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:59	1
Thallium	ND		1.0	0.20	ug/L		03/16/20 16:07	03/16/20 20:59	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:16	03/18/20 18:05	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**18**		0.33	0.17	mg/L			03/20/20 17:48	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
100.2	EPA 100.2 Asbestos in Drinking Water	EPA	EMSL-LA
EPA	Bioassay	EPA	Aquatic
Subcontract	Weck- 525.2	None	Weck Lab
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
EMSL-LA = EMSL Analytical Inc - LA Testing - Pasadena, 520 Mission Street, South Pasadena, CA 91030
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Client Sample ID: Outfall009_20200314_Comp

Lab Sample ID: 440-263043-1
Matrix: Water
Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			935 mL	2.0 mL	601122	03/18/20 08:11	NAM	TAL IRV
Total/NA	Analysis	625.1		1			601579	03/20/20 14:39	HN	TAL IRV
Total/NA	Prep	608			980 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601220	03/18/20 23:23	D1D	TAL IRV
Total/NA	Prep	608			980 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601412	03/19/20 12:21	JM	TAL IRV
Total/NA	Analysis	218.6		1			600565	03/14/20 19:26	NN	TAL IRV
Total/NA	Analysis	300.0		1			600528	03/14/20 18:14	NTN	TAL IRV
Total/NA	Analysis	300.0		1			600529	03/14/20 18:14	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602273	03/25/20 11:24	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601658	03/20/20 11:55	TLN	TAL IRV
Total/NA	Prep	1613B			948.6 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			366401	03/21/20 14:44	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	600756	03/17/20 09:40	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			601118	03/18/20 02:14	VS	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	600753	03/17/20 10:00	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			601042	03/17/20 17:52	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602552	03/26/20 13:34	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602716	03/27/20 09:50	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			600047	03/19/20 17:49	P1R	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	601166	03/18/20 10:01	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	601699	03/20/20 14:49	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	601903	03/23/20 10:17	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			601977	03/23/20 15:34	CKL	TAL IRV

Client Sample ID: Outfall009_20200314_Comp_F

Lab Sample ID: 440-263043-2
Matrix: Water
Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:32	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600775	03/16/20 16:13	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601061	03/17/20 21:11	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			125 mL	125 mL	600737	03/16/20 13:32	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600772	03/16/20 16:07	M1G	TAL IRV
Dissolved	Analysis	200.8		1			600825	03/16/20 20:59	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	600735	03/16/20 13:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	601070	03/18/20 08:16	DB	TAL IRV
Dissolved	Analysis	245.1		1			601310	03/18/20 18:05	DB	TAL IRV
Dissolved	Analysis	SM 2340B		1			600609	03/20/20 17:48	P1R	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

EMSL-LA = EMSL Analytical Inc - LA Testing - Pasadena, 520 Mission Street, South Pasadena, CA 91030

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Acenaphthylene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Anthracene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzidine	ND		10	5.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[a]anthracene	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[b]fluoranthene	ND		2.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[a]pyrene	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-chloroethoxy)methane	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-chloroethyl)ether	ND		0.50	0.050	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Chloro-3-methylphenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Chloronaphthalene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Chlorophenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Chlorophenyl phenyl ether	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Chrysene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Dibenz(a,h)anthracene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Di-n-butyl phthalate	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,4-Dichlorobenzene	ND		0.50	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dichlorophenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Diethyl phthalate	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dimethylphenol	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Dimethyl phthalate	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
4,6-Dinitro-2-methylphenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrophenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,6-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Di-n-octyl phthalate	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Fluoranthene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Fluorene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachloroethane	ND		3.0	0.50	ug/L		03/18/20 08:11	03/20/20 09:01	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		03/18/20 08:11	03/20/20 09:01	1
Isophorone	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Naphthalene	ND		1.0	0.050	ug/L		03/18/20 08:11	03/20/20 09:01	1
Nitrobenzene	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2-Nitrophenol	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
4-Nitrophenol	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodimethylamine	ND		2.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodiphenylamine	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodi-n-propylamine	ND		2.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pentachlorophenol	ND		2.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
Phenanthrene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Phenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pyrene	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
1,2,4-Trichlorobenzene	ND		1.0	0.20	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Benzo[g,h,i]perylene	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
bis (2-chloroisopropyl) ether	ND		0.50	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*51 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorophenol	*85*		*43 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2,4,6-Tribromophenol	*82*		*60 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Nitrobenzene-d5	*76*		*53 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Terphenyl-d14	*87*		*12 - 142*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Phenol-d5	*80*		*45 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	15.0	12.3		ug/L		82	60 - 132
Acenaphthylene	15.0	12.6		ug/L		84	54 - 126
Anthracene	15.0	12.3		ug/L		82	43 - 120
Benzidine	15.0	ND	LR	ug/L		0.3	5 - 140
Benzo[a]anthracene	15.0	12.7		ug/L		84	42 - 133
Benzo[b]fluoranthene	15.0	12.4		ug/L		83	42 - 140
Benzo[k]fluoranthene	15.0	12.4		ug/L		83	25 - 146
Benzo[a]pyrene	15.0	12.6		ug/L		84	32 - 148
Bis(2-chloroethoxy)methane	15.0	12.6		ug/L		84	49 - 165
Bis(2-chloroethyl)ether	15.0	10.0		ug/L		67	43 - 126
Bis(2-ethylhexyl) phthalate	15.0	13.3		ug/L		89	29 - 137
4-Bromophenyl phenyl ether	15.0	11.8		ug/L		79	65 - 120
Butyl benzyl phthalate	15.0	13.8		ug/L		92	10 - 140
4-Chloro-3-methylphenol	15.0	14.6		ug/L		98	41 - 128
2-Chloronaphthalene	15.0	12.3		ug/L		82	65 - 120
2-Chlorophenol	15.0	10.1		ug/L		67	36 - 120
4-Chlorophenyl phenyl ether	15.0	12.3		ug/L		82	38 - 145
Chrysene	15.0	12.0		ug/L		80	44 - 140
Dibenz(a,h)anthracene	15.0	12.8		ug/L		86	10 - 200
Di-n-butyl phthalate	15.0	13.8		ug/L		92	8 - 120
1,2-Dichlorobenzene	15.0	9.25		ug/L		62	60 - 140
1,3-Dichlorobenzene	15.0	10.5		ug/L		70	60 - 140
1,4-Dichlorobenzene	15.0	10.4		ug/L		70	60 - 140
3,3'-Dichlorobenzidine	15.0	10.3		ug/L		68	8 - 213
2,4-Dichlorophenol	15.0	12.9		ug/L		86	53 - 122

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diethyl phthalate	15.0	14.7		ug/L		98	10 - 120
2,4-Dimethylphenol	15.0	11.8		ug/L		79	42 - 120
Dimethyl phthalate	15.0	13.1		ug/L		87	10 - 120
4,6-Dinitro-2-methylphenol	30.0	24.5		ug/L		82	53 - 130
2,4-Dinitrophenol	30.0	25.1		ug/L		84	10 - 173
2,4-Dinitrotoluene	15.0	13.6		ug/L		91	48 - 127
2,6-Dinitrotoluene	15.0	13.4		ug/L		89	68 - 137
Di-n-octyl phthalate	15.0	13.9		ug/L		93	19 - 132
1,2-Diphenylhydrazine(as Azobenzene)	15.0	12.9		ug/L		86	60 - 140
Fluoranthene	15.0	13.9		ug/L		93	43 - 121
Fluorene	15.0	12.7		ug/L		85	70 - 120
Hexachlorobenzene	15.0	11.6		ug/L		77	8 - 142
Hexachlorobutadiene	15.0	9.40		ug/L		63	38 - 120
Hexachloroethane	15.0	8.56		ug/L		57	55 - 120
Hexachlorocyclopentadiene	15.0	5.37	LR	ug/L		36	60 - 140
Indeno[1,2,3-cd]pyrene	15.0	13.2		ug/L		88	10 - 151
Isophorone	15.0	14.0		ug/L		93	47 - 180
Naphthalene	15.0	11.6		ug/L		77	36 - 120
Nitrobenzene	15.0	11.2		ug/L		75	54 - 158
2-Nitrophenol	15.0	12.7		ug/L		85	45 - 167
4-Nitrophenol	30.0	22.3		ug/L		74	13 - 129
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
N-Nitrosodiphenylamine	15.0	11.8		ug/L		79	60 - 140
N-Nitrosodi-n-propylamine	15.0	13.6		ug/L		91	14 - 198
Pentachlorophenol	30.0	24.9		ug/L		83	38 - 152
Phenanthrene	15.0	12.1		ug/L		81	65 - 120
Phenol	15.0	11.4		ug/L		76	17 - 120
Pyrene	15.0	13.5		ug/L		90	70 - 120
1,2,4-Trichlorobenzene	15.0	9.84		ug/L		66	57 - 130
2,4,6-Trichlorophenol	15.0	14.2		ug/L		95	52 - 129
Benzo[g,h,i]perylene	15.0	12.3		ug/L		82	10 - 195
bis (2-chloroisopropyl) ether	15.0	11.5		ug/L		77	63 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*84*		*51 - 120*
2-Fluorophenol	*86*		*43 - 120*
2,4,6-Tribromophenol	*91*		*60 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Terphenyl-d14	*89*		*12 - 142*
Phenol-d5	*71*		*45 - 150*

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	15.0	13.3		ug/L		88	60 - 132	7	35
Acenaphthylene	15.0	13.7		ug/L		91	54 - 126	8	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	15.0	13.4		ug/L		90	43 - 120	9	35
Benzidine	15.0	ND	LR BA	ug/L		0.4	5 - 140	36	35
Benzo[a]anthracene	15.0	13.9		ug/L		93	42 - 133	9	35
Benzo[b]fluoranthene	15.0	15.2		ug/L		101	42 - 140	20	35
Benzo[k]fluoranthene	15.0	14.6		ug/L		97	25 - 146	16	35
Benzo[a]pyrene	15.0	14.7		ug/L		98	32 - 148	16	35
Bis(2-chloroethoxy)methane	15.0	13.6		ug/L		91	49 - 165	8	35
Bis(2-chloroethyl)ether	15.0	13.4		ug/L		89	43 - 126	29	35
Bis(2-ethylhexyl) phthalate	15.0	14.8		ug/L		98	29 - 137	10	35
4-Bromophenyl phenyl ether	15.0	12.9		ug/L		86	65 - 120	9	35
Butyl benzyl phthalate	15.0	15.4		ug/L		103	10 - 140	11	35
4-Chloro-3-methylphenol	15.0	15.8		ug/L		105	41 - 128	7	35
2-Chloronaphthalene	15.0	13.3		ug/L		89	65 - 120	7	35
2-Chlorophenol	15.0	13.3		ug/L		89	36 - 120	28	35
4-Chlorophenyl phenyl ether	15.0	13.3		ug/L		89	38 - 145	8	35
Chrysene	15.0	13.1		ug/L		87	44 - 140	9	35
Dibenz(a,h)anthracene	15.0	13.4		ug/L		89	10 - 200	4	35
Di-n-butyl phthalate	15.0	15.5		ug/L		104	8 - 120	12	35
1,2-Dichlorobenzene	15.0	11.8		ug/L		79	60 - 140	24	35
1,3-Dichlorobenzene	15.0	11.0		ug/L		74	60 - 140	5	35
1,4-Dichlorobenzene	15.0	11.4		ug/L		76	60 - 140	8	35
3,3'-Dichlorobenzidine	15.0	10.8		ug/L		72	8 - 213	5	35
2,4-Dichlorophenol	15.0	13.9		ug/L		93	53 - 122	7	35
Diethyl phthalate	15.0	15.5		ug/L		103	10 - 120	5	35
2,4-Dimethylphenol	15.0	13.2		ug/L		88	42 - 120	11	35
Dimethyl phthalate	15.0	13.8		ug/L		92	10 - 120	6	35
4,6-Dinitro-2-methylphenol	30.0	28.0		ug/L		93	53 - 130	14	35
2,4-Dinitrophenol	30.0	27.9		ug/L		93	10 - 173	11	35
2,4-Dinitrotoluene	15.0	14.9		ug/L		99	48 - 127	9	35
2,6-Dinitrotoluene	15.0	14.3		ug/L		96	68 - 137	7	35
Di-n-octyl phthalate	15.0	14.8		ug/L		99	19 - 132	6	35
1,2-Diphenylhydrazine(as Azobenzene)	15.0	13.7		ug/L		91	60 - 140	6	35
Fluoranthene	15.0	15.6		ug/L		104	43 - 121	12	35
Fluorene	15.0	13.6		ug/L		90	70 - 120	7	35
Hexachlorobenzene	15.0	12.8		ug/L		85	8 - 142	10	35
Hexachlorobutadiene	15.0	10.8		ug/L		72	38 - 120	14	35
Hexachloroethane	15.0	10.6		ug/L		71	55 - 120	21	35
Hexachlorocyclopentadiene	15.0	7.30	LR	ug/L		49	60 - 140	30	35
Indeno[1,2,3-cd]pyrene	15.0	13.4		ug/L		90	10 - 151	2	35
Isophorone	15.0	15.0		ug/L		100	47 - 180	7	35
Naphthalene	15.0	12.5		ug/L		83	36 - 120	7	35
Nitrobenzene	15.0	12.5		ug/L		84	54 - 158	11	35
2-Nitrophenol	15.0	14.1		ug/L		94	45 - 167	10	35
4-Nitrophenol	30.0	26.2		ug/L		87	13 - 129	16	35
N-Nitrosodimethylamine	15.0	16.9		ug/L		112	60 - 140	22	35
N-Nitrosodiphenylamine	15.0	12.8		ug/L		85	60 - 140	8	35
N-Nitrosodi-n-propylamine	15.0	16.8		ug/L		112	14 - 198	21	35
Pentachlorophenol	30.0	29.0		ug/L		97	38 - 152	15	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenanthrene			15.0	13.2		ug/L		88	65 - 120	8	35
Phenol			15.0	14.3		ug/L		96	17 - 120	23	35
Pyrene			15.0	14.8		ug/L		99	70 - 120	9	35
1,2,4-Trichlorobenzene			15.0	11.7		ug/L		78	57 - 130	17	35
2,4,6-Trichlorophenol			15.0	15.4		ug/L		103	52 - 129	8	35
Benzo[g,h,i]perylene			15.0	12.4		ug/L		83	10 - 195	1	35
bis (2-chloroisopropyl) ether			15.0	14.0		ug/L		93	63 - 139	19	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*80*		*43 - 120*
2,4,6-Tribromophenol	*99*		*60 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Terphenyl-d14	*97*		*12 - 142*
Phenol-d5	*95*		*45 - 150*

Lab Sample ID: 440-263045-K-1-A MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acenaphthene	ND		16.2	14.2		ug/L		87	47 - 145		
Acenaphthylene	ND		16.2	14.3		ug/L		88	33 - 145		
Anthracene	ND		16.2	13.5		ug/L		83	27 - 133		
Benzidine	ND	LR BA	16.2	ND	LN	ug/L		0	5 - 140		
Benzo[a]anthracene	ND		16.2	14.2		ug/L		87	33 - 143		
Benzo[b]fluoranthene	ND		16.2	15.7		ug/L		97	24 - 159		
Benzo[k]fluoranthene	ND		16.2	14.4		ug/L		89	11 - 162		
Benzo[a]pyrene	ND		16.2	14.0		ug/L		86	17 - 163		
Bis(2-chloroethoxy)methane	ND		16.2	14.8		ug/L		91	33 - 184		
Bis(2-chloroethyl)ether	ND		16.2	16.0		ug/L		99	12 - 158		
Bis(2-ethylhexyl) phthalate	ND		16.2	14.9		ug/L		92	8 - 158		
4-Bromophenyl phenyl ether	ND		16.2	13.4		ug/L		83	53 - 127		
Butyl benzyl phthalate	ND		16.2	16.7		ug/L		103	10 - 152		
4-Chloro-3-methylphenol	ND		16.2	17.3		ug/L		107	22 - 147		
2-Chloronaphthalene	ND		16.2	14.1		ug/L		87	60 - 120		
2-Chlorophenol	ND		16.2	15.5		ug/L		96	23 - 134		
4-Chlorophenyl phenyl ether	ND		16.2	13.9		ug/L		85	25 - 158		
Chrysene	ND		16.2	13.2		ug/L		81	17 - 168		
Dibenz(a,h)anthracene	ND		16.2	12.0		ug/L		74	10 - 227		
Di-n-butyl phthalate	ND		16.2	16.5		ug/L		102	1 - 120		
1,2-Dichlorobenzene	ND		16.2	13.2		ug/L		81	60 - 140		
1,3-Dichlorobenzene	ND		16.2	12.1		ug/L		75	60 - 140		
1,4-Dichlorobenzene	ND		16.2	12.5		ug/L		77	60 - 140		
3,3'-Dichlorobenzidine	ND		16.2	ND	LN	ug/L		0	10 - 262		
2,4-Dichlorophenol	ND		16.2	15.0		ug/L		92	39 - 135		
Diethyl phthalate	ND		16.2	17.0		ug/L		105	10 - 120		
2,4-Dimethylphenol	ND		16.2	15.1		ug/L		93	32 - 120		

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-K-1-A MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethyl phthalate	ND		16.2	14.9		ug/L		92	10 - 120
4,6-Dinitro-2-methylphenol	ND		32.4	29.3		ug/L		90	10 - 181
2,4-Dinitrophenol	ND		32.4	31.5		ug/L		97	10 - 191
2,4-Dinitrotoluene	ND		16.2	16.0		ug/L		99	39 - 139
2,6-Dinitrotoluene	ND		16.2	15.4		ug/L		95	50 - 158
Di-n-octyl phthalate	ND		16.2	14.5		ug/L		90	4 - 146
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.2	13.8		ug/L		85	60 - 140
Fluoranthene	ND		16.2	16.6		ug/L		102	26 - 137
Fluorene	ND		16.2	14.4		ug/L		89	59 - 121
Hexachlorobenzene	ND		16.2	13.2		ug/L		81	10 - 152
Hexachlorobutadiene	ND		16.2	11.4		ug/L		70	24 - 120
Hexachloroethane	ND		16.2	11.9		ug/L		73	40 - 120
Hexachlorocyclopentadiene	ND	LR	16.2	5.58	LN	ug/L		34	60 - 140
Indeno[1,2,3-cd]pyrene	ND		16.2	12.7		ug/L		79	10 - 171
Isophorone	ND		16.2	16.9		ug/L		104	21 - 196
Naphthalene	ND		16.2	13.6		ug/L		84	21 - 133
Nitrobenzene	ND		16.2	13.3		ug/L		82	35 - 180
2-Nitrophenol	ND		16.2	15.3		ug/L		94	29 - 182
4-Nitrophenol	ND		32.4	30.0		ug/L		92	10 - 132
N-Nitrosodimethylamine	ND		16.2	20.3		ug/L		125	60 - 140
N-Nitrosodiphenylamine	ND		16.2	12.4		ug/L		77	60 - 140
N-Nitrosodi-n-propylamine	ND		16.2	20.1		ug/L		124	10 - 230
Pentachlorophenol	ND		32.4	34.1		ug/L		105	14 - 176
Phenanthrene	ND		16.2	14.1		ug/L		87	54 - 120
Phenol	ND		16.2	16.9		ug/L		104	5 - 120
Pyrene	ND		16.2	16.6		ug/L		102	52 - 120
1,2,4-Trichlorobenzene	ND		16.2	12.8		ug/L		79	44 - 142
2,4,6-Trichlorophenol	ND		16.2	16.9		ug/L		104	37 - 144
Benzo[g,h,i]perylene	ND		16.2	12.2		ug/L		75	10 - 219
bis (2-chloroisopropyl) ether	ND		16.2	17.1		ug/L		105	36 - 166

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*51 - 120*
2-Fluorophenol	*97*		*43 - 120*
2,4,6-Tribromophenol	*99*		*60 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Terphenyl-d14	*79*		*12 - 142*
Phenol-d5	*110*		*45 - 150*

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		16.4	13.0		ug/L		79	47 - 145	9	48
Acenaphthylene	ND		16.4	13.4		ug/L		82	33 - 145	7	74
Anthracene	ND		16.4	12.5		ug/L		76	27 - 133	7	66
Benzidine	ND	LR BA	16.4	ND	LN	ug/L		0	5 - 140	NC	35

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	ND		16.4	12.9		ug/L		79	33 - 143	9	53
Benzo[b]fluoranthene	ND		16.4	14.3		ug/L		87	24 - 159	9	71
Benzo[k]fluoranthene	ND		16.4	13.5		ug/L		82	11 - 162	6	63
Benzo[a]pyrene	ND		16.4	13.0		ug/L		79	17 - 163	7	72
Bis(2-chloroethoxy)methane	ND		16.4	13.8		ug/L		84	33 - 184	7	54
Bis(2-chloroethyl)ether	ND		16.4	14.3		ug/L		87	12 - 158	11	108
Bis(2-ethylhexyl) phthalate	ND		16.4	13.0		ug/L		79	8 - 158	14	82
4-Bromophenyl phenyl ether	ND		16.4	12.4		ug/L		76	53 - 127	8	43
Butyl benzyl phthalate	ND		16.4	14.6		ug/L		89	10 - 152	13	60
4-Chloro-3-methylphenol	ND		16.4	16.1		ug/L		98	22 - 147	7	73
2-Chloronaphthalene	ND		16.4	12.9		ug/L		79	60 - 120	9	24
2-Chlorophenol	ND		16.4	14.0		ug/L		86	23 - 134	10	61
4-Chlorophenyl phenyl ether	ND		16.4	12.8		ug/L		78	25 - 158	8	61
Chrysene	ND		16.4	11.7		ug/L		71	17 - 168	12	87
Dibenz(a,h)anthracene	ND		16.4	10.9		ug/L		66	10 - 227	10	126
Di-n-butyl phthalate	ND		16.4	14.8		ug/L		91	1 - 120	11	47
1,2-Dichlorobenzene	ND		16.4	11.7		ug/L		71	60 - 140	13	35
1,3-Dichlorobenzene	ND		16.4	10.5		ug/L		64	60 - 140	15	35
1,4-Dichlorobenzene	ND		16.4	10.9		ug/L		67	60 - 140	13	35
3,3'-Dichlorobenzidine	ND		16.4	ND	LN	ug/L		0	10 - 262	NC	108
2,4-Dichlorophenol	ND		16.4	14.0		ug/L		86	39 - 135	7	50
Diethyl phthalate	ND		16.4	15.6		ug/L		95	10 - 120	9	100
2,4-Dimethylphenol	ND		16.4	13.9		ug/L		85	32 - 120	8	58
Dimethyl phthalate	ND		16.4	13.8		ug/L		84	10 - 120	8	183
4,6-Dinitro-2-methylphenol	ND		32.8	27.8		ug/L		85	10 - 181	5	203
2,4-Dinitrophenol	ND		32.8	29.7		ug/L		90	10 - 191	6	132
2,4-Dinitrotoluene	ND		16.4	14.9		ug/L		91	39 - 139	7	42
2,6-Dinitrotoluene	ND		16.4	14.3		ug/L		87	50 - 158	8	48
Di-n-octyl phthalate	ND		16.4	13.2		ug/L		81	4 - 146	9	69
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.4	12.9		ug/L		79	60 - 140	7	35
Fluoranthene	ND		16.4	15.3		ug/L		93	26 - 137	8	66
Fluorene	ND		16.4	13.4		ug/L		82	59 - 121	8	38
Hexachlorobenzene	ND		16.4	12.1		ug/L		74	10 - 152	9	55
Hexachlorobutadiene	ND		16.4	9.62		ug/L		59	24 - 120	17	62
Hexachloroethane	ND		16.4	9.93		ug/L		61	40 - 120	18	52
Hexachlorocyclopentadiene	ND	LR	16.4	6.72	LN	ug/L		41	60 - 140	18	35
Indeno[1,2,3-cd]pyrene	ND		16.4	11.7		ug/L		71	10 - 171	9	99
Isophorone	ND		16.4	15.8		ug/L		96	21 - 196	7	93
Naphthalene	ND		16.4	12.3		ug/L		75	21 - 133	10	65
Nitrobenzene	ND		16.4	12.7		ug/L		78	35 - 180	4	62
2-Nitrophenol	ND		16.4	14.3		ug/L		87	29 - 182	7	55
4-Nitrophenol	ND		32.8	27.1		ug/L		83	10 - 132	10	131
N-Nitrosodimethylamine	ND		16.4	18.4		ug/L		112	60 - 140	10	35
N-Nitrosodiphenylamine	ND		16.4	11.1		ug/L		68	60 - 140	11	35
N-Nitrosodi-n-propylamine	ND		16.4	17.7		ug/L		108	10 - 230	13	87
Pentachlorophenol	ND		32.8	31.1		ug/L		95	14 - 176	9	86
Phenanthrene	ND		16.4	12.8		ug/L		78	54 - 120	9	39
Phenol	ND		16.4	15.0		ug/L		92	5 - 120	12	64

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pyrene	ND		16.4	14.7		ug/L		89	52 - 120	12	49
1,2,4-Trichlorobenzene	ND		16.4	11.2		ug/L		68	44 - 142	13	50
2,4,6-Trichlorophenol	ND		16.4	15.4		ug/L		94	37 - 144	9	58
Benzo[g,h,i]perylene	ND		16.4	11.6		ug/L		70	10 - 219	5	97
bis (2-chloroisopropyl) ether	ND		16.4	15.0		ug/L		91	36 - 166	13	76

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*79*		*51 - 120*
2-Fluorophenol	*74*		*43 - 120*
2,4,6-Tribromophenol	*91*		*60 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Terphenyl-d14	*66*		*12 - 142*
Phenol-d5	*92*		*45 - 150*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		03/18/20 05:58	03/18/20 21:10	1
alpha-BHC	ND		0.0050	0.0025	ug/L		03/18/20 05:58	03/18/20 21:10	1
beta-BHC	ND		0.010	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1
Chlordane (technical)	ND		0.10	0.080	ug/L		03/18/20 05:58	03/18/20 21:10	1
delta-BHC	ND		0.0050	0.0035	ug/L		03/18/20 05:58	03/18/20 21:10	1
Dieldrin	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan I	ND		0.0050	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan II	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endrin	ND		0.0050	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/18/20 05:58	03/18/20 21:10	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Heptachlor	ND		0.0090	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		03/18/20 05:58	03/18/20 21:10	1
Toxaphene	ND		0.50	0.24	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		03/18/20 05:58	03/18/20 21:10	1
4,4'-DDT	ND		0.010	0.0040	ug/L		03/18/20 05:58	03/18/20 21:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*10 - 104*	*03/18/20 05:58*	*03/18/20 21:10*	*1*

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 440-601089/2-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aldrin			0.400	0.292		ug/L		73	42 - 140		
alpha-BHC			0.400	0.298		ug/L		75	37 - 140		
beta-BHC			0.400	0.300		ug/L		75	17 - 147		
delta-BHC			0.400	0.307		ug/L		77	19 - 140		
Dieldrin			0.400	0.315		ug/L		79	36 - 146		
Endosulfan I			0.400	0.312		ug/L		78	45 - 153		
Endosulfan II			0.400	0.345		ug/L		86	10 - 202		
Endosulfan sulfate			0.400	0.330		ug/L		82	26 - 144		
Endrin			0.400	0.333		ug/L		83	30 - 147		
Endrin aldehyde			0.400	0.280		ug/L		70	60 - 140		
gamma-BHC (Lindane)			0.400	0.300		ug/L		75	32 - 140		
Heptachlor			0.400	0.316		ug/L		79	34 - 140		
Heptachlor epoxide			0.400	0.308		ug/L		77	37 - 142		
4,4'-DDD			0.400	0.314		ug/L		79	31 - 141		
4,4'-DDE			0.400	0.311		ug/L		78	30 - 145		
4,4'-DDT			0.400	0.337		ug/L		84	25 - 160		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*78*		*10 - 104*

Lab Sample ID: 440-263045-H-1-A MSD
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		0.402	0.256		ug/L		64	42 - 140	1	35
alpha-BHC	ND		0.402	0.260		ug/L		65	37 - 140	1	36
beta-BHC	ND		0.402	0.258		ug/L		64	17 - 147	2	44
delta-BHC	ND		0.402	0.264		ug/L		66	19 - 140	2	52
Dieldrin	ND		0.402	0.277		ug/L		69	36 - 146	2	49
Endosulfan I	ND		0.402	0.275		ug/L		68	45 - 153	3	28
Endosulfan II	ND		0.402	0.300		ug/L		75	10 - 202	3	53
Endosulfan sulfate	ND		0.402	0.303		ug/L		75	26 - 144	4	38
Endrin	ND		0.402	0.303		ug/L		75	30 - 147	1	48
Endrin aldehyde	ND		0.402	0.251		ug/L		62	60 - 140	2	30
gamma-BHC (Lindane)	ND		0.402	0.266		ug/L		66	32 - 140	1	39
Heptachlor	ND		0.402	0.277		ug/L		69	34 - 140	1	43
Heptachlor epoxide	ND		0.402	0.271		ug/L		68	37 - 142	2	26
4,4'-DDD	ND		0.402	0.274		ug/L		68	31 - 141	3	39
4,4'-DDE	ND		0.402	0.265		ug/L		66	30 - 145	2	35
4,4'-DDT	ND		0.402	0.304		ug/L		76	25 - 160	3	42

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*75*		*10 - 104*

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-263045-H-1-B MS
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		0.406	0.257		ug/L		63	42 - 140
alpha-BHC	ND		0.406	0.261		ug/L		64	37 - 140
beta-BHC	ND		0.406	0.263		ug/L		65	17 - 147
delta-BHC	ND		0.406	0.269		ug/L		66	19 - 140
Dieldrin	ND		0.406	0.282		ug/L		70	36 - 146
Endosulfan I	ND		0.406	0.283		ug/L		70	45 - 153
Endosulfan II	ND		0.406	0.309		ug/L		76	10 - 202
Endosulfan sulfate	ND		0.406	0.314		ug/L		77	26 - 144
Endrin	ND		0.406	0.308		ug/L		76	30 - 147
Endrin aldehyde	ND		0.406	0.257		ug/L		63	60 - 140
gamma-BHC (Lindane)	ND		0.406	0.268		ug/L		66	32 - 140
Heptachlor	ND		0.406	0.279		ug/L		69	34 - 140
Heptachlor epoxide	ND		0.406	0.277		ug/L		68	37 - 142
4,4'-DDD	ND		0.406	0.283		ug/L		70	31 - 141
4,4'-DDE	ND		0.406	0.272		ug/L		67	30 - 145
4,4'-DDT	ND		0.406	0.312		ug/L		77	25 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*77*		*10 - 104*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1221	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1232	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1242	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1248	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1254	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1
Aroclor 1260	ND		0.50	0.25	ug/L		03/18/20 05:58	03/19/20 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*85*		*18 - 134*	*03/18/20 05:58*	*03/19/20 10:48*	*1*

Lab Sample ID: LCS 440-601089/5-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016			4.00	3.34		ug/L		83	50 - 140
Aroclor 1260			4.00	3.72		ug/L		93	8 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*18 - 134*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: LCSD 440-601089/6-A
Matrix: Water
Analysis Batch: 601412

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016			4.00	3.52		ug/L		88	50 - 140	5	36
Aroclor 1260			4.00	3.89		ug/L		97	8 - 140	5	38

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*94*		*18 - 134*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-600565/6
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/14/20 18:07	1

Lab Sample ID: LCS 440-600565/5
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			50.0	50.0		ug/L		100	90 - 110		

Lab Sample ID: MRL 440-600565/4
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			1.00	0.992	J,DX	ug/L		99	50 - 150		

Lab Sample ID: 440-263044-D-1 MS
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		50.0	51.8		ug/L		104	90 - 110		

Lab Sample ID: 440-263044-D-1 MSD
Matrix: Water
Analysis Batch: 600565

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		50.0	51.6		ug/L		103	90 - 110	0	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-600528/6
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/14/20 17:46	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 17:46	1

Lab Sample ID: LCS 440-600528/5
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.10		mg/L		97	90 - 110
Nitrite as N	1.52	1.49		mg/L		98	90 - 110

Lab Sample ID: 440-263076-A-1 MS
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.27		1.13	1.40		mg/L		100	80 - 120
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120

Lab Sample ID: 440-263076-A-1 MSD
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.27		1.13	1.30		mg/L		91	80 - 120	7	20
Nitrite as N	ND		1.52	1.50		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 440-600529/6
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/14/20 17:46	1
Fluoride	ND		0.50	0.25	mg/L			03/14/20 17:46	1
Sulfate	ND		0.50	0.25	mg/L			03/14/20 17:46	1

Lab Sample ID: LCS 440-600529/5
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.80		mg/L		96	90 - 110
Fluoride	5.00	4.78		mg/L		96	90 - 110
Sulfate	5.00	5.05		mg/L		101	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-263076-A-1 MS
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13		5.00	18.5		mg/L		109	80 - 120
Fluoride	ND		5.00	4.53		mg/L		91	80 - 120
Sulfate	310	EY	5.00	323	EY BB	mg/L		170	80 - 120

Lab Sample ID: 440-263076-A-1 MSD
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13		5.00	18.7		mg/L		113	80 - 120	1	20
Fluoride	ND		5.00	4.53		mg/L		91	80 - 120	0	20
Sulfate	310	EY	5.00	322	EY BB	mg/L		154	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602273/6
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 10:23	1

Lab Sample ID: LCS 440-602273/5
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	24.3		ug/L		97	85 - 115

Lab Sample ID: MRL 440-602273/4
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	ND		ug/L		89	75 - 125

Lab Sample ID: MRL 440-602273/8
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.80	J,DX	ug/L		95	75 - 125

Lab Sample ID: 440-263043-1 MS
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Outfall009_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	24.2		ug/L		97	80 - 120

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 440-263043-1 MSD
Matrix: Water
Analysis Batch: 602273

Client Sample ID: Outfall009_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	25.0		ug/L		100	80 - 120	3	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,7,8-TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDD	0.00000318	J,DX	0.000050	0.0000010	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000012	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000070	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000073	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDF	0.00000180	J,DX	0.000050	0.00000076	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDD	0.00000587	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000014	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDD	0.0000202	J,DX	0.00010	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDF	0.00000627	J,DX	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDD	0.00000318	J,DX	0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDF	0.00000180	J,DX	0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDD	0.0000101	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,7,8-TCDF	81		24 - 169	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDD	63		25 - 181	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDD	74		32 - 141	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDF	74		26 - 123	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/18/20 08:33	03/21/20 08:20	1
13C-OCDD	50		17 - 157	03/18/20 08:33	03/21/20 08:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/18/20 08:33	03/21/20 08:20	1

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000234		ug/L		117	67 - 158
2,3,7,8-TCDF	0.000200	0.000262		ug/L		131	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00111		ug/L		111	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00123		ug/L		123	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00114		ug/L		114	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00112		ug/L		112	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00102		ug/L		102	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00110		ug/L		110	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00119		ug/L		119	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00120	MB	ug/L		120	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00117		ug/L		117	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000997	MB	ug/L		100	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00108		ug/L		108	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00102		ug/L		102	78 - 138
OCDD	0.00200	0.00201	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00231	MB	ug/L		115	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	75		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	74		13 - 328
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	79		19 - 202

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,6,7,8-HxCDF	*71*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*69*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*75*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*63*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*68*		*20 - 186*
13C-OCDD	*52*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*81*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-600756/1-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/17/20 09:40	03/18/20 01:47	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 01:47	1
Boron	ND		0.050	0.025	mg/L		03/17/20 09:40	03/18/20 01:47	1
Beryllium	ND		2.0	1.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Chromium	ND		5.0	2.5	ug/L		03/17/20 09:40	03/18/20 01:47	1
Iron	ND		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 01:47	1
Nickel	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Vanadium	ND		10	5.0	ug/L		03/17/20 09:40	03/18/20 01:47	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 01:47	1

Lab Sample ID: LCS 440-600756/2-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	497		ug/L		99	85 - 115
Arsenic	500	477		ug/L		95	85 - 115
Boron	0.500	0.473		mg/L		95	85 - 115
Beryllium	500	481		ug/L		96	85 - 115
Chromium	500	496		ug/L		99	85 - 115
Iron	0.500	0.471		mg/L		94	85 - 115
Nickel	500	495		ug/L		99	85 - 115
Vanadium	500	490		ug/L		98	85 - 115
Zinc	500	491		ug/L		98	85 - 115

Lab Sample ID: 440-262764-A-1-C MS
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	230		500	824		ug/L		118	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-262764-A-1-C MS
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	455		ug/L		91	70 - 130
Boron	0.033	J,DX	0.500	0.479		mg/L		89	70 - 130
Beryllium	ND		500	458		ug/L		92	70 - 130
Chromium	ND		500	475		ug/L		95	70 - 130
Iron	0.39		0.500	0.897		mg/L		101	70 - 130
Nickel	ND		500	469		ug/L		94	70 - 130
Vanadium	ND		500	470		ug/L		94	70 - 130
Zinc	190		500	655		ug/L		93	70 - 130

Lab Sample ID: 440-262764-A-1-D MSD
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	230		500	878		ug/L		129	70 - 130	6	20
Arsenic	ND		500	466		ug/L		93	70 - 130	2	20
Boron	0.033	J,DX	0.500	0.496		mg/L		93	70 - 130	3	20
Beryllium	ND		500	474		ug/L		95	70 - 130	3	20
Chromium	ND		500	484		ug/L		97	70 - 130	2	20
Iron	0.39		0.500	0.917		mg/L		105	70 - 130	2	20
Nickel	ND		500	484		ug/L		97	70 - 130	3	20
Vanadium	ND		500	486		ug/L		97	70 - 130	3	20
Zinc	190		500	678		ug/L		98	70 - 130	3	20

Lab Sample ID: MB 440-600737/1-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600775

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/16/20 16:13	03/17/20 20:54	1
Arsenic	ND		10	8.9	ug/L		03/16/20 16:13	03/17/20 20:54	1
Boron	ND		0.050	0.025	mg/L		03/16/20 16:13	03/17/20 20:54	1
Beryllium	ND		2.0	1.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Chromium	ND		5.0	2.5	ug/L		03/16/20 16:13	03/17/20 20:54	1
Iron	ND		0.10	0.050	mg/L		03/16/20 16:13	03/17/20 20:54	1
Nickel	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Vanadium	ND		10	5.0	ug/L		03/16/20 16:13	03/17/20 20:54	1
Zinc	ND		20	12	ug/L		03/16/20 16:13	03/17/20 20:54	1

Lab Sample ID: LCS 440-600737/2-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	477		ug/L		95	85 - 115
Arsenic	500	465		ug/L		93	85 - 115
Boron	0.500	0.464		mg/L		93	85 - 115
Beryllium	500	471		ug/L		94	85 - 115
Chromium	500	482		ug/L		96	85 - 115

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-600737/2-D
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.500	0.466		mg/L		93	85 - 115
Nickel	500	482		ug/L		96	85 - 115
Vanadium	500	479		ug/L		96	85 - 115
Zinc	500	475		ug/L		95	85 - 115

Lab Sample ID: 440-263045-D-3-E MS
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		500	536		ug/L		107	70 - 130
Arsenic	ND		500	490		ug/L		98	70 - 130
Boron	0.074		0.500	0.564		mg/L		98	70 - 130
Beryllium	ND		500	489		ug/L		98	70 - 130
Chromium	ND		500	491		ug/L		98	70 - 130
Iron	ND		0.500	0.512		mg/L		102	70 - 130
Nickel	ND		500	480		ug/L		96	70 - 130
Vanadium	ND		500	500		ug/L		100	70 - 130
Zinc	ND		500	476		ug/L		95	70 - 130

Lab Sample ID: 440-263045-D-3-F MSD
Matrix: Water
Analysis Batch: 601061

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 600775

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		500	520		ug/L		104	70 - 130	3	20
Arsenic	ND		500	480		ug/L		96	70 - 130	2	20
Boron	0.074		0.500	0.550		mg/L		95	70 - 130	3	20
Beryllium	ND		500	474		ug/L		95	70 - 130	3	20
Chromium	ND		500	476		ug/L		95	70 - 130	3	20
Iron	ND		0.500	0.511		mg/L		102	70 - 130	0	20
Nickel	ND		500	464		ug/L		93	70 - 130	3	20
Vanadium	ND		500	484		ug/L		97	70 - 130	3	20
Zinc	ND		500	463		ug/L		93	70 - 130	3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-600753/1-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 17:22	1
Copper	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Lead	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Antimony	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Thallium	ND		1.0	0.20	ug/L		03/17/20 10:00	03/17/20 17:22	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-600753/2-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	79.5		ug/L		99	85 - 115
Cadmium	80.0	78.2		ug/L		98	85 - 115
Copper	80.0	78.1		ug/L		98	85 - 115
Lead	80.0	71.5		ug/L		89	85 - 115
Antimony	80.0	79.0		ug/L		99	85 - 115
Selenium	80.0	75.7		ug/L		95	85 - 115
Thallium	80.0	77.6		ug/L		97	85 - 115

Lab Sample ID: 440-263028-A-6-C MS
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	79.3		ug/L		99	70 - 130
Cadmium	ND		80.0	79.0		ug/L		99	70 - 130
Copper	19		80.0	101		ug/L		102	70 - 130
Lead	0.69	J,DX	80.0	75.1		ug/L		93	70 - 130
Antimony	0.51	J,DX	80.0	76.8		ug/L		95	70 - 130
Selenium	0.65	J,DX	80.0	74.4		ug/L		92	70 - 130
Thallium	ND		80.0	55.0	LN	ug/L		69	70 - 130

Lab Sample ID: 440-263028-A-6-D MSD
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	80.6		ug/L		101	70 - 130	2	20
Cadmium	ND		80.0	80.7		ug/L		101	70 - 130	2	20
Copper	19		80.0	99.4		ug/L		100	70 - 130	1	20
Lead	0.69	J,DX	80.0	76.9		ug/L		95	70 - 130	2	20
Antimony	0.51	J,DX	80.0	77.9		ug/L		97	70 - 130	1	20
Selenium	0.65	J,DX	80.0	75.6		ug/L		94	70 - 130	2	20
Thallium	ND		80.0	49.0	LN	ug/L		61	70 - 130	12	20

Lab Sample ID: MB 440-600737/1-C
Matrix: Water
Analysis Batch: 600825

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:55	1
Cadmium	ND		1.0	0.25	ug/L		03/16/20 16:07	03/16/20 20:55	1
Copper	ND		2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:55	1
Lead	ND		1.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:55	1
Antimony	ND		2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:55	1
Selenium	ND		2.0	0.50	ug/L		03/16/20 16:07	03/16/20 20:55	1
Thallium	ND		1.0	0.20	ug/L		03/16/20 16:07	03/16/20 20:55	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-600737/2-C
Matrix: Water
Analysis Batch: 600825

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	78.5		ug/L		98	85 - 115
Cadmium	80.0	77.9		ug/L		97	85 - 115
Copper	80.0	78.3		ug/L		98	85 - 115
Lead	80.0	78.4		ug/L		98	85 - 115
Antimony	80.0	79.8		ug/L		100	85 - 115
Selenium	80.0	79.0		ug/L		99	85 - 115
Thallium	80.0	75.8		ug/L		95	85 - 115

Lab Sample ID: 440-263043-2 MS
Matrix: Water
Analysis Batch: 600825

Client Sample ID: Outfall009_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600772

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	79.4		ug/L		99	70 - 130
Cadmium	ND		80.0	78.2		ug/L		98	70 - 130
Copper	3.2		80.0	83.0		ug/L		100	70 - 130
Lead	0.66	J,DX	80.0	79.6		ug/L		99	70 - 130
Antimony	0.64	J,DX	80.0	80.4		ug/L		100	70 - 130
Selenium	0.69	J,DX	80.0	80.0		ug/L		99	70 - 130
Thallium	ND		80.0	76.1		ug/L		95	70 - 130

Lab Sample ID: 440-263043-2 MSD
Matrix: Water
Analysis Batch: 600825

Client Sample ID: Outfall009_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600772

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	77.2		ug/L		96	70 - 130	3	20
Cadmium	ND		80.0	76.5		ug/L		96	70 - 130	2	20
Copper	3.2		80.0	81.1		ug/L		97	70 - 130	2	20
Lead	0.66	J,DX	80.0	77.8		ug/L		96	70 - 130	2	20
Antimony	0.64	J,DX	80.0	78.8		ug/L		98	70 - 130	2	20
Selenium	0.69	J,DX	80.0	76.1		ug/L		94	70 - 130	5	20
Thallium	ND		80.0	74.6		ug/L		93	70 - 130	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602552/1-A
Matrix: Water
Analysis Batch: 602716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/26/20 13:34	03/27/20 09:46	1

Lab Sample ID: LCS 440-602552/2-A
Matrix: Water
Analysis Batch: 602716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.24		ug/L		106	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263043-1 MS
Matrix: Water
Analysis Batch: 602716

Client Sample ID: Outfall009_20200314_Comp
Prep Type: Total/NA
Prep Batch: 602552

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.16		ug/L		104	75 - 125

Lab Sample ID: 440-263043-1 MSD
Matrix: Water
Analysis Batch: 602716

Client Sample ID: Outfall009_20200314_Comp
Prep Type: Total/NA
Prep Batch: 602552

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.89		ug/L		97	75 - 125	7	20

Lab Sample ID: MB 440-600735/1-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601070

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:16	03/18/20 17:54	1

Lab Sample ID: LCS 440-600735/2-B
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.89		ug/L		97	85 - 115

Lab Sample ID: 440-263045-A-3-E MS
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.86		ug/L		96	75 - 125

Lab Sample ID: 440-263045-A-3-F MSD
Matrix: Water
Analysis Batch: 601310

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 601070

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.87		ug/L		97	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-601166/1
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/18/20 10:01	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-601166/2
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	962		mg/L		96	90 - 110		

Lab Sample ID: 440-262945-A-1 DU
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2500			2430		mg/L				3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-601699/1
Matrix: Water
Analysis Batch: 601699

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/20/20 14:49	1

Lab Sample ID: LCS 440-601699/2
Matrix: Water
Analysis Batch: 601699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	1010		mg/L		101	85 - 115		

Lab Sample ID: 440-263158-A-1 DU
Matrix: Water
Analysis Batch: 601699

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	270			270		mg/L				0.9	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-601903/1-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:33	1

Lab Sample ID: LCS 440-601903/2-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601903

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	98.0		ug/L		98	80 - 120		

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-263045-F-1-A MS
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND		100	98.8		ug/L		99	75 - 125		

Lab Sample ID: 440-263045-F-1-B MSD
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	97.8		ug/L		98	75 - 125	1	20

GC/MS Semi VOA

Prep Batch: 601122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	625	
MB 440-601122/1-A	Method Blank	Total/NA	Water	625	
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625	
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625	
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625	

Analysis Batch: 601579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	625.1	601122
MB 440-601122/1-A	Method Blank	Total/NA	Water	625.1	601122
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625.1	601122
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625.1	601122
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625.1	601122
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625.1	601122

GC Semi VOA

Prep Batch: 601089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	608	
MB 440-601089/1-A	Method Blank	Total/NA	Water	608	
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-601089/5-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-601089/6-A	Lab Control Sample Dup	Total/NA	Water	608	
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608	
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608	

Analysis Batch: 601220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608.3	601089
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	601089
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608.3	601089

Analysis Batch: 601412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/5-A	Lab Control Sample	Total/NA	Water	608.3	601089
LCSD 440-601089/6-A	Lab Control Sample Dup	Total/NA	Water	608.3	601089

HPLC/IC

Analysis Batch: 600528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	300.0	
MB 440-600528/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600528/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263076-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

HPLC/IC

Analysis Batch: 600529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	300.0	
MB 440-600529/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600529/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263076-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 600565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	218.6	
MB 440-600565/6	Method Blank	Total/NA	Water	218.6	
LCS 440-600565/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-600565/4	Lab Control Sample	Total/NA	Water	218.6	
440-263044-D-1 MS	Matrix Spike	Total/NA	Water	218.6	
440-263044-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 601658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 602273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	314.0	
MB 440-602273/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602273/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602273/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602273/8	Lab Control Sample	Total/NA	Water	314.0	
440-263043-1 MS	Outfall009_20200314_Comp	Total/NA	Water	314.0	
440-263043-1 MSD	Outfall009_20200314_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 365527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	1613B	
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 366401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	1613B	365527
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	365527
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	365527

Metals

Analysis Batch: 600047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total Recoverable	Water	SM 2340B	

Analysis Batch: 600609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	SM 2340B	

Metals

Filtration Batch: 600735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600735/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 600737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600737/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-600737/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600737/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263043-2 MS	Outfall009_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263043-2 MSD	Outfall009_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 600753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263028-A-6-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263028-A-6-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 600756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-262764-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-262764-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 600772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-C	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-C	Lab Control Sample	Dissolved	Water	200.2	600737
440-263043-2 MS	Outfall009_20200314_Comp_F	Dissolved	Water	200.2	600737
440-263043-2 MSD	Outfall009_20200314_Comp_F	Dissolved	Water	200.2	600737

Prep Batch: 600775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	200.2	600737
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.2	600737
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.2	600737
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	200.2	600737
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	600737

Metals

Analysis Batch: 600825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	200.8	600772
MB 440-600737/1-C	Method Blank	Dissolved	Water	200.8	600772
LCS 440-600737/2-C	Lab Control Sample	Dissolved	Water	200.8	600772
440-263043-2 MS	Outfall009_20200314_Comp_F	Dissolved	Water	200.8	600772
440-263043-2 MSD	Outfall009_20200314_Comp_F	Dissolved	Water	200.8	600772

Analysis Batch: 601042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total Recoverable	Water	200.8	600753
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.8	600753
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.8	600753
440-263028-A-6-C MS	Matrix Spike	Total Recoverable	Water	200.8	600753
440-263028-A-6-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	600753

Analysis Batch: 601061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600775
MB 440-600737/1-D	Method Blank	Dissolved	Water	200.7 Rev 4.4	600775
LCS 440-600737/2-D	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-D-3-E MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	600775
440-263045-D-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	600775

Prep Batch: 601070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	245.1	600735
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	600735
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	600735
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	600735
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	600735

Analysis Batch: 601118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600756
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	600756
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	600756
440-262764-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	600756
440-262764-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	600756

Analysis Batch: 601310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-2	Outfall009_20200314_Comp_F	Dissolved	Water	245.1	601070
MB 440-600735/1-B	Method Blank	Dissolved	Water	245.1	601070
LCS 440-600735/2-B	Lab Control Sample	Dissolved	Water	245.1	601070
440-263045-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	601070
440-263045-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	601070

Prep Batch: 602552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	245.1	
MB 440-602552/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602552/2-A	Lab Control Sample	Total/NA	Water	245.1	

Metals (Continued)

Prep Batch: 602552 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1 MS	Outfall009_20200314_Comp	Total/NA	Water	245.1	
440-263043-1 MSD	Outfall009_20200314_Comp	Total/NA	Water	245.1	

Analysis Batch: 602716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	245.1	602552
MB 440-602552/1-A	Method Blank	Total/NA	Water	245.1	602552
LCS 440-602552/2-A	Lab Control Sample	Total/NA	Water	245.1	602552
440-263043-1 MS	Outfall009_20200314_Comp	Total/NA	Water	245.1	602552
440-263043-1 MSD	Outfall009_20200314_Comp	Total/NA	Water	245.1	602552

General Chemistry

Analysis Batch: 601166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	SM 2540C	
MB 440-601166/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-601166/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-262945-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 601699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	SM 2540D	
MB 440-601699/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-601699/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263158-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 601903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	Distill/CN	
MB 440-601903/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 601977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903
MB 440-601903/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	601903
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	601903

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LR	LCS/LCSD recovery below method control limits

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263043-1
Project/Site: Annual Outfall 009 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
625.1	625	Water	1,2-Diphenylhydrazine(as Azobenzene)
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	04-07-20
Pennsylvania	NELAP	68-01272	03-30-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 0C16022

Project: 440-263043-1

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 4/01/2020
Received Date: 3/16/2020
Turnaround Time: Normal
Phones: (949) 261-1022
Fax: (949) 260-3297
P.O. #:
Billing Code:

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 3/16/20 with the Chain-of-Custody document. The samples were received in good condition, at 4.5 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall009_20200314_Comp (440-263043-1) Sampled: 03/14/20 10:15 by Client
0C16022-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M **Batch ID:** W0C0867 **Instr:** GCMS13 **Prepared:** 03/16/20 09:44 **Analyst:** EFC							
Chlorpyrifos	ND	6.9	10	ng/l	1	03/25/20	
Diazinon	ND	5.2	10	ng/l	1	03/25/20	
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*87%*		*76-128*	*Conc: 433*		*03/25/20*	
Triphenyl phosphate	*168%*		*40-163*	*Conc: 838*		*03/25/20*	*S-GC*

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

Quality Control Results

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Blank (W0C0867-BLK1)					**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*515*			*ng/l*	*500*		*103*	*76-128*			
Triphenyl phosphate	*711*			*ng/l*	*500*		*142*	*40-163*			
Blank (W0C0867-BLK2)					**Prepared: 03/16/20**	**Analyzed: 03/31/20**					
Chlorpyrifos	ND	6.9	10	ng/l							QC-2
Diazinon	ND	5.2	10	ng/l							QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*573*			*ng/l*	*500*		*115*	*76-128*			*QC-2*
Triphenyl phosphate	*699*			*ng/l*	*500*		*140*	*40-163*			*QC-2*
LCS (W0C0867-BS1)					**Prepared: 03/16/20**	**Analyzed: 03/25/20**					
Chlorpyrifos	68.4	6.9	10	ng/l	50.0		137	37-169			
Diazinon	48.5	5.2	10	ng/l	50.0		97	43-152			
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*425*			*ng/l*	*500*		*85*	*76-128*			
Triphenyl phosphate	*736*			*ng/l*	*500*		*147*	*40-163*			
LCS (W0C0867-BS2)					**Prepared: 03/16/20**	**Analyzed: 03/31/20**					
Chlorpyrifos	108	6.9	10	ng/l	50.0		215	37-169			QC-2
Diazinon	66.7	5.2	10	ng/l	50.0		133	43-152			QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*503*			*ng/l*	*500*		*101*	*76-128*			*QC-2*
Triphenyl phosphate	*740*			*ng/l*	*500*		*148*	*40-163*			*QC-2*
Matrix Spike (W0C0867-MS1)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	3410	340	500	ng/l	2500	*ND*	136	37-168			M-02
Diazinon	2260	260	500	ng/l	2500	*ND*	90	36-153			M-02
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*21400*			*ng/l*	*25000*		*86*	*76-128*			*M-02*
Triphenyl phosphate	*37500*			*ng/l*	*25000*		*150*	*40-163*			*M-02*
Matrix Spike (W0C0867-MS2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Chlorpyrifos	5420	340	500	ng/l	2500	*ND*	217	37-168			M-02, QC-2
Diazinon	3270	260	500	ng/l	2500	*ND*	131	36-153			M-02, QC-2
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*23600*			*ng/l*	*25000*		*94*	*76-128*			*M-02, QC-2*
Triphenyl phosphate	*36100*			*ng/l*	*25000*		*144*	*40-163*			*M-02, QC-2*
Matrix Spike Dup (W0C0867-MSD1)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 03/24/20**					
Chlorpyrifos	2970	340	500	ng/l	2500	*ND*	119	37-168	14	30	M-02
Diazinon	2060	260	500	ng/l	2500	*ND*	82	36-153	9	30	M-02
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*23900*			*ng/l*	*25000*		*96*	*76-128*			*M-02*
Triphenyl phosphate	*32900*			*ng/l*	*25000*		*132*	*40-163*			*M-02*
Matrix Spike Dup (W0C0867-MSD2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Chlorpyrifos	4790	340	500	ng/l	2500	*ND*	191	37-168	12	30	M-02, QC-2
Diazinon	3000	260	500	ng/l	2500	*ND*	120	36-153	9	30	M-02, QC-2

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Quality Control Results

(Continued)

Semivolatile Organics - Low Level by Tandem GC/MS/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Matrix Spike Dup (W0C0867-MSD2)	**Source: 0C11071-02**				**Prepared: 03/16/20**	**Analyzed: 04/01/20**					
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*26000*			*ng/l*	*25000*		*104*	*76-128*			*M-02, QC-2*
Triphenyl phosphate	*33300*			*ng/l*	*25000*		*133*	*40-163*			*M-02, QC-2*

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Notes and Definitions

Item	Definition
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect . The data was accepted based on valid recovery of the remaining surrogate.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina M. Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322005344
Customer ID: TEST72
Customer PO:
Project ID:

Attn: Christian M Bondoc
Eurofins Calscience, LLC
17461 Derian Avenue
Suite 100
Irvine, CA 92614

Phone: (949) 261-1022
Fax: (949) 260-3297
Received: 03/18/2020
Analyzed: 03/28/2020

Proj: 440-263043-1 | 440-154043.1 | 44009879 | Outfall 009 Comp

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)	ASBESTOS					
						Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)		
Outfall009_20200314_Comp (440-263043-1) 322005344-0001	3/19/2020 04:20 PM	5	1288	0.2620	≥ 0.5 µm	Chrysotile	4	0.98	3.90	1.10 - 10.00
					> 10 µm only	None Detected	ND	0.98	<0.98	0.00 - 3.60

Collection Date/Time: *03/14/2020 10:15 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 03/31/2020 07:35:20

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvinc
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted undcr guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall009_20200314_Comp (440-263043-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.095

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = FAIL % EFFECT = 35.80 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	13-7263-1256	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:15	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	16-2577-7540	**Code:**	CSE0320.095sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 10:15	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall009_20200314_Comp
Sample Age:	76h (2.8 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
19-4744-7175	Cell Density	TST-Welch's t Test	0.9992	100% failed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
19-4744-7175	Cell Density	Control CV	0.03766	<<	0.2	Yes	Passes Criteria
19-4744-7175	Cell Density	Control Resp	1:28E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.232E+6	1.365E+6	1.706E+4	4.826E+4	3.77%	0.00%
100		8	8.226E+5	7.550E+5	8.903E+5	7.340E+5	9.210E+5	2.861E+4	8.092E+4	9.84%	35.80%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		8.060E+5	9.210E+5	9.140E+5	7.340E+5	7.760E+5	7.380E+5	7.780E+5	9.140E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	19-4744-7175	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:33	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	13-7263-1256	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:15	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	16-2577-7540	**Code:**	CSE0320.095sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 10:15	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall009_20200314_Comp
Sample Age:	76h (2.8 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% failed cell density

TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100	-4.416	0.7027	9	CDF	0.9992	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.03766	<<	0.2	Yes	Passes Criteria
Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8.418E+11	8.418E+11	1	189.7	<1.0E-37	Significant Effect
Error	6.214E+10	4.438E+09	14			
Total	9.039E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	5.229	8.862	0.0383	Equal Variances
	Mod Levene Equality of Variance Test	1.695	8.862	0.2139	Equal Variances
	Variance Ratio F Test	2.811	8.885	0.1961	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.762	3.878	0.0472	Normal Distribution
	D'Agostino Skewness Test	0.6849	2.576	0.4934	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2471	0.1119	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8952	0.8408	0.0674	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.283E+6	1.232E+6	1.365E+6	1.706E+4	3.77%	0.00%
100		8	8.226E+5	7.550E+5	8.903E+5	7.920E+5	7.340E+5	9.210E+5	2.861E+4	9.84%	35.80%

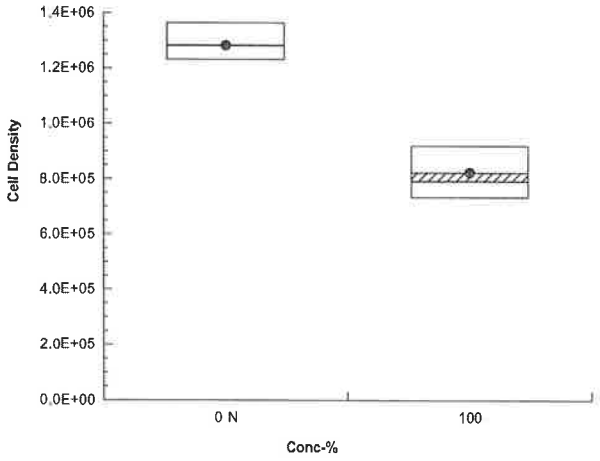
Cell Density Detail

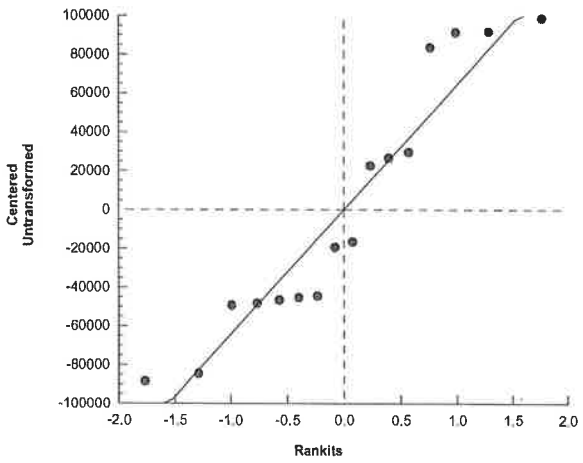
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		8.060E+5	9.210E+5	9.140E+5	7.340E+5	7.760E+5	7.380E+5	7.780E+5	9.140E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	19-4744-7175	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:33	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	13-7263-1256	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:02	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:15	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**

Sample ID:	16-2577-7540	**Code:**	CSE0320.095sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 10:15	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall009_20200314_Comp
Sample Age:	76h (2.8 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
100		1	33			33	33	0	0	0.0%	0
Overall		2	43	-84.06	170.1	33	53	10	14.14	32.89%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	448	443.3	452.7	443	452	1.703	3.808	0.85%	0
100		5	239.4	231.5	247.3	232	245	2.839	6.348	2.65%	0
Overall		10	343.7	265	422.4	232	452	34.8	110.1	32.02%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
100		1	40			40	40	0	0	0.0%	0
Overall		2	60	-194.1	314.1	40	80	20	28.28	47.14%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.734	8.186	7.8	8.2	0.08124	0.1817	2.28%	0
100		5	7.76	7.448	8.072	7.5	8	0.1122	0.251	3.24%	0
Overall		10	7.86	7.694	8.026	7.5	8.2	0.07333	0.2319	2.95%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
100		5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
Overall		10	24.64	24.37	24.91	24	25	0.1204	0.3806	1.55%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
100				33					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
100				243					
0	N	2		445					
100				244					
0	N	3		450					
100				245					
0	N	4		452					
100				232					
0	N	5		450					
100				233					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
100				40					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
100				8					
0	N	2		7.8					
100				7.8					
0	N	3		8.2					
100				8					
0	N	4		7.8					
100				7.5					
0	N	5		7.9					
100				7.5					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24.9					
100				24.9					
0	N	3		25					
100				25					
0	N	4		24.8					
100				24.8					
0	N	5		24.5					
100				24.5					

Temp. deg. C .095 = 2.8

Chlorine (mg/L) = <0.1

NH3 (mg/L) = 0.3

1 of 2

Page 2 of 2 2 RH

Test America

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [003-007, 009, 010]
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	Cl-, F-, SO4, NO3+NO2-N, Perchlorate (E300) (R/A)	TDS (SM2540C/E160.1) (R)	TSS (160.2 (SM2540D)) (A)	Total Dissolved Metals: (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1) (R)	[illegible] (R)	Cyanide (SM4500-CN-E / E335.2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Total Recoverable Metals: Mercury (E245.1) (R)	Total Dissolved Metals: Mercury (E245.1) (R)				Comments
Outfall 009	Outfall009_20200314_Comp	3/14/2020 1015	WM	500 mL Poly	1	HNO_3	85	No	X										X					
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	500 mL Poly	2	None	135	No			X													48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	155	No				X												
			WM	1 L Poly	1	None	185	No					X											
			WM	500 mL Poly	1	NaOH	220	No									X							
			WM	2.5 Gal Cube	1	None	225	No							X									Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No																
			WM	1 Gal Cube	6	None	235	No																
			WM	1 L Glass Amber	2	None	250	No										X						*
	Outfall009_20200314_Comp_F	3/14/2020 1015	WM	1 L Poly	1	None	195	No						X										Filter and preserve w/in 24hrs of receipt at lab.
			WM	borosilicate vials	1	None	320	No												X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury
	Outfall009_20200314_Comp_Extra	3/14/2020 1015	WM	1 L Glass Amber	2	None	110	No		H														Hold
			WM	500 mL Poly	2	None	135	No			H													Hold
			WM	1 L Glass Amber	2	None	250	No										H						Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn	03/14/2020	H&A	[signature]	3-14-2020 1515
[signature]	3-16-2020 1110	[illegible]	[signature]	03/16/2020; 11:16 AM

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

*1 gal chron tox samples delivered to ABC Directly by H&A (M. Dominick)

Rainy Season 2019-2020
Version 2

Test America

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [003-007, 009, 010]
Outfall 009
Comp

Project Manager Katherine Miller
520 289 8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	Cl-, F-, SO4, NO3+NO2-N, Perchlorate (E300) (R/A)	TDS (SM2540C/E160 1) (R)	TSS (160 2 (SM2540D)) (A)	Total Dissolved Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	[illegible] (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Total Recoverable Metals Mercury (E245 1) (R)	Total Dissolved Metals Mercury (E245 1) (R)				Comments
Outfall 009	Outfall009_20200314_Comp	3/14/2020 1015	WM	500 mL Poly	1	HNO_3	85	No	X										X					
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	500 mL Poly	2	None	135	No			X													48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	155	No				X												
			WM	1 L Poly	1	None	185	No					X											
			WM	500 mL Poly	1	NaOH	220	No									X							
			WM	2.5 Gal Cube	1	None	225	No							X									Unfiltered and unpreserved analysis, Separate RAD onto another workorder
			WM	1 L Glass Amber	1	None	230	No																Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	6	None	235	No																[illegible] *
			WM	1 L Glass Amber	2	None	250	No										X						
	Outfall009_20200314_Comp_F	3/14/2020 1015	WM	1 L Poly	1	None	195	No						X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No												X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury
	Outfall009_20200314_Comp_Extra	3/14/2020 1015	WM	1 L Glass Amber	2	None	110	No		H														Hold
			WM	500 mL Poly	2	None	135	No			H													Hold
			WM	1 L Glass Amber	2	None	250	No										H						Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	H&A	EC-IRV	3-14-20 15:15
[signature]	3-14-20 17:30	EC-IRV	[signature]	3/14/20 1730 EC-IRV

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

*1 gal chron tox samples delivered to ABC Directly by H&A (M. Dominick)

1.7/1.7, 2.0/2.0, 0.8/0.8, 0.9/0.9

IR 89

440-263043 Chain of Custody

Rainy Season 2019-2020
Version 2

CHAIN OF CUSTODY FORM

| | | |

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153978.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263043-1
Address: 880 Riverside Parkway,	Due Date Requested: 3/26/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall009_20200314_Comp (440-263043-1)	3/14/20	10:15 Pacific		Water			X	1	See QAS, Boeing_w/u to zero; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Teresa Ortiz	3.16.20 1700	ECI IRV		3/17/20 920	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
☐ Yes ☐ No	Seals	1.8/2.2 , 0.9°C/1.3°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263043-1

Login Number: 263043
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263043-1

Login Number: 263043
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/17/20 01:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 1.8 corr 2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263043-1	Outfall009_20200314_Comp	56	58	51	54	63	58	52	63
MB 320-365527/1-A	Method Blank	73	81	63	67	74	74	66	81

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263043-1	Outfall009_20200314_Comp	58	58	60	48	51	53	43
MB 320-365527/1-A	Method Blank	74	71	78	60	64	63	50

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-365527/2-A	Lab Control Sample	68	75	63	64	74	73	64	79

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-365527/2-A	Lab Control Sample	71	69	75	63	64	68	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-263043 Field Sheet

Tracking #: 1540 4107 1999

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+) / - 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Sel

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento
Sample Receiving Notes

Place Field Sheet Label Here

Tracking #: 1540 9107 1841

Job: _____

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: _____

Therm. ID: Au 7 Corr. Factor: (+) / -) 0.1 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263043-2
Client Project/Site: Annual Outfall 009 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/16/2020 4:45:52 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/16/2020 4:45:52 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263043-1	Outfall009_20200314_Comp	Water	03/14/20 10:15	03/14/20 17:30	

Job ID: 440-263043-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263043-2

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.8º C, 0.9º C, 1.7º C and 2.0º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465288

The gross alpha detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass. Analytical results are reported with the MDC achieved.
(440-263045-Q-1-E) and (440-263045-Q-1-J DU).

Method 900.0: Gross Alpha/Beta Prep Batch 160-465288
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200314_Comp (440-263043-1), (LCS 160-465288/2-A), (LCSB 160-465288/3-A), (MB 160-465288/1-A), (440-263045-Q-1-E), (440-263045-Q-1-J DU), (440-263045-Q-1-F MS), (440-263045-Q-1-H MSBT), (440-263045-Q-1-I MSBTD) and (440-263045-Q-1-G MSD)

Method 901.1: Gamma Prep Batch 160-464923
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Job ID: 440-263043-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Pb-211
Bi-214 Ra-226
Outfall009_20200314_Comp (440-263043-1), (LCS 160-464923/2-A), (MB 160-464923/1-A) and (440-263043-M-1-E DU)

Method 903.0: Radium-226 Prep Batch 160-464916
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall009_20200314_Comp (440-263043-1), (LCS 160-464916/1-A), (MB 160-464916/12-A), (440-263045-Q-1-A), (440-263045-L-1-A MS) and (440-263045-L-1-B MSD)

Method 904.0: Radium-228 Prep Batch 160-464919
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall009_20200314_Comp (440-263043-1), (LCS 160-464919/1-A), (MB 160-464919/12-A), (440-263045-Q-1-B), (440-263045-L-1-C MS) and (440-263045-L-1-D MSD)

Method 905: Strontium-90 Prep Batch 160-464947
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall009_20200314_Comp (440-263043-1), (LCS 160-464947/1-A), (MB 160-464947/10-A), (440-263045-Q-1-D), (440-263045-L-1-E MS) and (440-263045-L-1-F MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200314_Comp (440-263043-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall009_20200314_Comp (440-263043-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
(LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Job ID: 440-263043-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
The Tracer recovery (17%) is below the lower QC limit (30%). There are sufficient tracer counts to keep the count uncertainty of the tracer <10% (2 sigma), the resolution is within limit, and the client RL was met.
Outfall009_20200314_Comp (440-263043-1)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall009_20200314_Comp (440-263043-1)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall009_20200314_Comp (440-263043-1).

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall009_20200314_Comp (440-263043-1).

Method PrecSep-21: Radium 226 Prep Batch 160-464916:

The following samples (680-181574-1, 680-181574-2, 160-37616-1, 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS, 440-263045-1MSD and 440-263076-1) were prepared at a reduced aliquot due to yellow discoloration: Outfall009_20200314_Comp (440-263043-1).

Method PrecSep-7: Strontium 90 Prep Batch 160-464947:

The following samples were prepared at a reduced aliquot due to discoloration: Outfall009_20200314_Comp (440-263043-1).Samples 440-263043-1, 440-263044-1, 440-263045-1, 440-263045-1MS and 440-263045-1MSD all have a yellow discoloration. Sample 160-37605-1 has a cloudy appearance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall009_20200314_Comp

Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	**1.83**		0.953	0.975	3.00	1.20	pCi/L	03/23/20 11:56	03/28/20 14:41	1
Gross Beta	**1.71**		0.692	0.713	4.00	0.943	pCi/L	03/23/20 11:56	03/28/20 14:41	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.88	U	7.22	7.23	20.0	12.3	pCi/L	03/19/20 09:11	03/20/20 09:17	1
Potassium-40	-104	U	157	157		216	pCi/L	03/19/20 09:11	03/20/20 09:17	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.116	U	0.175	0.175	1.00	0.299	pCi/L	03/19/20 08:31	04/12/20 23:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:11*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.269	U	0.390	0.391	1.00	0.654	pCi/L	03/19/20 08:56	04/10/20 16:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*
Y Carrier	*71.8*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:24*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.225	U	0.563	0.564	3.00	0.972	pCi/L	03/19/20 12:18	03/30/20 11:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*74.7*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*
Y Carrier	*87.9*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-55.9	U	175	175	500	326	pCi/L	04/05/20 12:18	04/09/20 04:48	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.0507	U	0.436	0.436	1.00	0.613	pCi/L	03/29/20 14:44	04/15/20 07:41	1

Client Sample ID: Outfall009_20200314_Comp
Lab Sample ID: 440-263043-1
Date Collected: 03/14/20 10:15
Matrix: Water
Date Received: 03/14/20 17:30

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	17.0	X	30 - 110	03/29/20 14:44	04/15/20 07:41	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Client Sample ID: Outfall009_20200314_Comp

Date Collected: 03/14/20 10:15
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263043-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.03 g	1.0 g	465288	03/23/20 11:56	RJD	TAL SL
Total/NA	Analysis	900.0		1			466007	03/28/20 14:41	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	464923	03/19/20 09:11	EJQ	TAL SL
Total/NA	Analysis	901.1		1			465043	03/20/20 09:17	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.84 mL	1.0 g	464916	03/19/20 08:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			467460	04/12/20 23:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.84 mL	1.0 g	464919	03/19/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	467453	04/10/20 16:24	KLS	TAL SL
Total/NA	Prep	PrecSep-7			500.44 mL	1.0 g	464947	03/19/20 12:18	RBR	TAL SL
Total/NA	Analysis	905		1			466121	03/30/20 11:35	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.4 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 04:48	JS	TAL SL
Total/NA	Prep	ExtChrom			250.79 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467895	04/15/20 07:41	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465288/1-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465288

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4757	U	0.672	0.674	3.00	1.14	pCi/L	03/23/20 11:56	03/28/20 14:39	1
Gross Beta	0.4257	U	0.488	0.490	4.00	0.790	pCi/L	03/23/20 11:56	03/28/20 14:39	1

Lab Sample ID: LCS 160-465288/2-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			49.6	56.94		8.37	3.00	2.76	pCi/L	115	75 - 125		

Lab Sample ID: LCSB 160-465288/3-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte			Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta			84.6	85.51		9.08	4.00	0.751	pCi/L	101	75 - 125		

Lab Sample ID: 440-263045-Q-1-F MS
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha	1.95	U G	92.5	76.59		12.5	3.00	3.54	pCi/L	81	60 - 140		

Lab Sample ID: 440-263045-Q-1-G MSD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.95	U G	92.4	70.83		11.8	3.00	3.95	pCi/L	75	60 - 140	0.24	1

Lab Sample ID: 440-263045-Q-1-H MSBT
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta	5.19		158	159.2		16.9	4.00	1.82	pCi/L	97	60 - 140		

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263045-Q-1-I MSBTD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	5.19		158	164.1		17.4	4.00	1.98	pCi/L	101	60 - 140	0.14	1

Lab Sample ID: 440-263045-Q-1-J DU
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Gross Alpha	1.95	U G		4.519	G	2.89	3.00	3.88	pCi/L			0.47	1
Gross Beta	5.19			3.726		1.35	4.00	1.66	pCi/L			0.51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-464923/1-A
Matrix: Water
Analysis Batch: 464857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464923

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.012	U	11.7	11.7	20.0	19.7	pCi/L	03/19/20 09:11	03/19/20 10:40	1
Potassium-40	-59.82	U	110	110		177	pCi/L	03/19/20 09:11	03/19/20 10:40	1

Lab Sample ID: LCS 160-464923/2-A
Matrix: Water
Analysis Batch: 464856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464923

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			136000	125800		14500		341	pCi/L	93	90 - 111		
Cesium-137			43800	43420		4350	20.0	103	pCi/L	99	90 - 111		
Cobalt-60			26500	25670		2540		60.2	pCi/L	97	89 - 110		

Lab Sample ID: 440-263043-1 DU
Matrix: Water
Analysis Batch: 464854

Client Sample ID: Outfall009_20200314_Comp
Prep Type: Total/NA
Prep Batch: 464923

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Cesium-137	3.88	U		1.483	U	10.2	20.0	18.1	pCi/L			0.14	1
Potassium-40	-104	U		34.87	U	87.0		151	pCi/L			0.57	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-464916/12-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464916

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02504	U	0.127	0.127	1.00	0.269	pCi/L	03/19/20 08:31	04/12/20 23:12	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.3*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:12*	*1*

Lab Sample ID: LCS 160-464916/1-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464916

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.77		1.46	1.00	0.262	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.4*		*40 - 110*

Lab Sample ID: 440-263045-L-1-A MS
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.130	U	15.1	14.11		1.61	1.00	0.251	pCi/L	92	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Lab Sample ID: 440-263045-L-1-B MSD
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.130	U	15.1	13.74		1.59	1.00	0.292	pCi/L	90	75 - 138	0.11	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*84.6*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-464919/12-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464919

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5658		0.362	0.365	1.00	0.556	pCi/L	03/19/20 08:56	04/10/20 16:25	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	03/19/20 08:56	04/10/20 16:25	1
Y Carrier	86.0		40 - 110	03/19/20 08:56	04/10/20 16:25	1

Lab Sample ID: LCS 160-464919/1-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464919

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			11.9	9.552		1.18	1.00	0.433	pCi/L	80	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.4		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 440-263045-L-1-C MS
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.515	U	11.9	10.11		1.30	1.00	0.636	pCi/L	81	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	84.9		40 - 110
Y Carrier	83.7		40 - 110

Lab Sample ID: 440-263045-L-1-D MSD
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.515	U	11.9	10.52		1.37	1.00	0.710	pCi/L	84	45 - 150	0.15	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	77.4		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04215	U	0.247	0.247	3.00	0.434	pCi/L	03/19/20 12:18	03/30/20 11:36	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	84.7		40 - 110	03/19/20 12:18	03/30/20 11:36	1
Y Carrier	92.0		40 - 110	03/19/20 12:18	03/30/20 11:36	1

Lab Sample ID: LCS 160-464947/1-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464947

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	9.212		1.02	3.00	0.426	pCi/L	117	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	88.5		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-263045-L-1-E MS
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.289	U	15.8	18.64		2.21	3.00	1.05	pCi/L	116	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	76.1		40 - 110
Y Carrier	80.7		40 - 110

Lab Sample ID: 440-263045-L-1-F MSD
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.289	U	15.8	21.87		2.55	3.00	1.12	pCi/L	137	19 - 150	0.68	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	64.4		40 - 110
Y Carrier	84.5		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

Rad

Prep Batch: 464916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	PrecSep-21	
MB 160-464916/12-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-464916/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263045-L-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263045-L-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 464919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	PrecSep_0	
MB 160-464919/12-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-464919/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263045-L-1-C MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-263045-L-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 464923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-464923/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-464923/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263043-1 DU	Outfall009_20200314_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 464947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	PrecSep-7	
MB 160-464947/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-464947/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263045-L-1-E MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263045-L-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 465288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	Evaporation	
MB 160-465288/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465288/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465288/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263045-Q-1-F MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-H MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-I MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-J DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Rad

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263043-1	Outfall009_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.
X	Tracer is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

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Page 2 of 2 2
RH

Test America

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [003-007, 009, 010]
Outfall 009
Comp

Project Manager Katherine Miller
520 289 8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	Cl-, F-, SO4, NO3+NO2-N, Perchlorate (E300) (R/A)	TDS (SM2540C/E160 1) (R)	TSS (160 2 (SM2540D)) (A)	Total Dissolved Metals (E200 7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	[illegible] (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Total Recoverable Metals Mercury (E245 1) (R)	Total Dissolved Metals Mercury (E245 1) (R)				Comments
Outfall 009	Outfall009_20200314_Comp	3/14/2020 1015	WM	500 mL Poly	1	HNO_3	85	No	X										X					
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	500 mL Poly	2	None	135	No			X													48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	155	No				X												
			WM	1 L Poly	1	None	185	No					X											
			WM	500 mL Poly	1	NaOH	220	No									X							
			WM	2.5 Gal Cube	1	None	225	No							X									Unfiltered and unpreserved analysis, Separate RAD onto another workorder
			WM	1 L Glass Amber	1	None	230	No																Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	6	None	235	No																Only [illegible] events of the [illegible] *
			WM	1 L Glass Amber	2	None	250	No										X						
	Outfall009_20200314_Comp_F	3/14/2020 1015	WM	1 L Poly	1	None	195	No						X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No												X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury
	Outfall009_20200314_Comp_Extra	3/14/2020 1015	WM	1 L Glass Amber	2	None	110	No		H														Hold
			WM	500 mL Poly	2	None	135	No			H													Hold
			WM	1 L Glass Amber	2	None	250	No										H						Hold

Legend: R = Routine, A = Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	H&A	EC-IRV	3-14-20 15:15
[signature]	3-14-20 17:30	EC-IRV	[signature]	3/14/20 1730 EC-IRV

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

*1 gal chron tox samples delivered to ABC Directly by H&A (M. Dominick)

1.7/1.7, 2.0/2.0, 0.8/0.8, 0.9/0.9

IR 89

440-263043 Chain of Custody

Rainy Season 2019-2020
Version 2

CHAIN OF CUSTODY FORM

| | | |

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154036.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263043-1
Address: 13715 Rider Trail North,	Due Date Requested: 3/26/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall009_20200314_Comp (440-263043-1)	3/14/20	10:15 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*			***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*		
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2		Special Instructions/QC Requirements:		
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: A. Kennedy	Date/Time: 3/17/2020 1700	Company: EC-IRV	Received by: FE	Date/Time:	Company:
Relinquished by: FE	Date/Time:	Company:	Received by: Michakoninhingi	Date/Time: 3/18/2020 09:50	Company: ETA STL
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks		

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience Irvine

Initiated by: MK Date: 3/18/2020 Time: 09:50 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids. If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 2252	192688461	0.5	
2.	1540 4107 2263	|	0.4	
3.	1540 4107 2274	|	-1.3	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Sample 440-263043-1 was received unpreserved with a pH=7

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/18/2020 16:05

Preservative and lot#: HNO3 000024482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 REV 21, REVISED 12/11/2018

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263043-2

Login Number: 263043
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263043-2

Login Number: 263043
List Number: 3
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/18/20 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample received unpreserved with a pH=7. Sample preserved with HNO3.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 009 Comp

Job ID: 440-263043-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263043-1	Outfall009_20200314_Comp	91.2
440-263045-L-1-A MS	Matrix Spike	84.9
440-263045-L-1-B MSD	Matrix Spike Duplicate	84.6
LCS 160-464916/1-A	Lab Control Sample	98.4
MB 160-464916/12-A	Method Blank	94.3

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263043-1	Outfall009_20200314_Comp	91.2	71.8
440-263045-L-1-C MS	Matrix Spike	84.9	83.7
440-263045-L-1-D MSD	Matrix Spike Duplicate	84.6	77.4
LCS 160-464919/1-A	Lab Control Sample	98.4	84.5
MB 160-464919/12-A	Method Blank	94.3	86.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263043-1	Outfall009_20200314_Comp	74.7	87.9
440-263045-L-1-E MS	Matrix Spike	76.1	80.7
440-263045-L-1-F MSD	Matrix Spike Duplicate	64.4	84.5
LCS 160-464947/1-A	Lab Control Sample	88.5	90.8
MB 160-464947/10-A	Method Blank	84.7	92.0

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263043-1	Outfall009_20200314_Comp	17.0 X
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263043-2
Project/Site: Annual Outfall 009 Comp

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Sacramento
Sample Receiving Notes

440-263043 Field Sheet

Tracking #: 1540 4107 1999

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+) / -) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Sel

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

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Sacramento
Sample Receiving Notes

Place Field Sheet Label Here

Tracking #: 1540 9107 1841

Job: _____

SO / (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: Au 7 Corr. Factor: (+) / -) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263359-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263359-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL009_20200320_GRAB	440-263359-1	Water	3/20/20 10:15	E1664

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-263359-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.

- **TABLE 2 - DATA QUALIFIER REFERENCE**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC[X] reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 1664 a*nd the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

III.1. HOLDING TIMES

The QAPP holding times, as listed below, was met.

- 28 days for Oil and Grease (HEM, Method 1664)

III.2. CALIBRATION

Instrument calibration review is not performed at Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

The method blank had no detections.

III.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits.

III.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

III.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402633591

Analysis Method E1664

Sample Name OUTFALL009_20200320_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/20/2020 10:15:00 AM **Validation Level:** 9

Lab Sample Name: 440-263359-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE		5.3	1.5	mg/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263359-1
Client Project/Site: Routine Outfall 009 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
3/26/2020 11:23:36 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
3/26/2020 11:23:36 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263359-1	Outfall009_20200320_Grab	Water	03/20/20 10:15	03/20/20 13:00	

Job ID: 440-263359-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263359-1

Comments
No additional comments.

Receipt
The samples were received on 3/20/2020 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8º C.

Organic Prep
Methods 1664A, 1664B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602430 and analytical batch 440-602490. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A/B.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Client Sample ID: Outfall009_20200320_Grab
Date Collected: 03/20/20 10:15
Date Received: 03/20/20 13:00

Lab Sample ID: 440-263359-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		03/26/20 05:58	03/26/20 09:09	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Client Sample ID: Outfall009_20200320_Grab
Date Collected: 03/20/20 10:15
Date Received: 03/20/20 13:00

Lab Sample ID: 440-263359-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			945 mL	1000 mL	602430	03/26/20 05:58	L1H	TAL IRV
Total/NA	Analysis	1664A		1			602490	03/26/20 09:09	JC1	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-602430/1-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/26/20 05:58	03/26/20 09:09	1

Lab Sample ID: LCS 440-602430/2-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602430

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	36.3		mg/L		91	78 - 114		

Lab Sample ID: LCSD 440-602430/3-A
Matrix: Water
Analysis Batch: 602490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602430

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	36.4		mg/L		91	78 - 114	0	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

General Chemistry

Prep Batch: 602430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263359-1	Outfall009_20200320_Grab	Total/NA	Water	1664A	
MB 440-602430/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-602430/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-602430/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 602490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263359-1	Outfall009_20200320_Grab	Total/NA	Water	1664A	602430
MB 440-602430/1-A	Method Blank	Total/NA	Water	1664A	602430
LCS 440-602430/2-A	Lab Control Sample	Total/NA	Water	1664A	602430
LCSD 440-602430/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	602430

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-263359-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263359-1
Project/Site: Routine Outfall 009 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America

CHAIN OF CUSTODY FORM

VLJOUVKT

Client Name/Address:	Project:	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [003-007, 009, 010] Outfall 009 Grab		Field Readings: (Include units) Time of Readings: 1015	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055			pH 8.07 pH unit Temp 49.6 °C/°F	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: [signature] Date/Time: 3-20-2020/1015	
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)			

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)										Comments
Outfall 009	Outfall009_20200320_Grab	3/20/2020/1015	WM	1 L Glass Amber	2	HCl	15	No	X										
	Outfall009_20200320_Grab_Extra	3/20/2020/1015	WM	1 L Glass Amber	2	HCl	15	No	H										Hold

440-263359 Chain of Custody

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3 20-20/1055	[illegible]	Elie	3 20 20 1055
Elie	3 20 20 1300	DCS	[signature] EL-IAV	3/20/20 1300

Turn-around time (Check)
24 Hour ____ 72 Hour: ____ 10 Day. X
48 Hour ____ 5 Day: ____ Normal: ____

Sample Integrity: (Check)
Intact. ____ On Ice. ____
Store samples for 6 months

Data Requirements (Check)
No Level IV. ____ All Level IV: X

~~[illegible]~~ 2.9/2 [illegible]

IA 90

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263359-1

Login Number: 263359
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263409-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263409-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Outfall009_20200321_Comp	440-263409-1	N/A	Water	3/21/2020 7:40:00 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263409-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (877 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals TCDD, HpCDD and HpCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. Compound Identification

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. Compound Quantification and Reported Detection Limits

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), an 877 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8-HxCDD and 1,2,3,7,8,9-HxCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402634091

Analysis Method E1613B

Sample Name Outfall009_20200321_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/21/2020 7:40:00 AM **Validation Level:** 9

Lab Sample Name: 440-263409-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000028	0.00011	0.00000079	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000014	0.00011	0.00000077	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000016	0.000057	0.00000033	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000021	0.000057	0.00000046	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000014	0.000057	0.00000043	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	ND	0.000057	0.0000011	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000016	0.000057	0.00000072	ug/L	J,DXq	UJ	*III
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000057	0.0000010	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000057	0.00000075	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.00000099	0.000057	0.00000066	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	ND	0.000057	0.00000067	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000057	0.00000059	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000057	0.00000070	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.00000071	0.000057	0.00000063	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000057	0.00000062	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000035	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.00000056	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000030	0.000057	0.00000033	ug/L	J,DXMB	J	B, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000045	0.000057	0.00000046	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000017	0.000057	0.00000063	ug/L	J,DXq	J	*III, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000016	0.000057	0.00000067	ug/L	J,DXq	J	*III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000057	0.00000059	ug/L	U	U	

Analysis Method	*E1613B*							
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000057	0.00000070	ug/L	U	**U**
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000035	ug/L	U	**U**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.00000056	ug/L	U	**U**

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263409-1
Client Project/Site: Routine Outfall 009 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/15/2020 12:33:15 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/15/2020 12:33:15 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263409-1	Outfall009_20200321_Comp	Water	03/21/20 07:40	03/21/20 13:15	
440-263409-2	Outfall009_20200321_Comp_F	Water	03/21/20 07:40	03/21/20 13:15	

Job ID: 440-263409-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263409-1

Comments
No additional comments.

Receipt
The samples were received on 3/21/2020 1:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 1.5º C, 2.3º C, 2.8º C and 3.4º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall009_20200321_Comp (440-263409-1), (CCV 320-368420/27), (LCS 320-367895/2-A) and (MB 320-367895/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall009_20200321_Comp_F (440-263409-2), Outfall009_20200321_Comp_F (440-263409-2[MS]) and Outfall009_20200321_Comp_F (440-263409-2[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

03/23/20
2.5ml of HNO3
HNO3 Lot # 0000234822

Method 245.1: The initial calibration verification (ICV) result for batch 440-602330 was above the upper control limit. Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall009_20200321_Comp (440-263409-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-367895
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification

Job ID: 440-263409-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

is different from that of the facility issuing the final report.

Client Sample ID: Outfall009_20200321_Comp

Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-1

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.1**		0.50	0.25	mg/L			03/21/20 13:58	1
Nitrate as N	**0.062**	**J,DX**	0.11	0.055	mg/L			03/21/20 13:58	1
Nitrite as N	ND		0.15	0.025	mg/L			03/21/20 13:58	1
Sulfate	**5.3**		0.50	0.25	mg/L			03/21/20 13:58	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.062**	**J,DX**	0.15	0.055	mg/L			03/23/20 15:30	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000011	0.00000056	ug/L		03/26/20 11:50	03/28/20 12:51	1
2,3,7,8-TCDF	ND		0.000011	0.00000035	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,7,8-PeCDD	ND		0.000057	0.00000070	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,7,8-PeCDF	ND		0.000057	0.00000059	ug/L		03/26/20 11:50	03/28/20 12:51	1
2,3,4,7,8-PeCDF	ND		0.000057	0.00000062	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,4,7,8-HxCDD	**0.0000016**	**J,DX q**	0.000057	0.00000072	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,6,7,8-HxCDD	ND		0.000057	0.00000075	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,7,8,9-HxCDD	ND		0.000057	0.00000067	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,4,7,8-HxCDF	ND		0.000057	0.0000011	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,6,7,8-HxCDF	ND		0.000057	0.0000010	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,7,8,9-HxCDF	**0.00000099**	**J,DX q**	0.000057	0.00000066	ug/L		03/26/20 11:50	03/28/20 12:51	1
2,3,4,6,7,8-HxCDF	**0.00000071**	**J,DX**	0.000057	0.00000063	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,4,6,7,8-HpCDD	**0.0000021**	**J,DX MB**	0.000057	0.00000046	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,4,6,7,8-HpCDF	**0.0000016**	**J,DX MB**	0.000057	0.00000033	ug/L		03/26/20 11:50	03/28/20 12:51	1
1,2,3,4,7,8,9-HpCDF	**0.0000014**	**J,DX**	0.000057	0.00000043	ug/L		03/26/20 11:50	03/28/20 12:51	1
OCDD	**0.000014**	**J,DX MB**	0.00011	0.00000077	ug/L		03/26/20 11:50	03/28/20 12:51	1
OCDF	**0.0000028**	**J,DX MB q**	0.00011	0.00000079	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total TCDD	ND		0.000011	0.00000056	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total TCDF	ND		0.000011	0.00000035	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total PeCDD	ND		0.000057	0.00000070	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total PeCDF	ND		0.000057	0.00000059	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total HxCDD	**0.0000016**	**J,DX q**	0.000057	0.00000067	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total HxCDF	**0.0000017**	**J,DX q**	0.000057	0.00000063	ug/L		03/26/20 11:50	03/28/20 12:51	1

Client Sample ID: Outfall009_20200321_Comp

Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	**0.0000045**	**J,DX MB**	0.000057	0.00000046	ug/L		03/26/20 11:50	03/28/20 12:51	1
Total HpCDF	**0.0000030**	**J,DX MB**	0.000057	0.00000033	ug/L		03/26/20 11:50	03/28/20 12:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,4,7,8-HxCDD	*62*		*32 - 141*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,6,7,8-HxCDD	*63*		*28 - 130*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,4,7,8-HxCDF	*61*		*26 - 152*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,6,7,8-HxCDF	*58*		*26 - 123*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,7,8,9-HxCDF	*59*		*29 - 147*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-2,3,4,6,7,8-HxCDF	*60*		*28 - 136*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*75*		*23 - 140*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*74*		*28 - 143*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*78*		*26 - 138*	*03/26/20 11:50*	*03/28/20 12:51*	*1*
13C-OCDD	*61*		*17 - 157*	*03/26/20 11:50*	*03/28/20 12:51*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*78*		*35 - 197*	*03/26/20 11:50*	*03/28/20 12:51*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**8.3**	**J,DX**	10	5.0	ug/L		03/24/20 12:17	03/24/20 19:49	1
Zinc	ND		20	12	ug/L		03/24/20 12:17	03/24/20 19:49	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:15	1
Cadmium	ND		1.0	0.25	ug/L		03/24/20 12:13	03/24/20 18:15	1
Copper	**4.3**		2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:15	1
Lead	ND		1.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:15	1
Antimony	**0.84**	**J,DX**	2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:15	1
Selenium	ND		2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:15	1
Thallium	ND		1.0	0.20	ug/L		03/24/20 12:13	03/24/20 18:15	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:38	03/25/20 03:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**90**		10	5.0	mg/L			03/24/20 15:55	1
Total Suspended Solids	ND		1.0	0.50	mg/L			03/26/20 15:04	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1

Client Sample ID: Outfall009_20200321_Comp_F
Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-2
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/23/20 12:44	03/23/20 15:11	1
Zinc	ND		20	12	ug/L		03/23/20 12:44	03/23/20 15:11	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:18	1
Cadmium	ND		1.0	0.25	ug/L		03/23/20 12:51	03/23/20 23:18	1
Copper	**4.3**		2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:18	1
Lead	ND		1.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:18	1
Antimony	**0.71**	**J,DX**	2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:18	1
Selenium	ND		2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:18	1
Thallium	ND		1.0	0.20	ug/L		03/23/20 12:51	03/23/20 23:18	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/23/20 12:52	03/23/20 19:09	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

Client Sample ID: Outfall009_20200321_Comp

Lab Sample ID: 440-263409-1
Matrix: Water
Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			601771	03/21/20 13:58	NTN	TAL IRV
Total/NA	Analysis	300.0		1			601772	03/21/20 13:58	NTN	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601973	03/23/20 15:30	NN	TAL IRV
Total/NA	Prep	1613B			876.8 mL	20 uL	367895	03/26/20 11:50	NIR	TAL SAC
Total/NA	Analysis	1613B		1			368420	03/28/20 12:51	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602117	03/24/20 12:17	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			602210	03/24/20 19:49	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602116	03/24/20 12:13	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			602263	03/24/20 18:15	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602147	03/24/20 14:38	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602330	03/25/20 03:04	MEM	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	602160	03/24/20 15:55	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	602571	03/26/20 15:04	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	602698	03/27/20 09:59	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			602725	03/27/20 12:12	KMY	TAL IRV

Client Sample ID: Outfall009_20200321_Comp_F

Lab Sample ID: 440-263409-2
Matrix: Water
Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			60 mL	60 mL	601934	03/23/20 11:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	601948	03/23/20 12:44	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601971	03/23/20 15:11	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			60 mL	60 mL	601934	03/23/20 11:50	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	601950	03/23/20 12:51	M1G	TAL IRV
Dissolved	Analysis	200.8		1			602036	03/23/20 23:18	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	601929	03/23/20 11:46	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	601952	03/23/20 12:52	MEM	TAL IRV
Dissolved	Analysis	245.1		1			602090	03/23/20 19:09	MEM	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-601771/6
Matrix: Water
Analysis Batch: 601771

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/21/20 12:09	1
Nitrite as N	ND		0.15	0.025	mg/L			03/21/20 12:09	1

Lab Sample ID: LCS 440-601771/5
Matrix: Water
Analysis Batch: 601771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.15		mg/L		102	90 - 110
Nitrite as N	1.52	1.41		mg/L		92	90 - 110

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 601771

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.062	J,DX	1.13	1.21		mg/L		102	80 - 120
Nitrite as N	ND		1.52	1.43		mg/L		94	80 - 120

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 601771

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.062	J,DX	1.13	1.22		mg/L		103	80 - 120	1	20
Nitrite as N	ND		1.52	1.44		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 440-601772/6
Matrix: Water
Analysis Batch: 601772

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/21/20 12:09	1
Sulfate	ND		0.50	0.25	mg/L			03/21/20 12:09	1

Lab Sample ID: LCS 440-601772/5
Matrix: Water
Analysis Batch: 601772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.84		mg/L		97	90 - 110
Sulfate	5.00	5.01		mg/L		100	90 - 110

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 601772

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.1		5.00	9.20		mg/L		103	80 - 120
Sulfate	5.3		5.00	10.6		mg/L		107	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 601772

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.1		5.00	9.28		mg/L		104	80 - 120	1	20
Sulfate	5.3		5.00	11.0		mg/L		115	80 - 120	4	20

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,7,8-TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000070	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000057	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000010	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000093	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.00000063	ug/L		03/26/20 11:50	03/28/20 10:35	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDD	0.00000250	J,DX	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000071	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDD	0.0000101	J,DX	0.00010	0.0000013	ug/L		03/26/20 11:50	03/28/20 10:35	1
OCDF	0.00000304	J,DX q	0.00010	0.0000012	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDD	0.00000154	J,DX q	0.000010	0.00000053	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total TCDF	ND		0.000010	0.00000041	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDD	ND		0.000050	0.00000074	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total PeCDF	ND		0.000050	0.00000068	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDD	ND		0.000050	0.00000052	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HxCDF	ND		0.000050	0.00000060	ug/L		03/26/20 11:50	03/28/20 10:35	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-367895/1-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 367895

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	0.00000435	J,DX q	0.000050	0.00000054	ug/L		03/26/20 11:50	03/28/20 10:35	1
Total HpCDF	0.00000137	J,DX	0.000050	0.00000051	ug/L		03/26/20 11:50	03/28/20 10:35	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDD	*60*		*28 - 130*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,6,7,8-HxCDF	*57*		*26 - 123*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-2,3,4,6,7,8-HxCDF	*59*		*28 - 136*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*66*		*23 - 140*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*67*		*28 - 143*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*70*		*26 - 138*	*03/26/20 11:50*	*03/28/20 10:35*	*1*
13C-OCDD	*49*		*17 - 157*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*79*		*35 - 197*	*03/26/20 11:50*	*03/28/20 10:35*	*1*

Lab Sample ID: LCS 320-367895/2-A
Matrix: Water
Analysis Batch: 368420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 367895

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000179		ug/L		90	67 - 158
2,3,7,8-TCDF	0.000200	0.000179		ug/L		89	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000970		ug/L		97	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000950		ug/L		95	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000884		ug/L		88	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000867		ug/L		87	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000956		ug/L		96	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000911		ug/L		91	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000887		ug/L		89	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000974		ug/L		97	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000977		ug/L		98	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000962		ug/L		96	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000927	MB	ug/L		93	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000957	MB	ug/L		96	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000899		ug/L		90	78 - 138
OCDD	0.00200	0.00186	MB	ug/L		93	78 - 144
OCDF	0.00200	0.00204	MB	ug/L		102	63 - 170

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	53		21 - 227
13C-1,2,3,7,8-PeCDF	54		21 - 192
13C-2,3,4,7,8-PeCDF	57		13 - 328
13C-1,2,3,4,7,8-HxCDD	66		21 - 193
13C-1,2,3,6,7,8-HxCDD	67		25 - 163
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-1,2,3,7,8,9-HxCDF	62		17 - 205
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	77		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	79		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	81		20 - 186
13C-OCDD	63		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	74		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602117/1-A
Matrix: Water
Analysis Batch: 602210

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602117

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/24/20 12:17	03/24/20 19:44	1
Zinc	ND		20	12	ug/L		03/24/20 12:17	03/24/20 19:44	1

Lab Sample ID: LCS 440-602117/2-A
Matrix: Water
Analysis Batch: 602210

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602117

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel			500	488		ug/L		98	85 - 115		
Zinc			500	486		ug/L		97	85 - 115		

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 602210

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602117

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel	8.3	J,DX	500	500		ug/L		98	70 - 130		
Zinc	ND		500	493		ug/L		99	70 - 130		

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 602210

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602117

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	8.3	J,DX	500	514		ug/L		101	70 - 130	3	20
Zinc	ND		500	506		ug/L		101	70 - 130	2	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 440-601934/1-B
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		03/23/20 12:44	03/23/20 14:59	1
Zinc	ND		20	12	ug/L		03/23/20 12:44	03/23/20 14:59	1

Lab Sample ID: LCS 440-601934/2-B
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	475		ug/L		95	85 - 115
Zinc	500	473		ug/L		95	85 - 115

Lab Sample ID: 440-263408-B-3-C MS
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	464		ug/L		93	70 - 130
Zinc	ND		500	464		ug/L		93	70 - 130

Lab Sample ID: 440-263408-B-3-D MSD
Matrix: Water
Analysis Batch: 601971

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 601948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	462		ug/L		92	70 - 130	0	20
Zinc	ND		500	461		ug/L		92	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602116/1-A
Matrix: Water
Analysis Batch: 602263

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:11	1
Cadmium	ND		1.0	0.25	ug/L		03/24/20 12:13	03/24/20 18:11	1
Copper	ND		2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:11	1
Lead	ND		1.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:11	1
Antimony	ND		2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:11	1
Selenium	ND		2.0	0.50	ug/L		03/24/20 12:13	03/24/20 18:11	1
Thallium	ND		1.0	0.20	ug/L		03/24/20 12:13	03/24/20 18:11	1

Lab Sample ID: LCS 440-602116/2-A
Matrix: Water
Analysis Batch: 602263

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	79.0		ug/L		99	85 - 115
Cadmium	80.0	77.0		ug/L		96	85 - 115
Copper	80.0	76.4		ug/L		96	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-602116/2-A
Matrix: Water
Analysis Batch: 602263

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	80.0	78.1		ug/L		98	85 - 115
Antimony	80.0	80.9		ug/L		101	85 - 115
Selenium	80.0	79.0		ug/L		99	85 - 115
Thallium	80.0	78.4		ug/L		98	85 - 115

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 602263

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602116

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	79.6		ug/L		99	70 - 130
Cadmium	ND		80.0	77.9		ug/L		97	70 - 130
Copper	4.3		80.0	81.8		ug/L		97	70 - 130
Lead	ND		80.0	78.8		ug/L		98	70 - 130
Antimony	0.84	J,DX	80.0	82.3		ug/L		102	70 - 130
Selenium	ND		80.0	75.4		ug/L		94	70 - 130
Thallium	ND		80.0	78.1		ug/L		98	70 - 130

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 602263

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total Recoverable
Prep Batch: 602116

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	78.7		ug/L		98	70 - 130	1	20
Cadmium	ND		80.0	77.1		ug/L		96	70 - 130	1	20
Copper	4.3		80.0	81.0		ug/L		96	70 - 130	1	20
Lead	ND		80.0	79.3		ug/L		99	70 - 130	1	20
Antimony	0.84	J,DX	80.0	81.2		ug/L		100	70 - 130	1	20
Selenium	ND		80.0	77.2		ug/L		96	70 - 130	2	20
Thallium	ND		80.0	79.7		ug/L		100	70 - 130	2	20

Lab Sample ID: MB 440-601934/1-D
Matrix: Water
Analysis Batch: 602036

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601950

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:14	1
Cadmium	ND		1.0	0.25	ug/L		03/23/20 12:51	03/23/20 23:14	1
Copper	ND		2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:14	1
Lead	ND		1.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:14	1
Antimony	ND		2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:14	1
Selenium	ND		2.0	0.50	ug/L		03/23/20 12:51	03/23/20 23:14	1
Thallium	ND		1.0	0.20	ug/L		03/23/20 12:51	03/23/20 23:14	1

Lab Sample ID: LCS 440-601934/2-D
Matrix: Water
Analysis Batch: 602036

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601950

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	78.3		ug/L		98	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-601934/2-D
Matrix: Water
Analysis Batch: 602036

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601950

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	77.1		ug/L		96	85 - 115
Copper	80.0	78.5		ug/L		98	85 - 115
Lead	80.0	78.0		ug/L		98	85 - 115
Antimony	80.0	80.1		ug/L		100	85 - 115
Selenium	80.0	76.0		ug/L		95	85 - 115
Thallium	80.0	77.9		ug/L		97	85 - 115

Lab Sample ID: 440-263409-2 MS
Matrix: Water
Analysis Batch: 602036

Client Sample ID: Outfall009_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601950

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	78.0		ug/L		98	70 - 130
Cadmium	ND		80.0	77.4		ug/L		97	70 - 130
Copper	4.3		80.0	86.7		ug/L		103	70 - 130
Lead	ND		80.0	78.7		ug/L		98	70 - 130
Antimony	0.71	J,DX	80.0	80.8		ug/L		100	70 - 130
Selenium	ND		80.0	78.8		ug/L		99	70 - 130
Thallium	ND		80.0	78.1		ug/L		98	70 - 130

Lab Sample ID: 440-263409-2 MSD
Matrix: Water
Analysis Batch: 602036

Client Sample ID: Outfall009_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601950

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	78.9		ug/L		99	70 - 130	1	20
Cadmium	ND		80.0	79.1		ug/L		99	70 - 130	2	20
Copper	4.3		80.0	85.5		ug/L		102	70 - 130	1	20
Lead	ND		80.0	79.6		ug/L		99	70 - 130	1	20
Antimony	0.71	J,DX	80.0	82.0		ug/L		102	70 - 130	1	20
Selenium	ND		80.0	80.7		ug/L		101	70 - 130	2	20
Thallium	ND		80.0	80.1		ug/L		100	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602147/1-A
Matrix: Water
Analysis Batch: 602330

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/24/20 14:38	03/25/20 02:59	1

Lab Sample ID: LCS 440-602147/2-A
Matrix: Water
Analysis Batch: 602330

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.99		ug/L		100	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 602330

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 602147

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.96		ug/L		99	75 - 125

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 602330

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 602147

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.98		ug/L		99	75 - 125	1	20

Lab Sample ID: MB 440-601929/1-B
Matrix: Water
Analysis Batch: 602090

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 601952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/23/20 12:52	03/23/20 18:53	1

Lab Sample ID: LCS 440-601929/2-B
Matrix: Water
Analysis Batch: 602090

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 601952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.09		ug/L		102	85 - 115

Lab Sample ID: 440-263409-2 MS
Matrix: Water
Analysis Batch: 602090

Client Sample ID: Outfall009_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601952

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.94		ug/L		99	75 - 125

Lab Sample ID: 440-263409-2 MSD
Matrix: Water
Analysis Batch: 602090

Client Sample ID: Outfall009_20200321_Comp_F
Prep Type: Dissolved
Prep Batch: 601952

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.18		ug/L		105	75 - 125	6	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-602160/1
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/24/20 15:29	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-602160/2
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	994		mg/L		99	90 - 110		

Lab Sample ID: 440-263409-1 DU
Matrix: Water
Analysis Batch: 602160

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	90			92.0		mg/L				2	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602571/1
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/26/20 15:04	1

Lab Sample ID: LCS 440-602571/2
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	857		mg/L		86	85 - 115		

Lab Sample ID: 440-263493-A-1 DU
Matrix: Water
Analysis Batch: 602571

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	230			228		mg/L				0.9	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-602698/1-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/27/20 09:59	03/27/20 12:12	1

Lab Sample ID: LCS 440-602698/2-A
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602698

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	96.0		ug/L		96	80 - 120		

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	93.0		ug/L		93	75 - 125

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 602725

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 602698

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	104		ug/L		104	75 - 125	11	20

HPLC/IC

Analysis Batch: 601771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	300.0	
MB 440-601771/6	Method Blank	Total/NA	Water	300.0	
LCS 440-601771/5	Lab Control Sample	Total/NA	Water	300.0	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	300.0	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	300.0	

Analysis Batch: 601772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	300.0	
MB 440-601772/6	Method Blank	Total/NA	Water	300.0	
LCS 440-601772/5	Lab Control Sample	Total/NA	Water	300.0	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	300.0	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	300.0	

Analysis Batch: 601973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 367895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	1613B	
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 368420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	1613B	367895
MB 320-367895/1-A	Method Blank	Total/NA	Water	1613B	367895
LCS 320-367895/2-A	Lab Control Sample	Total/NA	Water	1613B	367895

Metals

Filtration Batch: 601929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	
MB 440-601929/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-601929/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 601934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	
MB 440-601934/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-601934/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-601934/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263408-B-3-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-263408-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 601934 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 601948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	200.2	601934
MB 440-601934/1-B	Method Blank	Dissolved	Water	200.2	601934
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	200.2	601934
440-263408-B-3-C MS	Matrix Spike	Dissolved	Water	200.2	601934
440-263408-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	601934

Prep Batch: 601950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	200.2	601934
MB 440-601934/1-D	Method Blank	Dissolved	Water	200.2	601934
LCS 440-601934/2-D	Lab Control Sample	Dissolved	Water	200.2	601934
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	200.2	601934
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	200.2	601934

Prep Batch: 601952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601929
MB 440-601929/1-B	Method Blank	Dissolved	Water	245.1	601929
LCS 440-601929/2-B	Lab Control Sample	Dissolved	Water	245.1	601929
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601929
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601929

Analysis Batch: 601971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	200.7 Rev 4.4	601948
MB 440-601934/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	601948
LCS 440-601934/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	601948
440-263408-B-3-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	601948
440-263408-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	601948

Analysis Batch: 602036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	200.8	601950
MB 440-601934/1-D	Method Blank	Dissolved	Water	200.8	601950
LCS 440-601934/2-D	Lab Control Sample	Dissolved	Water	200.8	601950
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	200.8	601950
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	200.8	601950

Analysis Batch: 602090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-2	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601952
MB 440-601929/1-B	Method Blank	Dissolved	Water	245.1	601952
LCS 440-601929/2-B	Lab Control Sample	Dissolved	Water	245.1	601952
440-263409-2 MS	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601952
440-263409-2 MSD	Outfall009_20200321_Comp_F	Dissolved	Water	245.1	601952

Metals

Prep Batch: 602116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	
MB 440-602116/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602116/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263409-1 MS	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	
440-263409-1 MSD	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	

Prep Batch: 602117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	
MB 440-602117/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602117/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263409-1 MS	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	
440-263409-1 MSD	Outfall009_20200321_Comp	Total Recoverable	Water	200.2	

Prep Batch: 602147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	245.1	
MB 440-602147/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602147/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	245.1	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	245.1	

Analysis Batch: 602210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602117
MB 440-602117/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602117
LCS 440-602117/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602117
440-263409-1 MS	Outfall009_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602117
440-263409-1 MSD	Outfall009_20200321_Comp	Total Recoverable	Water	200.7 Rev 4.4	602117

Analysis Batch: 602263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total Recoverable	Water	200.8	602116
MB 440-602116/1-A	Method Blank	Total Recoverable	Water	200.8	602116
LCS 440-602116/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602116
440-263409-1 MS	Outfall009_20200321_Comp	Total Recoverable	Water	200.8	602116
440-263409-1 MSD	Outfall009_20200321_Comp	Total Recoverable	Water	200.8	602116

Analysis Batch: 602330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	245.1	602147
MB 440-602147/1-A	Method Blank	Total/NA	Water	245.1	602147
LCS 440-602147/2-A	Lab Control Sample	Total/NA	Water	245.1	602147
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	245.1	602147
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	245.1	602147

General Chemistry

Analysis Batch: 602160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 602160 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602160/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-602160/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-263409-1 DU	Outfall009_20200321_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 602571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	SM 2540D	
MB 440-602571/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602571/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263493-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 602698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	Distill/CN	
MB 440-602698/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	Distill/CN	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 602725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	SM 4500 CN E	602698
MB 440-602698/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	602698
LCS 440-602698/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	602698
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	SM 4500 CN E	602698
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	SM 4500 CN E	602698

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263409-1
Project/Site: Routine Outfall 009 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	04-07-20
Pennsylvania	NELAP	68-01272	03-30-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

aquatic bioassay & consulting laboratories, inc

April 14, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall009_20200321_Comp (440-263409-1)
DATE RECEIVED:	23 March - 2020
ABC LAB. NO.:	CSE0320.152

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = -4.19 %

Yours very truly,

Scott Johnson
Laboratory Director

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	00-7810-1563	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	24 Mar-20 16:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	28 Mar-20 15:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	16-0528-5695	**Code:**	CSE0320.152sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	21 Mar-20 07:40	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	23 Mar-20 12:40	**CAS (PC):**		**Station:**	Outfall009_20200321_Comp
Sample Age:	80h (2.3 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
13-7245-7627	Cell Density	TST-Welch's t Test	1.4E-05	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
13-7245-7627	Cell Density	Control CV	0.05654	<<	0.2	Yes	Passes Criteria
13-7245-7627	Cell Density	Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.189E+6	1.406E+6	2.590E+4	7.325E+4	5.65%	0.00%
100		8	1.350E+6	1.244E+6	1.455E+6	1.239E+6	1.523E+6	4.462E+4	1.262E+5	9.35%	-4.19%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.267E+6	1.523E+6	1.261E+6	1.248E+6	1.503E+6	1.239E+6	1.281E+6	1.476E+6

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	13-7245-7627	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:18	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	00-7810-1563	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	24 Mar-20 16:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	28 Mar-20 15:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	16-0528-5695	**Code:**	CSE0320.152sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	21 Mar-20 07:40	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	23 Mar-20 12:40	**CAS (PC):**		**Station:**	Outfall009_20200321_Comp
Sample Age:	80h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	7.77	0.7027	9	CDF	1.4E-05	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.05654	<<	0.2	Yes	Passes Criteria
Control Resp	1.30E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.177E+10	1.177E+10	1	1.106	0.3109	Non-Significant Effect
Error	1.491E+11	1.065E+10	14			
Total	1.608E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	9.119	8.862	0.0092	Unequal Variances
	Mod Levene Equality of Variance Test	0.7371	8.862	0.4051	Equal Variances
	Variance Ratio F Test	2.969	8.885	0.1744	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.7828	3.878	0.0419	Normal Distribution
	D'Agostino Skewness Test	0.9983	2.576	0.3181	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2016	0.2471	0.0813	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8867	0.8408	0.0494	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.296E+6	1.234E+6	1.357E+6	1.288E+6	1.189E+6	1.406E+6	2.590E+4	5.65%	0.00%
100		8	1.350E+6	1.244E+6	1.455E+6	1.274E+6	1.239E+6	1.523E+6	4.462E+4	9.35%	-4.19%

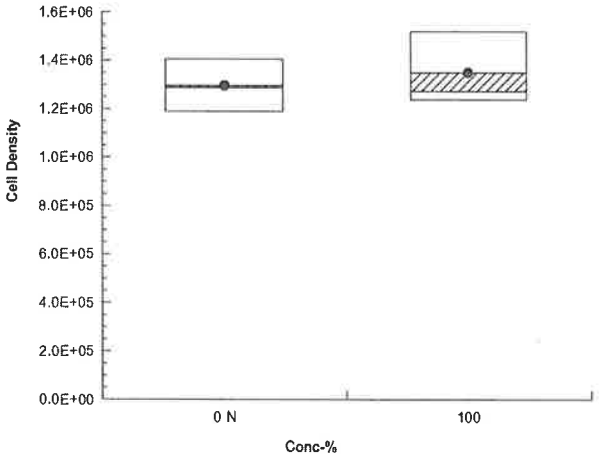
Cell Density Detail

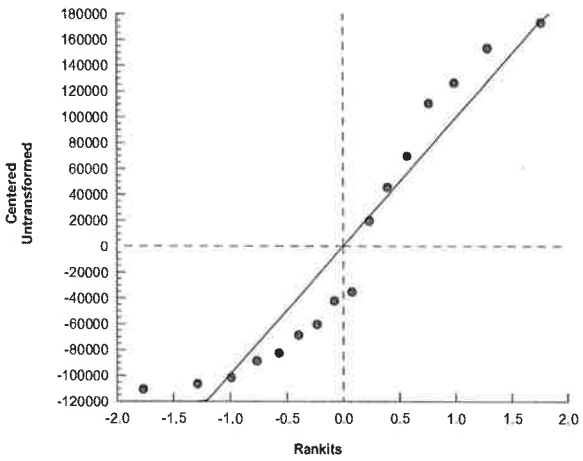
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.341E+6	1.189E+6	1.406E+6	1.253E+6	1.315E+6	1.365E+6	1.260E+6	1.235E+6
100		1.267E+6	1.523E+6	1.261E+6	1.248E+6	1.503E+6	1.239E+6	1.281E+6	1.476E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	13-7245-7627	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Apr-20 11:18	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	00-7810-1563	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	24 Mar-20 16:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	28 Mar-20 15:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	

Sample ID:	16-0528-5695	**Code:**	CSE0320.152sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	21 Mar-20 07:40	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	23 Mar-20 12:40	**CAS (PC):**		**Station:**	Outfall009_20200321_Comp
Sample Age:	80h (2.3 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	58			58	58	0	0	0.0%	0
100		1	55			55	55	0	0	0.0%	0
Overall		2	56.5	37.44	75.56	55	58	1.5	2.121	3.76%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	475.2	460.2	490.2	454	483	5.398	12.07	2.54%	0
100		5	232.8	221.8	243.8	219	240	3.955	8.843	3.8%	0
Overall		10	354	262.3	445.7	219	483	40.52	128.1	36.20%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	115			115	115	0	0	0.0%	0
100		1	60			60	60	0	0	0.0%	0
Overall		2	87.5	-261.9	436.9	60	115	27.5	38.89	44.45%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.581	8.339	7.8	8.5	0.1364	0.305	3.83%	0
100		5	7.96	7.648	8.272	7.8	8.4	0.1122	0.251	3.15%	0
Overall		10	7.96	7.772	8.148	7.8	8.5	0.08327	0.2633	3.31%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
100		5	24.68	24.29	25.07	24.3	25	0.1393	0.3115	1.26%	0
Overall		10	24.68	24.47	24.89	24.3	25	0.09286	0.2936	1.19%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		58					
100				55					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		454					
100				219					
0	N	2		483					
100				229					
0	N	3		477					
100				237					
0	N	4		480					
100				239					
0	N	5		482					
100				240					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		115					
100				60					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				7.9					
0	N	2		8.5					
100				8.4					
0	N	3		7.9					
100				7.9					
0	N	4		7.8					
100				7.8					
0	N	5		7.8					
100				7.8					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.6					
100				24.6					
0	N	2		24.3					
100				24.3					
0	N	3		24.5					
100				24.5					
0	N	4		25					
100				25					
0	N	5		25					
100				25					

Test America

CHAIN OF CUSTODY FORM

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Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler:

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [003-007, 009, 010]
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl^-, SO_4, NO_3+NO_2-N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))				Comments
Outfall 009	Outfall009_20200321_Comp	3/21/2020 0740	WM	500 mL Poly	3	HNO_3	95	Yes	X								X						
			WM	1 L Glass Amber	2	None	110	No		X													48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	6	None	145	Yes			X												
			WM	500 mL Poly	1	None	155	No				X											
			WM	500 mL Poly	3	NaOH	220	Yes								X							Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	2.5 Gal Cube	3	None	225	Yes						X									
			WM	1 L Glass Amber	3	None	230	Yes															[illegible]
			WM	1 Gal Cube	6	None	235	No															
			WM	1 L Poly	1	None	185	No											X				Filter and preserve w/in 24hrs of receipt at lab
	Outfall009_20200321_Comp_F	3/21/2020 0740	WM	1L Poly	3	None	205	Yes					X										
			WM	borosilicate vials	3	None	320	Yes										X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall009_20200321_Comp_Extra	3/21/2020 0740	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	145	No			H												Hold

Temp. deg. C = 2.3

Chlorine (mg/L) = <.01

NH3 (mg/L) = <.001

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-20	H:A	[signature]	3/23/20 1240
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time

Turn-around time: (Check)
24 Hour: ____ 72 Hour: ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal: ____

Sample Integrity: (Check)
Intact: ____ On Ice: ____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: ____ All Level IV: X

*Chronic toxicity delivered by Mark Dominick (Haley & Aldrich) on separate copy of same COC *

Sample out of hold time, ok to proceed with testing on 3/24/2020 per Kathrine Miller [illegible] 3/23/20

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 17 March - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 46.37 ug/l
IC50 = 95.06 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

29 north olive st. ventura, ca 93001 (805) 643 5621 aquabio.org

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
01-5313-8868	Cell Density	Dunnett Multiple Comparison Test		20	40	28.28		7.47%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	TU	S
07-1463-6845	Cell Density	Linear Interpolation (ICPIN)		IC5	14.28	2.725	31.44		1
				IC10	24.24	8.04	34.46		
				IC15	31.31	16.45	40.45		
				IC20	38.37	28.87	47.16		
				IC25	46.37	37.27	55.2		
				IC40	71.17	63.42	81.71		
				IC50	95.06	78.77	110		

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-5313-8868	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
07-1463-6845	Cell Density	Control CV	0.04461	<<	0.2	Yes	Passes Criteria
01-5313-8868	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria
07-1463-6845	Cell Density	Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.233E+6	1.365E+6	2.882E+4	5.764E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.092E+6	1.315E+6	4.858E+4	9.717E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	9.880E+5	1.050E+6	1.719E+4	3.438E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	6.560E+5	7.590E+5	2.566E+4	5.132E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.070E+5	5.150E+5	2.591E+4	5.182E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.900E+5	2.010E+5	3.175E+3	6.351E+3	3.25%	84.87%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	01-5313-8868	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	20	40	28.28		7.47%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		20	2.256	2.407	96550	6	CDF	0.0662	Non-Significant Effect
		40*	6.813	2.407	96550	6	CDF	3.2E-05	Significant Effect
		80*	14.6	2.407	96550	6	CDF	2.7E-05	Significant Effect
		140*	20.59	2.407	96550	6	CDF	2.7E-05	Significant Effect
		180*	27.34	2.407	96550	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.743E+12	7.485E+11	5	232.6	<1.0E-37	Significant Effect
Error	5.792E+10	3.218E+09	18			
Total	3.800E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.36	15.09	0.0302	Equal Variances
	Levene Equality of Variance Test	4.939	4.248	0.0051	Unequal Variances
	Mod Levene Equality of Variance Test	4.739	4.248	0.0062	Unequal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2623	3.878	0.7305	Normal Distribution
	D'Agostino Kurtosis Test	0.3634	2.576	0.7163	Normal Distribution
	D'Agostino Skewness Test	0.2035	2.576	0.8387	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.1735	9.21	0.9169	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1231	0.2056	0.4534	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9834	0.884	0.9491	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.292E+6	1.200E+6	1.384E+6	1.285E+6	1.233E+6	1.365E+6	2.882E+4	4.46%	0.00%
20		4	1.202E+6	1.047E+6	1.356E+6	1.200E+6	1.092E+6	1.315E+6	4.858E+4	8.09%	7.00%
40		4	1.019E+6	9.640E+5	1.073E+6	1.018E+6	9.880E+5	1.050E+6	1.719E+4	3.38%	21.15%
80		4	7.062E+5	6.246E+5	7.879E+5	7.050E+5	6.560E+5	7.590E+5	2.566E+4	7.27%	45.34%
140		4	4.662E+5	3.838E+5	5.487E+5	4.715E+5	4.070E+5	5.150E+5	2.591E+4	11.11%	63.91%
180		4	1.955E+5	1.854E+5	2.056E+5	1.955E+5	1.900E+5	2.010E+5	3.175E+3	3.25%	84.87%

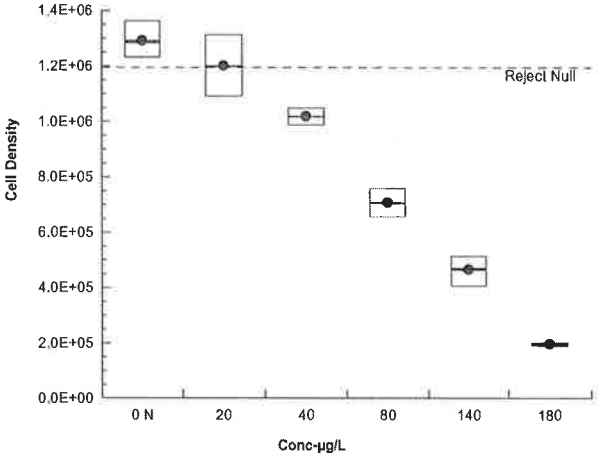
Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

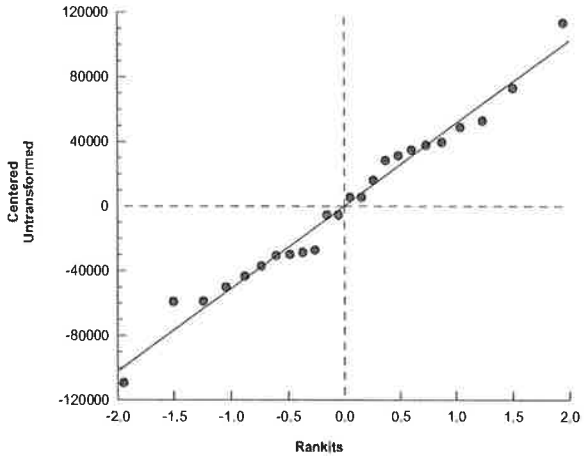
Analysis ID: 01-5313-8868 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.5
Analyzed: 24 Mar-20 15:16 **Analysis:** Parametric-Control vs Treatments **Status Level:** 1

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.04461	<<	0.2	Yes	Passes Criteria
Control Resp	1.29E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	14.28	2.725	31.44
IC10	24.24	8.04	34.46
IC15	31.31	16.45	40.45
IC20	38.37	28.87	47.16
IC25	46.37	37.27	55.2
IC40	71.17	63.42	81.71
IC50	95.06	78.77	110

Cell Density Summary

			Calculated Variate						Isotonic Variate	
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	N	4	1.292E+6	1.233E+6	1.365E+6	5.764E+4	4.46%	0.0%	1292000	0.0%
20		4	1.202E+6	1.092E+6	1.315E+6	9.717E+4	8.09%	7.01%	1202000	7.01%
40		4	1.019E+6	9.880E+5	1.050E+6	3.438E+4	3.38%	21.15%	1019000	21.15%
80		4	7.062E+5	6.560E+5	7.590E+5	5.132E+4	7.27%	45.34%	706200	45.34%
140		4	4.662E+5	4.070E+5	5.150E+5	5.182E+4	11.11%	63.91%	466200	63.91%
180		4	1.955E+5	1.900E+5	2.010E+5	6.351E+3	3.25%	84.87%	195500	84.87%

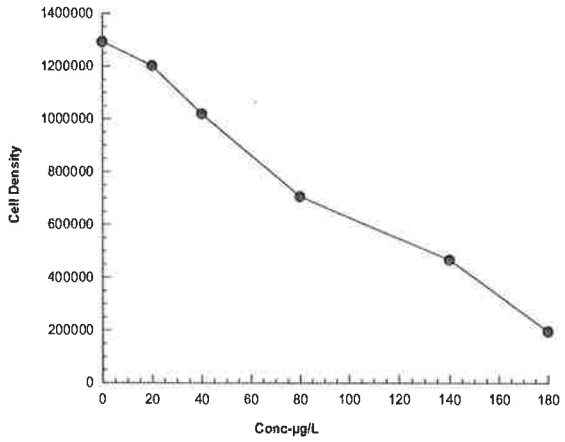
Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6
20		1.241E+6	1.158E+6	1.315E+6	1.092E+6
40		1.050E+6	9.900E+5	9.880E+5	1.047E+6
80		7.410E+5	6.560E+5	6.690E+5	7.590E+5
140		4.070E+5	5.040E+5	4.390E+5	5.150E+5
180		1.900E+5	2.010E+5	1.900E+5	2.010E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, inc.**

Analysis ID:	07-1463-6845	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	24 Mar-20 15:16	**Analysis:**	Linear interpolation (ICPIN)	**Status Level:**	1

Graphics



Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	15-2542-2690	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:30	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:00	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-5970-0934	**Code:**	SEL031720	**Project:**	REF TOX		
Sample Date:	17 Mar-20 14:30	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Alkallnity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
20		1	52			52	52	0	0	0.0%	0
40		1	52			52	52	0	0	0.0%	0
80		1	53			53	53	0	0	0.0%	0
140		1	46			46	46	0	0	0.0%	0
180		1	43			43	43	0	0	0.0%	0
Overall		6	49.83	45.36	54.31	43	53	1.74	4.262	8.55%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	468	410.9	525.1	443	550	20.56	45.98	9.83%	0
20		5	422.4	420.3	424.5	421	425	0.7483	1.673	0.4%	0
40		5	414.2	412.6	415.8	412	415	0.5831	1.304	0.31%	0
80		5	400.4	396.4	404.4	397	405	1.435	3.209	0.8%	0
140		5	386.8	367.9	405.7	360	398	6.822	15.25	3.94%	0
180		5	280.2	250.2	310.2	252	305	10.81	24.18	8.63%	0
Overall		30	395.3	372.3	418.4	252	550	11.26	61.7	15.61%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
20		1	90			90	90	0	0	0.0%	0
40		1	55			55	55	0	0	0.0%	0
80		1	70			70	70	0	0	0.0%	0
140		1	88			88	88	0	0	0.0%	0
180		1	87			87	87	0	0	0.0%	0
Overall		6	78.33	64.09	92.58	55	90	5.542	13.57	17.33%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.651	8.189	7.7	8.2	0.09695	0.2168	2.74%	0
20		5	7.7	7.159	8.241	7.2	8.2	0.1949	0.4359	5.66%	0
40		5	7.74	7.262	8.218	7.3	8.2	0.172	0.3847	4.97%	0
80		5	7.72	7.26	8.18	7.3	8.2	0.1655	0.3701	4.79%	0
140		5	7.74	7.313	8.167	7.4	8.2	0.1536	0.3435	4.44%	0
180		5	7.72	7.333	8.107	7.4	8.1	0.1393	0.3114	4.03%	0
Overall		30	7.757	7.634	7.879	7.2	8.2	0.05982	0.3277	4.22%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
20		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
40		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
80		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
140		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
180		5	24.8	24.54	25.06	24.5	25	0.09487	0.2121	0.86%	0
Overall		30	24.8	24.73	24.87	24.5	25	0.03523	0.193	0.78%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
20				52					
40				52					
80				53					
140				46					
180				43					

Conductivity-µmhos

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
20				421					
40				412					
80				398					
140				360					
180				260					
0	N	2		445					
20				421					
40				414					
80				397					
140				390					
180				252					
0	N	3		450					
20				422					
40				415					
80				400					
140				393					
180				281					
0	N	4		452					
20				423					
40				415					
80				402					
140				393					
180				303					
0	N	5		550					
20				425					
40				415					
80				405					
140				398					
180				305					

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
20				90					
40				55					
80				70					
140				88					
180				87					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
20				8					
40				8					
80				7.9					
140				7.9					
180				7.9					
0	N	2		7.8					
20				7.8					
40				7.8					
80				7.8					
140				7.8					
180				7.8					
0	N	3		8.2					
20				8.2					
40				8.2					
80				8.2					
140				8.2					
180				8.1					
0	N	4		7.8					
20				7.2					
40				7.3					
80				7.3					
140				7.4					
180				7.4					
0	N	5		7.7					
20				7.3					
40				7.4					
80				7.4					
140				7.4					
180				7.4					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.7					
20				24.7					
40				24.7					
80				24.7					
140				24.7					
180				24.7					
0	N	2		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	3		25					
20				25					
40				25					
80				25					
140				25					
180				25					
0	N	4		24.8					
20				24.8					
40				24.8					
80				24.8					
140				24.8					
180				24.8					
0	N	5		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					

Test America

440-263409 Chain of Custody

3/21/20 LD

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler:

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [003-007, 009, 010]
Outfall 009
Comp

Project Manager Katherine Miller
520 289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl⁻, SO_4, NO_3+NO_2-N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))				Comments
Outfall 009	Outfall009_20200321_Comp	3/21/2020 / 0740	WM	500 mL Poly	3	HNO_3	95	Yes	X								X						
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	500 mL Poly	6	None	145	Yes			X												48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X											
			WM	500 mL Poly	3	NaOH	220	Yes								X							
			WM	2.5 Gal Cube	3	None	225	Yes						X									Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	3	None	230	Yes															
			WM	1 Gal Cube	6	None	235	No															Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 L Poly	1	None	185	No											X				
	Outfall009_20200321_Comp_F	3/21/2020 / 0740	WM	1L Poly	3	None	205	Yes					X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	3	None	320	Yes										X					Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall009_20200321_Comp_Extra	3/21/2020 / 0740	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	145	No			H												Hold

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-21-2020/1130	H&A	[signature]	3-21-20 11:30 EC-IRV
[signature]	3-21-20 1315	EC-IRV	[signature]	EC-IRV 3/21/20 1315

Turn-around time: (Check)
24 Hour: ____ 72 Hour: ____ 10 Day: X
48 Hour: ____ 5 Day: ____ Normal: ____

Sample Integrity (Check)
Intact: ____ On Ice: ____
Store samples for 6 months
Data Requirements (Check)
No Level IV: ____ All Level IV: X

* Chronic toxicity delivered by Mark Dominick (Haley & Aldrich) on separate copy of same COC *

2.8/2.8 3.4/3.4 0.3/0.3 2.3/2.3 1.5/1.5 0.2/0.2 IR-89

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154295.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263409-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/2/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall009_20200321_Comp (440-263409-1)	3/21/20	07:40 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.
440-263409-3	3/21/20	0740		W				2	HOLD

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: A. Kenney	Date/Time: 3/23/2020 1700	Company: EC IRV	Received by: [signature]	Date/Time: 3/24/20 - 9:25	Company: ETA-JAC
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: ODS 0.1 Corr 0.7		

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263409-1

Login Number: 263409
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263409-1

Login Number: 263409
List Number: 3
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/24/20 12:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs. 0.1c corr. 0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263409-1	Outfall009_20200321_Comp	64	59	52	53	55	62	63	61
MB 320-367895/1-A	Method Blank	63	57	51	50	53	60	60	59

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263409-1	Outfall009_20200321_Comp	58	59	60	75	74	78	61
MB 320-367895/1-A	Method Blank	57	58	59	66	67	70	49

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-367895/2-A	Lab Control Sample	65	60	53	54	57	66	67	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-367895/2-A	Lab Control Sample	61	62	63	77	79	81	63

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-263409 Field Sheet

Tracking # : 1540-4107-3568

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+/-) 0.6 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.1 °C Corrected: 0.7 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☐	☐	☐

Initials: JG Date: 3/24/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/24/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W17C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263409-2
Client Project/Site: Routine Outfall 009 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/22/2020 12:23:24 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:23:24 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263409-1	Outfall009_20200321_Comp	Water	03/21/20 07:40	03/21/20 13:15	

Job ID: 440-263409-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263409-2

Comments
No additional comments.

Receipt
The samples were received on 3/21/2020 1:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.2º C, 0.3º C, 1.5º C, 2.3º C, 2.8º C and 3.4º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

The laboratory control sample (LCS, 68%) failed below the lower limit (75%). The lab reached out to the client who requested the data be reported.

(LCS 160-465900/2-A)

Method 900.0: Gross Alpha/Beta Prep Batch 160-465900

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-465900/2-A), (LCSB 160-465900/3-A), (MB 160-465900/1-A), (440-263409-J-1-G DU), (440-263409-J-1-E MSBT) and (440-263409-J-1-F MSBTD)

Method 901.1: Gamma Prep Batch 160-465466
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223

Job ID: 440-263409-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Ac-227
Th-227 Bi-211
Th-227 Pb-211
Bi-214 Ra-226
Outfall009_20200321_Comp (440-263409-1), (LCS 160-465466/2-A), (MB 160-465466/1-A), (440-263408-Q-1-A) and (440-263408-Q-1-B DU)

Methods 903.0, 9315: Ra-226 Prep Batch 160-465586
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-465586/1-A) and (MB 160-465586/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588

The laboratory control sample (LCS, 73%) failed below the lower limit of 75%. The MB, MS and MSD were within passing limits. The data has been reported with this narrative.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-465588/1-A) and (MB 160-465588/20-A)

Methods 904.0, 9320: Radium-228 Prep Batch 160-465588
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-465588/1-A) and (MB 160-465588/20-A)

Method 905: Strontium-90 Prep Batch 160-465961

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-465961/1-A) and (MB 160-465961/11-A)

Method 906.0: LSC Tritium Prep Batch 160-467441

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-467441/2-A) and (MB 160-467441/1-A)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Job ID: 440-263409-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]), Outfall009_20200321_Comp (440-263409-1[MSD]), (LCS 160-466005/2-A) and (MB 160-466005/1-A)

Method ExtChrom: Uranium Prep Batch 160-466005:

The following samples were prepared at a reduced aliquot due to yellow discoloration and suspended solids: Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]) and Outfall009_20200321_Comp (440-263409-1[MSD]).

Method LSC_Dist_Susp: H-3 Prep Batch 160-467441:

The following samples were preserved: 440-263409-1, 440-263409-1 MS, and 440-263409-1 MSD.

The following samples were not preserved but were acidic: 280-135294-6, 280-135294-7, and 280-135294-8.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]) and Outfall009_20200321_Comp (440-263409-1[MSD])

Method PrecSep_0: Radium 228 Prep Batch 160-465588:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]) and Outfall009_20200321_Comp (440-263409-1[MSD]).

Method PrecSep-21: Radium 226 Prep Batch 160-465586:

The following samples were prepared at a reduced aliquot due to a bright yellow discoloration: Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]) and Outfall009_20200321_Comp (440-263409-1[MSD]).

Method PrecSep-7: Sr-90 Prep Batch 160-465961:

Samples 160-37640-1, 160-37641-1, and 440-263408-1 were slightly discolored. Samples 440-263409-1, 1MS, 1MSD, 440-263515-1 and 440-263518-1 had a bright yellow discoloration. In addition, sample 440-263518-1 was reduced in volume because it was cloudy.

Outfall009_20200321_Comp (440-263409-1), Outfall009_20200321_Comp (440-263409-1[MS]) and Outfall009_20200321_Comp (440-263409-1[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall009_20200321_Comp

Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.0978	U	0.841	0.841	3.00	1.66	pCi/L	03/27/20 11:28	04/03/20 08:24	1
Gross Beta	0.603	U	0.529	0.532	4.00	0.844	pCi/L	03/27/20 11:28	04/03/20 08:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-4.19	U	9.47	9.48	20.0	16.2	pCi/L	03/24/20 17:00	03/24/20 22:35	1
Potassium-40	47.2	U	124	124		177	pCi/L	03/24/20 17:00	03/24/20 22:35	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0860	U	0.0827	0.0831	1.00	0.261	pCi/L	03/26/20 06:31	04/17/20 08:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:51*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.300	U *	0.455	0.456	1.00	0.764	pCi/L	03/26/20 06:59	04/15/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.5*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:24*	*1*
Y Carrier	*82.6*		*40 - 110*	*03/26/20 06:59*	*04/15/20 13:24*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.216	U	0.229	0.229	3.00	0.374	pCi/L	03/29/20 09:20	04/07/20 10:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*80.1*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:21*	*1*
Y Carrier	*87.1*		*40 - 110*	*03/29/20 09:20*	*04/07/20 10:21*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	40.1	U	156	156	500	274	pCi/L	04/12/20 10:05	04/15/20 03:43	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.0276	U	0.199	0.199	1.00	0.312	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Client Sample ID: Outfall009_20200321_Comp
Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-1
Matrix: Water

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	87.3		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Client Sample ID: Outfall009_20200321_Comp

Date Collected: 03/21/20 07:40
Date Received: 03/21/20 13:15

Lab Sample ID: 440-263409-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.13 mL	1.0 g	465900	03/27/20 11:28	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	466614	04/03/20 08:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	465466	03/24/20 17:00	MLG	TAL SL
Total/NA	Analysis	901.1		1			465330	03/24/20 22:35	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.96 mL	1.0 g	465586	03/26/20 06:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			468017	04/17/20 08:51	KRR	TAL SL
Total/NA	Prep	PrecSep_0			750.96 mL	1.0 g	465588	03/26/20 06:59	RBR	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	467875	04/15/20 13:24	CJQ	TAL SL
Total/NA	Prep	PrecSep-7			1000.40 mL	1.0 g	465961	03/29/20 09:20	MMO	TAL SL
Total/NA	Analysis	905		1			467049	04/07/20 10:21	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.0 mL	1.0 g	467441	04/12/20 10:05	MMO	TAL SL
Total/NA	Analysis	906.0		1			467877	04/15/20 03:43	JS	TAL SL
Total/NA	Prep	ExtChrom			250.17 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467791	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465900/1-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465900

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4046	U	0.519	0.521	3.00	0.861	pCi/L	03/27/20 11:28	04/03/20 08:23	1
Gross Beta	0.4550	U	0.481	0.483	4.00	0.772	pCi/L	03/27/20 11:28	04/03/20 08:23	1

Lab Sample ID: LCS 160-465900/2-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	33.94	*	5.41	3.00	1.58	pCi/L	68	75 - 125

Lab Sample ID: LCSB 160-465900/3-A
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.6	80.84		8.62	4.00	0.942	pCi/L	96	75 - 125

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	-0.0978	U	49.5	36.73		5.47	3.00	1.38	pCi/L	74	60 - 140

Lab Sample ID: 440-263409-1 MSBT
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	0.603	U	84.5	78.67		8.39	4.00	0.921	pCi/L	92	60 - 140

Lab Sample ID: 440-263409-1 MSBTD
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	0.603	U	84.5	74.07		7.92	4.00	0.902	pCi/L	87	60 - 140	0.28	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 466614

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	-0.0978	U	49.5	39.84		5.86	3.00	1.64	pCi/L	80	60 - 140	0.27	1

Lab Sample ID: 440-263409-1 DU
Matrix: Water
Analysis Batch: 466703

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465900

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	-0.0978	U	1.373	*		3.00	1.00	pCi/L	0.79	1
Gross Beta	0.603	U	0.8697	U		4.00	1.00	pCi/L	0.23	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-465466/1-A
Matrix: Water
Analysis Batch: 465326

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465466

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.619	U	10.7	10.7	20.0	18.7	pCi/L	03/24/20 17:00	03/24/20 22:30	1
Potassium-40	-99.61	U	96.6	97.1		219	pCi/L	03/24/20 17:00	03/24/20 22:30	1

Lab Sample ID: LCS 160-465466/2-A
Matrix: Water
Analysis Batch: 465327

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465466

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	131900		15200		532	pCi/L	97	90 - 111
Cesium-137	43800	42360		4250	20.0	145	pCi/L	97	90 - 111
Cobalt-60	26500	25970		2580		106	pCi/L	98	89 - 110

Lab Sample ID: 440-263408-Q-1-B DU
Matrix: Water
Analysis Batch: 465326

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465466

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-2.48	U	3.806	U	8.20	20.0	14.2	pCi/L	0.38	1
Potassium-40	62.0	U	-168.4	U	135		269	pCi/L	0.99	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-465586/20-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465586

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03638	U	0.0859	0.0860	1.00	0.199	pCi/L	03/26/20 06:31	04/17/20 08:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*03/26/20 06:31*	*04/17/20 08:55*	*1*

Lab Sample ID: LCS 160-465586/1-A
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465586

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.27		1.18	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.6*		*40 - 110*

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	-0.0860	U	15.1	12.69		1.49	1.00	0.304	pCi/L	84	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 468017

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465586

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	-0.0860	U	15.1	13.28		1.56	1.00	0.235	pCi/L	88	75 - 138	0.19	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-465588/20-A
Matrix: Water
Analysis Batch: 467720

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465588

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1859	U	0.267	0.268	1.00	0.447	pCi/L	03/26/20 06:59	04/15/20 13:22	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110	03/26/20 06:59	04/15/20 13:22	1
Y Carrier	79.6		40 - 110	03/26/20 06:59	04/15/20 13:22	1

Lab Sample ID: LCS 160-465588/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.93	6.531	*	0.850	1.00	0.438	pCi/L	73	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	93.6		40 - 110
Y Carrier	84.1		40 - 110

Lab Sample ID: 440-263409-1 MS — **Client Sample ID: Outfall009_20200321_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.300	U *	11.9	10.20		1.29	1.00	0.621	pCi/L	83	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	92.0		40 - 110
Y Carrier	80.4		40 - 110

Lab Sample ID: 440-263409-1 MSD — **Client Sample ID: Outfall009_20200321_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467875 — **Prep Batch: 465588**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.300	U *	11.9	10.90		1.37	1.00	0.657	pCi/L	89	45 - 150	0.26	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	83.8		40 - 110
Y Carrier	83.0		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-465961/11-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467045 — **Prep Batch: 465961**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.05867	U	0.135	0.135	3.00	0.258	pCi/L	03/29/20 09:20	04/07/20 10:14	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-465961/11-A
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465961

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110	03/29/20 09:20	04/07/20 10:14	1
Y Carrier	95.3		40 - 110	03/29/20 09:20	04/07/20 10:14	1

Lab Sample ID: LCS 160-465961/1-A
Matrix: Water
Analysis Batch: 467049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465961

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	7.289		0.803	3.00	0.348	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	87.2		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.216	U	7.88	7.311		0.805	3.00	0.295	pCi/L	90	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	82.3		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 467045

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 465961

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.216	U	7.89	6.434		0.751	3.00	0.297	pCi/L	79	19 - 150	0.56	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	79.5		40 - 110
Y Carrier	83.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-467441/1-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467441

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	232.9	U	182	183	500	282	pCi/L	04/12/20 10:05	04/15/20 02:12	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-467441/2-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467441

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2470	2679		430	500	289	pCi/L	108	75 - 114		

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	40.1	U	2470	2782		444	500	295	pCi/L	111	67 - 130		

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	40.1	U	2480	2877		454	500	299	pCi/L	115	67 - 130	0.11	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263409-1 MS
Matrix: Water
Analysis Batch: 467795

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.0275	U	25.4	25.23		2.86	1.00	0.299	pCi/L	99	65 - 146		
Uranium-238	0.0457	U	26.0	25.09		2.85	1.00	0.204	pCi/L	96	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*84.6*		*30 - 110*

Lab Sample ID: 440-263409-1 MSD
Matrix: Water
Analysis Batch: 467796

Client Sample ID: Outfall009_20200321_Comp
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.0275	U	25.5	28.73		3.26	1.00	0.257	pCi/L	113	65 - 146	0.57	1
Uranium-238	0.0457	U	26.1	27.67		3.16	1.00	0.257	pCi/L	106	68 - 143	0.43	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*64.1*		*30 - 110*

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Rad

Prep Batch: 465466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-465466/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-465466/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263408-Q-1-B DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 465586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-21	
MB 160-465586/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-465586/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-21	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 465588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	PrecSep_0	
MB 160-465588/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-465588/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	PrecSep_0	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 465900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	
MB 160-465900/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465900/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465900/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	
440-263409-1 MSBT	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	
440-263409-1 MSBTD	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	
440-263409-1 DU	Outfall009_20200321_Comp	Total/NA	Water	Evaporation	

Prep Batch: 465961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-7	
MB 160-465961/11-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-465961/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-7	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	ExtChrom	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Rad

Prep Batch: 467441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263409-1	Outfall009_20200321_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-467441/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-467441/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263409-1 MS	Outfall009_20200321_Comp	Total/NA	Water	LSC_Dist_Susp	
440-263409-1 MSD	Outfall009_20200321_Comp	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Qualifiers

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

440-263409 Chain of Custody

3/21/20 LD

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [003-007, 009, 010] Outfall 009 Comp
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager Katherine Miller 520 289.8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager Mark Dominick 978.234.5033, 818 599.0702 (cell)
Sampler	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cl, SO_4, NO_3+NO_2-N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs Ventura	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals. Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))				Comments
Outfall 009	Outfall009_20200321_Comp	3/21/2020 0740	WM	500 mL Poly	3	HNO_3	95	Yes	X								X						
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	500 mL Poly	6	None	145	Yes			X												48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	155	No				X											
			WM	500 mL Poly	3	NaOH	220	Yes								X							
			WM	2 5 Gal Cube	3	None	225	Yes															Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	3	None	230	Yes						X									
			WM	1 Gal Cube	6	None	235	No															Only test if first or second rain events of the year Deliver to ABC Labs in Ventura, CA
			WM	1 L Poly	1	None	185	No											X				
	Outfall009_20200321_Comp_F	3/21/2020 0740	WM	1L Poly	3	None	205	Yes					X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	3	None	320	Yes											X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall009_20200321_Comp_Extra	3/21/2020 0740	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	145	No			H												Hold

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
[signature]	3-21-2020/1130	H&A	[signature]	3.21.20 1130	EC-IRV
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
[signature]	3-21-20 1315	EC-IRV	[signature]	EC-IRV 3/21/20	1315

Turn-around time (Check)
24 Hour: _____ 72 Hour. _____ 10 Day: X
48 Hour. _____ 5 Day: _____ Normal: _____

Sample Integrity (Check)
Intact. _____ On Ice. _____
Store samples for 6 months
Data Requirements (Check)
No Level IV: _____ All Level IV: X

* Chronic toxicity delivered by Mark Dominick (Haley/Aldrich) on separate copy of same COC *

2.8/2.8 3.4/3.4 0.3/0.3 2.3/2.3 1.5/1.5 0.2/0.2 112.89

4/22/2020

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154293.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263409-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/2/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall009_20200321_Comp (440-263409-1)	3/21/20	07:40 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall009_20200321_Comp (440-263409-1MS)	3/21/20	07:40 Pacific	MS	Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall009_20200321_Comp (440-263409-1MSD)	3/21/20	07:40 Pacific	MSD	Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Rennes FE	3/23/2020 1700	EC-IRV	FE		
2				Michaterinlings	3/24/2020 08:15	ETA STL
3						

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience

Initiated by: MK Date: 3/24/2020 Time: 08:15 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids.
If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 3535	192688461	0.1	
2.	3557	|	3.1	
3.	3544	|	0.7	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Samples were received unpreserved. Samples were preserved upon arrival.

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/24/2020 12:10

Preservative and lot#: HNO3 000024482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263409-2

Login Number: 263409
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263409-2

Login Number: 263409
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/24/20 12:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Samples received unpreserved. Samples were preserved upon arrival.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263409-1	Outfall009_20200321_Comp	72.5
440-263409-1 MS	Outfall009_20200321_Comp	92.0
440-263409-1 MSD	Outfall009_20200321_Comp	83.8
LCS 160-465586/1-A	Lab Control Sample	93.6
MB 160-465586/20-A	Method Blank	90.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263409-1	Outfall009_20200321_Comp	72.5	82.6
440-263409-1 MS	Outfall009_20200321_Comp	92.0	80.4
440-263409-1 MSD	Outfall009_20200321_Comp	83.8	83.0
LCS 160-465588/1-A	Lab Control Sample	93.6	84.1
MB 160-465588/20-A	Method Blank	90.5	79.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263409-1	Outfall009_20200321_Comp	80.1	87.1
440-263409-1 MS	Outfall009_20200321_Comp	82.3	89.3
440-263409-1 MSD	Outfall009_20200321_Comp	79.5	83.7
LCS 160-465961/1-A	Lab Control Sample	87.2	93.5
MB 160-465961/11-A	Method Blank	86.1	95.3

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263409-1	Outfall009_20200321_Comp	87.3
440-263409-1 MS	Outfall009_20200321_Comp	84.6
440-263409-1 MSD	Outfall009_20200321_Comp	64.1
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-263409-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes


440-263409 Field Sheet

Tracking # : 1540-4107-3568

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+/-) 0.6 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.1 °C Corrected: 0.7 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☐	☐	☐

Initials: JG Date: 3/24/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Non-conformance	**Yes**	**No**	**NA**
NCM Filed?	☐	☐	☑

Initials: PK Date: 3/24/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W17C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258621-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

5 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258621-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL018_20200107_GRAB	440-258621-1	Water	1/7/2020 9:15:00 AM	E120.1, E1664, E624.1, SM2540F, SM9221F, SW8015D, SW8015V

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-258621-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the appropriate original and transfer COCs.
- Corrections to the COC were initialed but not dated.
- The sample was submitted to Enthalpy Analytical for Method 9221F.
- According to the Login Sample Receipt Checklists, custody seals were absent on the coolers upon receipt at both laboratories; however, no evidence of tampering was noted.
- The case narrative indicated that the site sample for the 1613B analysis was received in a wide-mouth amber glass bottle, and slightly less sample volume (954 milliliters) was available for extraction.
- The laboratory noted in the narrative that due to multiple analyses, sample TB-20200107 was analyzed from a container with significant headspace, defined as a bubble six millimeters or greater in diameter. The sample was not included for data validation and the data was not included in the EDD. The site sample did not contain target compound detects and the TB headspace did not impact the site sample.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 8015B— PURGEABLE AND EXTRACTABLE TOTAL PETROLEUM HYDROCARBONS (TPHS)

K. Zilis of MEC[X] reviewed the SDG on March 6, 2020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0), EPA Method 8015B*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The preserved water sample was analyzed within 14 days for purgeable TPH (GRO), and the unpreserved water sample was extracted within seven days of collection and analyzed within 40 days of extraction for extractable TPH (DRO).

III.2. CALIBRATION

Initial calibration %RSDs were within the method control limit of ≤20%, and the ICV and CCV %Ds were within the control limit of ≤15%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits for GRO and DRO of 80-120% and 40-115%, respectively.

III.3.3. *SURROGATE RECOVERY*

Recoveries were within laboratory control limits. BFB (GRO) was within the control limits of 65-140%, and n-octacosane (DRO) was within the control limits of 45-120%.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample for both fractions. The GRO recoveries were within the laboratory limits of 65-140% and the RPD was ≤20%. The DRO recoveries were within the laboratory limit of 40-120% and the RPD was within the laboratory limit of ≤30%. No qualifications were required.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.4.1. *TRIP BLANK*

A trip blank was not analyzed for the GRO analysis.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory reported two total petroleum hydrocarbon ranges: C_4-C_{12} (GRO), and C_{13}-C_{28} (DRO). Review indicated no issues with target compound range identification.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified. Review of the raw data did not indicate calculation or transcription errors. Results reported below the reporting limit were flagged as estimated (J) and coded DNQ to comply with the NPDES permit. Nondetects are valid to the reporting limit.

IV. EPA METHOD 624—VOLATILE ORGANIC COMPOUNDS (VOCS)

K. Zilis of MEC^X reviewed the SDG on March 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

IV.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample was analyzed within 14 days of collection, and the unpreserved trip blank and site sample aliquot for 2-chloroethylvinyl ether, acrolein, and acrylonitrile were analyzed within seven days of collection.

IV.2. GC/MS TUNING AND CALIBRATION

The BFB tunes met the method abundance criteria. Samples were analyzed within 12 hours of the BFB injection time.

All calibration criteria were met. The initial calibration average RRFs and the ICV and continuing calibration RRFs were ≥0.05 for all applicable target compounds. The initial calibration %RSDs were ≤35%, or r^2 values ≥0.990. The second source ICV and all applicable CCV recoveries were within the method control limits.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits.

IV.3.3. *SURROGATE RECOVERY*

Recoveries were within the laboratory control limits.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the site sample in this SDG for 2-chloroethylvinyl ether and acrolein. MS/MSD analyses for the remaining compounds were not performed on the site sample in this SDG. All recoveries and RPDs were within the laboratory QC limits. No qualifications were required.

IV.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.4.1. *TRIP BLANKS*

Sample TB-20200107 was identified as the trip blank associated with the site sample in this SDG. The sample was not included for data validation and was not included in the EDD.

IV.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the continuing calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

IV.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for 41 target compounds by Method 624. Review of the sample chromatograms, retention times, and spectra indicated no issues with target compound identification.

The laboratory reported m,p-xylenes and o-xylene, as well as total xylenes. As the isomers are more specific, the nondetect result for total xylenes was rejected (R) as duplicate data.

IV.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

IV.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

IV.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

V. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC[X] reviewed the SDG on March 5, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F and 9221F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The QAPP holding times, as listed below, were met with the exception of *E. Coli (Method 9221F)*. The sample was prepared for *E. Coli* 1.25 hours after the requirement of 6 hours after collection. The nondetect sample result for *E. Coli* was qualified as estimated (UJ).

- 24 hours for total settleable solids (2540F)
- 28 days for HEM (Oil and Grease Method 1664) and specific conductance (EPA Method 120.1)

V.2. CALIBRATION

No instrument calibration information was provided for specific conductance analysis. The initial and continuing calibration verifications met laboratory acceptance limits for specific conductance. Analytical balance calibration logs were not provided by the laboratory; however, the preparation worksheet notes for Method 1664 indicated that the balance was verified. Biological controls were acceptable for *E. Coli* analysis.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects. The negative control sample was acceptable for the *E. Coli* analysis. No quality control (QC) data were provided for Method 2540F.

V.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries, as applicable, were within the laboratory control limits for Method 120.1 and 1664. The presumptive test was analyzed with the positive detects for *E. Coli.* No QC data were provided for Method 2540F.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses are not applicable to these analyses.

V.4. SAMPLE RESULT VERIFICATION

Calculations were verified, and the sample results reported on the sample results summary were verified against the raw data, if provided. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

The sample was analyzed at 1×, 10× and 100× dilutions, as requested on the COC.

V.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402586211

Analysis Method E120.1

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	430	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	ND	4.8	1.3	mg/L	U	U	

Analysis Method E624.1

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1,1-Trichloroethane	N	71-55-6	ND	0.50	0.25	ug/L	U	U	
1,1,2,2-Tetrachloroethane	N	79-34-5	ND	0.50	0.25	ug/L	U	U	
1,1,2-Trichloroethane	N	79-00-5	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethane	N	75-34-3	ND	0.50	0.25	ug/L	U	U	
1,1-Dichloroethene	N	75-35-4	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloro-1,1,2-trifluoroethane	N	354-23-4	ND	2.0	1.0	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2	ND	0.50	0.25	ug/L	U	U	
1,2-Dichloropropane	N	78-87-5	ND	0.50	0.25	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.50	0.25	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	ND	0.50	0.25	ug/L	U	U	
2-Chloroethyl vinyl ether	N	110-75-8	ND	2.0	1.0	ug/L	U	U	
Acrolein	N	107-02-8	ND	5.0	2.5	ug/L	U	U	
Acrylonitrile	N	107-13-1	ND	2.0	1.0	ug/L	U	U	
Benzene	N	71-43-2	ND	0.50	0.25	ug/L	U	U	
Bromodichloromethane	N	75-27-4	ND	0.50	0.25	ug/L	U	U	
Bromoform	N	75-25-2	ND	1.0	0.40	ug/L	U	U	
Bromomethane (Methyl Bromide)	N	74-83-9	ND	0.50	0.25	ug/L	U	U	
Carbon tetrachloride	N	56-23-5	ND	0.50	0.25	ug/L	U	U	

Analysis Method E624.1

Chlorobenzene	N	108-90-7	ND	0.50	0.25	ug/L	U	U	
Chloroethane	N	75-00-3	ND	1.0	0.40	ug/L	U	U	
Chloroform (Trichloromethane)	N	67-66-3	ND	0.50	0.25	ug/L	U	U	
Chloromethane (Methyl Chloride)	N	74-87-3	ND	0.50	0.25	ug/L	U	U	
cis-1,2-Dichloroethene	N	156-59-2	ND	0.50	0.25	ug/L	U	U	
cis-1,3-Dichloropropene	N	10061-01-5	ND	0.50	0.25	ug/L	U	U	
Cyclohexane	N	110-82-7	ND	2.0	1.0	ug/L	U	U	
Dibromochloromethane	N	124-48-1	ND	0.50	0.25	ug/L	U	U	
Ethylbenzene	N	100-41-4	ND	0.50	0.25	ug/L	U	U	
m,p-Xylenes	N	179601-23-1	ND	1.0	0.50	ug/L	U	U	
Methylene chloride	N	75-09-2	ND	2.0	0.88	ug/L	U	U	
Naphthalene	N	91-20-3	ND	1.0	0.40	ug/L	U	U	
o-Xylene	N	95-47-6	ND	0.50	0.25	ug/L	U	U	
Tetrachloroethene	N	127-18-4	ND	0.50	0.25	ug/L	U	U	
Toluene	N	108-88-3	ND	0.50	0.25	ug/L	U	U	
trans-1,2-Dichloroethene	N	156-60-5	ND	0.50	0.25	ug/L	U	U	
trans-1,3-Dichloropropene	N	10061-02-6	ND	0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6	ND	0.50	0.25	ug/L	U	U	
Trichlorofluoromethane (CFC-11)	N	75-69-4	ND	0.50	0.25	ug/L	U	U	
Trifluorotrichloroethane (Freon 113)	N	76-13-1	ND	2.0	0.50	ug/L	U	U	
Vinyl chloride	N	75-01-4	ND	0.50	0.25	ug/L	U	U	
Xylene (total)	N	1330-20-7	ND	1.0	0.50	ug/L	U	R	D

Analysis Method SM2540F

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS	ND	0.10	0.10	ml/l/hr	U	U	

Analysis Method SM9221F

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	ND	1.8	1.8	mpn/100	U	UJ	H

Analysis Method SW8015D

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C13-C28)(DRO)	N	PHC1328	ND	0.53	0.11	mg/L	U	U	

Analysis Method SW8015V

Sample Name OUTFALL018_20200107_GRAB **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/7/2020 9:15:00 AM **Validation Level:** 8

Lab Sample Name: 440-258621-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C4-C12)	N	PHC412	0.025	0.050	0.025	mg/L	J,DX	J	DNQ

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258621-1
Client Project/Site: Annual Outfall 018 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/21/2020 3:54:38 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/21/2020 3:54:38 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258621-1	Outfall018_20200107_Grab	Water	01/07/20 09:15	01/07/20 15:00	
440-258621-3	TB-20200107	Water	01/07/20 09:15	01/07/20 15:00	

Job ID: 440-258621-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258621-1

Comments
No additional comments.

Receipt
The samples were received on 1/7/2020 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

GC/MS VOA
Method 624.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 440-589543 were outside control limits. Sample matrix interference is suspected. The associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 624.1: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 440-589543 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method 624.1: The following volatile sample was received and analyzed with significant headspace in the sample vial: TB-20200107 (440-258621-3). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Method 624.1: The following volatile sample was analyzed with significant headspace in the sample container(s) due to multiple runs: TB-20200107 (440-258621-3). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-589489.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-589692 and analytical batch 440-589730. 1664 - The Laboratory Control Sample (LCS) was performed in duplicate to provide precision data for this batch

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200107_Grab

Date Collected: 01/07/20 09:15
Date Received: 01/07/20 15:00

Lab Sample ID: 440-258621-1

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 12:16	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 12:16	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 12:16	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 12:16	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Chlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 12:16	1
Chloroform	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 12:16	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 12:16	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 12:16	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 12:16	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 12:16	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*60 - 140*		*01/08/20 12:16*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 140*		*01/08/20 12:16*	*1*
Toluene-d8 (Surr)	*111*		*60 - 140*		*01/08/20 12:16*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 09:06	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 09:06	1

Client Sample ID: Outfall018_20200107_Grab

Lab Sample ID: 440-258621-1

Date Collected: 01/07/20 09:15
Matrix: Water
Date Received: 01/07/20 15:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*60 - 140*		*01/09/20 09:06*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 140*		*01/09/20 09:06*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*01/09/20 09:06*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**0.025**	**J,DX**	0.050	0.025	mg/L			01/14/20 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*65 - 140*		*01/14/20 17:13*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.53	0.11	mg/L		01/08/20 05:31	01/08/20 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*73*		*45 - 120*	*01/08/20 05:31*	*01/08/20 17:49*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		4.8	1.3	mg/L		01/09/20 05:36	01/09/20 08:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**430**		1.0	1.0	umhos/cm			01/17/20 09:45	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			01/07/20 17:39	1

Client Sample ID: TB-20200107

Lab Sample ID: 440-258621-3

Date Collected: 01/07/20 09:15
Matrix: Water
Date Received: 01/07/20 15:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 12:44	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 12:44	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 12:44	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 12:44	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Chlorobenzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 12:44	1

Client Sample ID: TB-20200107

Date Collected: 01/07/20 09:15
Date Received: 01/07/20 15:00

Lab Sample ID: 440-258621-3

Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 12:44	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 12:44	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 12:44	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 12:44	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 12:44	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*60 - 140*		*01/08/20 12:44*	*1*
Dibromofluoromethane (Surr)	*104*		*60 - 140*		*01/08/20 12:44*	*1*
Toluene-d8 (Surr)	*109*		*60 - 140*		*01/08/20 12:44*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 10:32	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 10:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*60 - 140*		*01/09/20 10:32*	*1*
Dibromofluoromethane (Surr)	*107*		*60 - 140*		*01/09/20 10:32*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*01/09/20 10:32*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
Subcontract	9221F- E. Coli	None	Enthalpy
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

Client Sample ID: Outfall018_20200107_Grab

Lab Sample ID: 440-258621-1
Date Collected: 01/07/20 09:15
Matrix: Water
Date Received: 01/07/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	589543	01/08/20 12:16	GMA	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	589706	01/09/20 09:06	MML	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	590383	01/14/20 17:13	IM	TAL IRV
Total/NA	Prep	3510C			940 mL	1 mL	589518	01/08/20 05:31	L1H	TAL IRV
Total/NA	Analysis	8015B		1			589563	01/08/20 17:49	MPD	TAL IRV
Total/NA	Analysis	120.1		1			591054	01/17/20 09:45	XL	TAL IRV
Total/NA	Prep	1664A			1040 mL	1000 mL	589692	01/09/20 05:36	JC1	TAL IRV
Total/NA	Analysis	1664A		1			589730	01/09/20 08:28	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	589489	01/07/20 17:39	HZ	TAL IRV

Client Sample ID: TB-20200107

Lab Sample ID: 440-258621-3
Date Collected: 01/07/20 09:15
Matrix: Water
Date Received: 01/07/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	589543	01/08/20 12:44	GMA	TAL IRV
Total/NA	Analysis	624.1	RA	1	10 mL	10 mL	589706	01/09/20 10:32	MML	TAL IRV

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589543/4
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			01/08/20 09:31	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/08/20 09:31	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Acrolein	ND		5.0	2.5	ug/L			01/08/20 09:31	1
Acrylonitrile	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Benzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Bromodichloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Bromoform	ND		1.0	0.40	ug/L			01/08/20 09:31	1
Bromomethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chlorobenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chloroethane	ND		1.0	0.40	ug/L			01/08/20 09:31	1
Chloroform	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Chloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Cyclohexane	ND		2.0	1.0	ug/L			01/08/20 09:31	1
Dibromochloromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
m,p-Xylene	ND		1.0	0.50	ug/L			01/08/20 09:31	1
Methylene Chloride	ND		2.0	0.88	ug/L			01/08/20 09:31	1
Naphthalene	ND		1.0	0.40	ug/L			01/08/20 09:31	1
o-Xylene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Tetrachloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Toluene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Trichloroethene	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Vinyl chloride	ND		0.50	0.25	ug/L			01/08/20 09:31	1
Xylenes, Total	ND		1.0	0.50	ug/L			01/08/20 09:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*60 - 140*		*01/08/20 09:31*	*1*
Dibromofluoromethane (Surr)	*103*		*60 - 140*		*01/08/20 09:31*	*1*
Toluene-d8 (Surr)	*108*		*60 - 140*		*01/08/20 09:31*	*1*

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-589543/1002
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	27.0		ug/L		108	69 - 151
1,1,2,2-Tetrachloroethane	25.0	30.1		ug/L		120	68 - 136
1,1,2-Trichloroethane	25.0	26.4		ug/L		106	75 - 136
1,1-Dichloroethane	25.0	25.8		ug/L		103	71 - 143
1,1-Dichloroethene	25.0	27.1		ug/L		108	19 - 212
1,2-Dichlorobenzene	25.0	25.4		ug/L		102	59 - 174
1,2-Dichloroethane	25.0	22.8		ug/L		91	72 - 137
1,2-Dichloropropane	25.0	26.4		ug/L		106	19 - 181
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	75 - 144
1,4-Dichlorobenzene	25.0	25.3		ug/L		101	59 - 174
Acrylonitrile	250	242		ug/L		97	50 - 150
Benzene	25.0	25.3		ug/L		101	75 - 125
Bromodichloromethane	25.0	25.0		ug/L		100	50 - 140
Bromoform	25.0	25.9		ug/L		104	57 - 156
Bromomethane	25.0	25.5		ug/L		102	10 - 206
Carbon tetrachloride	25.0	25.6		ug/L		103	65 - 125
Chlorobenzene	25.0	25.1		ug/L		100	82 - 137
Chloroethane	25.0	25.8		ug/L		103	42 - 202
Chloroform	25.0	23.8		ug/L		95	68 - 121
Chloromethane	25.0	30.7		ug/L		123	10 - 230
cis-1,2-Dichloroethene	25.0	26.6		ug/L		107	60 - 140
cis-1,3-Dichloropropene	25.0	26.7		ug/L		107	5 - 195
Dibromochloromethane	25.0	27.3		ug/L		109	69 - 133
Ethylbenzene	25.0	25.2		ug/L		101	75 - 134
m,p-Xylene	25.0	25.9		ug/L		103	60 - 140
Methylene Chloride	25.0	22.8		ug/L		91	10 - 205
Naphthalene	25.0	22.2		ug/L		89	60 - 140
o-Xylene	25.0	25.1		ug/L		100	60 - 140
Tetrachloroethene	25.0	25.9		ug/L		104	70 - 130
Toluene	25.0	25.6		ug/L		102	75 - 134
trans-1,2-Dichloroethene	25.0	25.9		ug/L		103	70 - 130
trans-1,3-Dichloropropene	25.0	27.3		ug/L		109	38 - 162
Trichloroethene	25.0	25.5		ug/L		102	75 - 138
Trichlorofluoromethane	25.0	26.6		ug/L		106	45 - 158
Vinyl chloride	25.0	28.9		ug/L		116	10 - 218
Xylenes, Total	50.0	51.0		ug/L		102	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*60 - 140*
Dibromofluoromethane (Surr)	*100*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Lab Sample ID: 440-258618-A-1 MS
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		10.0	10.7		ug/L		107	52 - 162

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258618-A-1 MS
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	ND		10.0	13.1		ug/L		131	46 - 157
1,1,2-Trichloroethane	ND		10.0	11.6		ug/L		116	52 - 150
1,1-Dichloroethane	ND		10.0	11.8		ug/L		118	59 - 155
1,1-Dichloroethene	ND		10.0	14.9		ug/L		149	10 - 234
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	40.9	LM	ug/L		164	60 - 140
1,2-Dichlorobenzene	ND		10.0	10.8		ug/L		108	18 - 190
1,2-Dichloroethane	ND		10.0	9.59		ug/L		96	49 - 155
1,2-Dichloropropane	ND		10.0	10.4		ug/L		104	10 - 210
1,3-Dichlorobenzene	ND		10.0	10.3		ug/L		103	59 - 156
1,4-Dichlorobenzene	0.25	J,DX	10.0	10.6		ug/L		106	18 - 190
Acrylonitrile	ND		100	167	LM	ug/L		167	40 - 160
Benzene	ND		10.0	10.3		ug/L		103	37 - 151
Bromodichloromethane	ND		10.0	10.7		ug/L		107	35 - 155
Bromoform	ND		10.0	9.87		ug/L		99	45 - 169
Bromomethane	ND		10.0	10.1		ug/L		101	10 - 242
Carbon tetrachloride	ND		10.0	9.77		ug/L		98	70 - 140
Chlorobenzene	0.61		10.0	9.85		ug/L		92	37 - 160
Chloroethane	ND		10.0	10.1		ug/L		101	14 - 230
Chloroform	ND		10.0	9.65		ug/L		96	51 - 138
Chloromethane	ND		10.0	9.20		ug/L		92	10 - 273
cis-1,2-Dichloroethene	ND		10.0	11.8		ug/L		118	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.2		ug/L		112	10 - 227
Dibromochloromethane	ND		10.0	11.1		ug/L		111	53 - 149
Ethylbenzene	ND		10.0	10.2		ug/L		102	37 - 162
m,p-Xylene	ND		10.0	10.1		ug/L		101	60 - 140
Methylene Chloride	ND		10.0	13.0		ug/L		130	10 - 221
Naphthalene	ND		10.0	9.39		ug/L		94	60 - 140
o-Xylene	ND		10.0	9.93		ug/L		99	60 - 140
Tetrachloroethene	ND		10.0	10.7		ug/L		107	64 - 148
Toluene	ND		10.0	9.93		ug/L		99	47 - 150
trans-1,2-Dichloroethene	ND		10.0	13.1		ug/L		131	54 - 156
trans-1,3-Dichloropropene	ND		10.0	11.4		ug/L		114	17 - 183
Trichloroethene	ND		10.0	9.81		ug/L		98	70 - 157
Trichlorofluoromethane	ND		10.0	11.9		ug/L		119	17 - 181
Vinyl chloride	ND		10.0	9.78		ug/L		98	10 - 251
Xylenes, Total	ND		20.0	20.0		ug/L		100	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*60 - 140*
Dibromofluoromethane (Surr)	*102*		*60 - 140*
Toluene-d8 (Surr)	*102*		*60 - 140*

Lab Sample ID: 440-258618-A-1 MSD
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		10.0	9.90		ug/L		99	52 - 162	8	36

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258618-A-1 MSD
Matrix: Water
Analysis Batch: 589543

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2,2-Tetrachloroethane	ND		10.0	11.9		ug/L		119	46 - 157	10	61
1,1,2-Trichloroethane	ND		10.0	10.1		ug/L		101	52 - 150	14	45
1,1-Dichloroethane	ND		10.0	9.78		ug/L		98	59 - 155	19	40
1,1-Dichloroethene	ND		10.0	9.98	BA	ug/L		100	10 - 234	40	32
1,2-Dichloro-1,1,2-trifluoroethane	ND		25.0	29.0		ug/L		116	60 - 140	34	35
1,2-Dichlorobenzene	ND		10.0	10.2		ug/L		102	18 - 190	5	57
1,2-Dichloroethane	ND		10.0	9.35		ug/L		94	49 - 155	2	49
1,2-Dichloropropane	ND		10.0	10.4		ug/L		104	10 - 210	0	55
1,3-Dichlorobenzene	ND		10.0	9.95		ug/L		100	59 - 156	4	43
1,4-Dichlorobenzene	0.25	J,DX	10.0	10.3		ug/L		103	18 - 190	3	57
Acrylonitrile	ND		100	100		ug/L		100	40 - 160	50	60
Benzene	ND		10.0	10.1		ug/L		101	37 - 151	2	61
Bromodichloromethane	ND		10.0	10.0		ug/L		100	35 - 155	7	56
Bromoform	ND		10.0	10.4		ug/L		104	45 - 169	5	42
Bromomethane	ND		10.0	9.16		ug/L		92	10 - 242	10	61
Carbon tetrachloride	ND		10.0	9.71		ug/L		97	70 - 140	1	41
Chlorobenzene	0.61		10.0	9.61		ug/L		90	37 - 160	2	53
Chloroethane	ND		10.0	9.06		ug/L		91	14 - 230	10	78
Chloroform	ND		10.0	9.89		ug/L		99	51 - 138	2	54
Chloromethane	ND		10.0	9.72		ug/L		97	10 - 273	5	60
cis-1,2-Dichloroethene	ND		10.0	12.0		ug/L		120	60 - 140	2	35
cis-1,3-Dichloropropene	ND		10.0	10.5		ug/L		105	10 - 227	6	58
Dibromochloromethane	ND		10.0	10.8		ug/L		108	53 - 149	3	50
Ethylbenzene	ND		10.0	9.92		ug/L		99	37 - 162	3	63
m,p-Xylene	ND		10.0	9.94		ug/L		99	60 - 140	2	35
Methylene Chloride	ND		10.0	9.55	BA	ug/L		96	10 - 221	30	28
Naphthalene	ND		10.0	9.13		ug/L		91	60 - 140	3	35
o-Xylene	ND		10.0	9.62		ug/L		96	60 - 140	3	35
Tetrachloroethene	ND		10.0	10.9		ug/L		109	64 - 148	2	39
Toluene	ND		10.0	10.1		ug/L		101	47 - 150	1	41
trans-1,2-Dichloroethene	ND		10.0	10.2		ug/L		102	54 - 156	25	45
trans-1,3-Dichloropropene	ND		10.0	11.0		ug/L		110	17 - 183	4	86
Trichloroethene	ND		10.0	9.48		ug/L		95	70 - 157	3	48
Trichlorofluoromethane	ND		10.0	8.83		ug/L		88	17 - 181	29	84
Vinyl chloride	ND		10.0	9.48		ug/L		95	10 - 251	3	66
Xylenes, Total	ND		20.0	19.6		ug/L		98		2	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*104*		*60 - 140*

Lab Sample ID: MB 440-589706/4
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			01/09/20 08:37	1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589706/4
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			01/09/20 08:37	1
Acrolein	ND		5.0	2.5	ug/L			01/09/20 08:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*60 - 140*		*01/09/20 08:37*	*1*
Dibromofluoromethane (Surr)	*113*		*60 - 140*		*01/09/20 08:37*	*1*
Toluene-d8 (Surr)	*105*		*60 - 140*		*01/09/20 08:37*	*1*

Lab Sample ID: LCS 440-589706/1002
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2-Chloroethyl vinyl ether			25.0	17.3		ug/L		69	10 - 252		
Acrolein			24.7	19.3		ug/L		78	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*60 - 140*
Dibromofluoromethane (Surr)	*111*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Lab Sample ID: 440-258621-1 MS
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Outfall018_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2-Chloroethyl vinyl ether	ND		10.0	7.02		ug/L		70	10 - 305		
Acrolein	ND		9.88	6.38		ug/L		65	40 - 160		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*60 - 140*
Dibromofluoromethane (Surr)	*110*		*60 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Lab Sample ID: 440-258621-1 MSD
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Outfall018_20200107_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chloroethyl vinyl ether	ND		10.0	6.57		ug/L		66	10 - 305	7	71
Acrolein	ND		9.88	5.32		ug/L		54	40 - 160	18	60

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*60 - 140*
Dibromofluoromethane (Surr)	*109*		*60 - 140*
Toluene-d8 (Surr)	*99*		*60 - 140*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-590383/4
Matrix: Water
Analysis Batch: 590383

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			01/14/20 12:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*65 - 140*		*01/14/20 12:16*	*1*

Lab Sample ID: LCS 440-590383/3
Matrix: Water
Analysis Batch: 590383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	0.800	0.814		mg/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*65 - 140*

Lab Sample ID: 440-259003-D-2 MS
Matrix: Water
Analysis Batch: 590383

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	ND		0.800	0.743		mg/L		93	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*65 - 140*

Lab Sample ID: 440-259003-D-2 MSD
Matrix: Water
Analysis Batch: 590383

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		0.800	0.810		mg/L		101	65 - 140	9	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*65 - 140*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 440-589518/1-A
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.50	0.10	mg/L		01/08/20 05:31	01/08/20 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*68*		*45 - 120*	*01/08/20 05:31*	*01/08/20 10:22*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 440-589518/2-A
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589518

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28			1.00	0.799		mg/L		80	40 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*85*		*45 - 120*

Lab Sample ID: 440-258618-J-1-A MS
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 589518

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28	ND		1.06	0.954		mg/L		90	40 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane	*86*		*45 - 120*

Lab Sample ID: 440-258618-J-1-B MSD
Matrix: Water
Analysis Batch: 589563

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28	ND		1.11	0.774		mg/L		70	40 - 120	21	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*85*		*45 - 120*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-591054/3
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/17/20 09:45	1

Lab Sample ID: LCS 440-591054/4
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Conductance			1030	997		umhos/cm		97	90 - 110		

Lab Sample ID: 440-258843-B-1 DU
Matrix: Water
Analysis Batch: 591054

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	61			60.8		umhos/cm				0	5

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-589692/1-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		01/09/20 05:36	01/09/20 08:28	1

Lab Sample ID: LCS 440-589692/2-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589692

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	32.1		mg/L		80	78 - 114		

Lab Sample ID: LCSD 440-589692/3-A
Matrix: Water
Analysis Batch: 589730

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589692

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	33.2		mg/L		83	78 - 114	3	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

GC/MS VOA

Analysis Batch: 589543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	624.1	
440-258621-3	TB-20200107	Total/NA	Water	624.1	
MB 440-589543/4	Method Blank	Total/NA	Water	624.1	
LCS 440-589543/1002	Lab Control Sample	Total/NA	Water	624.1	
440-258618-A-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-258618-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

Analysis Batch: 589706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1 - RA	Outfall018_20200107_Grab	Total/NA	Water	624.1	
440-258621-3 - RA	TB-20200107	Total/NA	Water	624.1	
MB 440-589706/4	Method Blank	Total/NA	Water	624.1	
LCS 440-589706/1002	Lab Control Sample	Total/NA	Water	624.1	
440-258621-1 MS	Outfall018_20200107_Grab	Total/NA	Water	624.1	
440-258621-1 MSD	Outfall018_20200107_Grab	Total/NA	Water	624.1	

GC VOA

Analysis Batch: 590383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	8015B	
MB 440-590383/4	Method Blank	Total/NA	Water	8015B	
LCS 440-590383/3	Lab Control Sample	Total/NA	Water	8015B	
440-259003-D-2 MS	Matrix Spike	Total/NA	Water	8015B	
440-259003-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 589518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	3510C	
MB 440-589518/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-589518/2-A	Lab Control Sample	Total/NA	Water	3510C	
440-258618-J-1-A MS	Matrix Spike	Total/NA	Water	3510C	
440-258618-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	

Analysis Batch: 589563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	8015B	589518
MB 440-589518/1-A	Method Blank	Total/NA	Water	8015B	589518
LCS 440-589518/2-A	Lab Control Sample	Total/NA	Water	8015B	589518
440-258618-J-1-A MS	Matrix Spike	Total/NA	Water	8015B	589518
440-258618-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	589518

General Chemistry

Analysis Batch: 589489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	SM 2540F	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

General Chemistry

Prep Batch: 589692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	1664A	
MB 440-589692/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-589692/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-589692/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 589730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	1664A	589692
MB 440-589692/1-A	Method Blank	Total/NA	Water	1664A	589692
LCS 440-589692/2-A	Lab Control Sample	Total/NA	Water	1664A	589692
LCSD 440-589692/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	589692

Analysis Batch: 591054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258621-1	Outfall018_20200107_Grab	Total/NA	Water	120.1	
MB 440-591054/3	Method Blank	Total/NA	Water	120.1	
LCS 440-591054/4	Lab Control Sample	Total/NA	Water	120.1	
440-258843-B-1 DU	Duplicate	Total/NA	Water	120.1	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Grab

Job ID: 440-258621-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

GC VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258621-1
Project/Site: Annual Outfall 018 Grab

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
624.1		Water	1,1,2-Trichloro-1,2,2-trifluoroethane
624.1		Water	1,2-Dichloro-1,1,2-trifluoroethane
624.1		Water	Cyclohexane
8015B		Water	GRO (C4-C12)

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Test America - Irvine
Address:	17461 Derian Avenue Suite 100 Irvine, CA 92614
Attn:	Christian Bondoc

Lab Request:	423534
Report Date:	01/14/2020
Date Received:	01/07/2020
Client ID:	12194

Comments: Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001,002,011,018}
Outfall 018
Grab

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
423534-001	Outfall 018_20200107_Grab (440-258621-1)

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Patricia Mata, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

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Matrix:	Water	**Client:**	Test America - Irvine	**Collector:**	Client
Sampled:	01/07/2020 09:15	**Site:**			
Sample #:	**423534-001**	**Client Sample #:**	Outfall 018_20200107_Grab (440-258	**Sample Type:**	

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: SM 9221-F	Prep Method:					QCBatchID: QC1213288		
Coliform, E. Coli	**<1.8**	1		MPN/100ml	01/07/19 16:30	01/10/20	LH	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Test America

CHAIN OF CUSTODY FORM

423534.

Client Name/Address:	Project:	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 018 Grab	A A R R R R/Q/A A A A	Field Readings: (Include units) Time of Readings: 0830 DO 8.49 mg/L pH ~~6.71~~ RH pH unit 6.53 pH Temp ~~51.3~~ RH °C/(F) 52.1 °F TRC 0.0 mg/L Field readings QC Checked by: Date/Time:	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)			
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)			
Sampler: Dan Smith				

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357) Source Molecular in Miami Lakes, FL	E. coli (SM9221)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Oil & Grease (E1664A-HEM)	VOCs + VOCs PP + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624)	VOCs - only A+A+2CVE (E624)	TPH: gas (GRO(C4-C12)) (SW8015B)	TPH: diesel/jet fuel (DRO (C13-C28)) (SW8015B)				Comments
Outfall 018	Outfall018_20200107_Grab	1/7/2020 0915	WM	~~125mL Sterile Poly~~	~~1~~	~~None~~	~~5~~	~~No~~	X												~~Deliver to lab ASAP 8 hr hold time~~ RH
			WM	125mL Sterile Poly	3	$Na_2S_2O_3$	10	No		X											Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No					X								
			WM	40 mL VOA	3	HCl	45	No						X							
			WM	40 mL VOA	3	None	55	No							X						
			WM	40 mL VOA	3	HCl	60	No								X					
			WM	1 L Glass Amber	2	None	65	No									X				
			WM	1 L Poly	1	None	70	No			X										
			WM	500 mL Poly	1	None	75	No				X									
	Outfall018_20200107_Grab_Extra	1/7/2020 0915	WM	1 L Glass Amber	2	HCl	15	No					H								Hold
			WM	40 mL VOA	3	HCl	45	No						H							Hold
			WM	40 mL VOA	3	None	55	No							H						Hold
			WM	500 mL Poly	1	None	75	No				H									Hold
Trip Blanks	TB-20200107	1/7/2020 0915	WQ	40 mL VOA	2	HCl	45	No						X							
			WQ	40 mL VOA	2	None	55	No							X						

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hann	01/07/20 RH	H&A		1/7/20
	1/7/20	~~LS~~ GG		1/7/20 1552
	Date/Time:	Company:		Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

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1/21/2020

2019-2020 Rainy Season
Version 1

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Boeing-SSFL NPDES

Date Received: 1/7/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.4 #2: _____ #3: _____ #4: _____

(Acceptance ronge is < 6°C but not frozen (for Microbiology samples, acceptonce ronge is < 10°C but not frozen). It is occeptable for samples collected the some day os sample receipt to hove a higher temperature as lang as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☐ Ice ☑ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.8 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____ ☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 1/7/20

CHAIN OF CUSTODY FORM

Client Name/Address	Project	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 018 Grab	A: MST-Bacteroidales Human (SAM346-357) Source Kit - Not Provided by Eurofins; A: E coli (SM9221); R: Settleable Solids (E160.5 / SM2540F); R: Conductivity (SM2510B / E120.1); R: Oil & Grease (E1664A-HEM); R/Q/A: VOCs + VOCs PP + xylenes, Freon 11, Freon 113 Freon 123A Cyclohexane cis-1,2-DCE (E624); A: VOCs - only A+A+2CVE (E624); A: TPH gas (GRO)(C4-C12)) (SW8015B); A: TPH diesel/jet fuel (DRO (C13-C28)) (SW8015B)	**Field Readings: (Include units)** Time of Readings: 0830 DO 8.49 mg/L pH ~~6.21~~ RH pH unit 6.53 pH Temp ~~52.3~~ RH °C(F) 52.1 °F TRC 0.0 mg/L **Field readings QC** Checked by: Date/Time:	
Test America Contact Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055				
TestAmerica's services under this COC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.	Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell)			
Sampler Dan Smith	Field Manager Mark Dominick 978 234 5033, 818 599 0702 (cell)			

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Comments
Outfall 018	Outfall018_20200107_Grab	1/7/2020 0915	WM	~~125mL Sterile Poly~~	~~1~~	~~None~~	~~5~~	~~No~~	~~For Bacteroidales ASAP 8 hr hold time~~ RH
			WM	125mL Sterile Poly	3	$Na_2S_2O_3$	10	No	Hold. For Bacteroidales ASAP 8 hr hold time
			WM	1 L Glass Amber	2	HCl	15	No	
			WM	40 mL VOA	3	HCl	45	No	
			WM	40 mL VOA	3	None	55	No	
			WM	40 mL VOA	3	HCl	60	No	
			WM	1 L Glass Amber	2	None	65	No	
			WM	1 L Poly	1	None	70	No	
			WM	500 mL Poly	1	None	75	No	
	Outfall018_20200107_Grab_Extra	1/7/2020 0915	WM	1 L Glass Amber	2	HCl	15	No	Hold
			WM	40 mL VOA	3	HCl	45	No	Hold
			WM	40 mL VOA	3	None	55	No	Hold
			WM	500 mL Poly	1	None	75	No	Hold
Trip Blanks	TB-20200107	1/7/2020 0915	WQ	40 mL VOA	2	HCl	45	No	
			WQ	40 mL VOA	2	None	55	No	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hann	01/07/20 RH	H&A		1/7/20
	1/7/20	1520		
			EC-12V	1/7/20 1500

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day ___X___
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV ___X___

1/7/20 LD 1.0/10, ~~1.2/1.2~~ 1R-93 LD

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258621-1

Login Number: 258621
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258701-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

5 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258701-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL018_20200108_COMP	440-258701-1	Water	1/8/20 9:10 AM	E180.1, E200.7, E200.8, E218.6, E245.1, E300, E314.0, E608.3, E625.1, EPA-821-R-02-013, SM2340, SM2540C/D, SM4500-CN-E, SM4500-NH3G, SM5210B, SM5310B, SM5540, SW8260SIM
OUTFALL018_20200108_COMP_F	440-258701-2	Water	1/8/20 9:10 AM	E200.7, E200.8, E245.1, SM2340

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists, and the chains-of-custody (COC) provided by the laboratories for sample delivery group (SDG) 440-258701-1:

- TA-Irvine received the samples in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C. In the absence of a sample receipt form from ABC Laboratory, temperature upon receipt at that laboratory is unknown.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- The sample was transferred from TA-Irvine to Aquatic Bioassay Consulting Laboratories (ABC) for Method EPA-821-R-02-013 chronic toxicity.
- Page 2 of the original COC to TA-Irvine Field did not have a relinquishment signature and date. The transfer COC from TA-Irvine to ABC Laboratory did not include a relinquishment signature and date. and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist for TA-Irvine, custody seals were absent on the coolers; however, no evidence of tampering was noted. In the absence of a sample receipt form from ABC, presence of custody seals in shipment to that laboratory is unknown.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. METHODS 200.7, 200.8, 245.1 AND SM2340B — METALS, MERCURY AND HARDNESS

M. Hilchey of MEC^X reviewed the SDG on March 5, 2020.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7, 200.8 and 245.1, Standard Methods for the Examination of Water and Wastewater 2340B* and the *National Functional Guidelines for Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES

The analytical holding time, six months for metals, was met. Sample OUTFALL018_20200108_COMP_F was filtered and preserved 38 hours after receipt, exceeding the COC requirement of filtration and preservation within 24 hours of receipt. All results for this sample were qualified as estimated (J for detects, UJ for nondetects).

III.2. CALIBRATION

Mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.

QAPP calibration criteria were met. A blank and two or three standards were used for calibration of ICP-AES target analytes, a blank and four standards were used for calibration of ICP-MS, and a blank and five standards were used for calibration of mercury. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. Initial calibration verification recoveries were within QAPP control limits of 95-105% for ICP-AES and mercury, and 90-110% for ICP-MS. Continuing calibration verification recoveries were within QAPP control limits of 90-110% for all methods.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks or calibration blanks of sufficient concentration to warrant qualification of associated site sample results with the following exceptions. Antimony was reported in the CCBs bracketing total and dissolved sample analyses at greater than MDL (0.810 and 0.980, respectively). The associated result for dissolved antimony was a detected below the RL and was qualified as nondetect (U). Although reported as nondetect in the summary form, mercury was reported in the raw data for a bracketing CCB at a negative value (-0.185 µg/L) greater than the absolute value of the MDL. The associated sample results for dissolved and total mercury (both nondetect) were qualified as estimated (UJ).

III.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. No interferents were present in the samples at concentrations comparable to those of the ICS; therefore, matrix interference was not suspected.

III.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries (total and dissolved) were within the QAPP control limits of 85-115%.

III.3.4. *LABORATORY DUPLICATES:*

Laboratory duplicate analyses were not performed on a sample in this SDG.

III.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on a sample in this SDG.

The laboratory did not perform post-digestion spike analyses.

III.4. SERIAL DILUTION

Serial dilution analyses were not performed on a sample in this SDG.

III.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within 60-125% of the ICP-MS calibration blank.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified, and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Nondetects are valid to the MDL.

III.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

IV. EPA METHOD 608.3 –PESTICIDES AND PCBS

E. Wessling of MEC^X reviewed the SDG on March 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608.3* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

IV.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

IV.2. CALIBRATION

The initial calibration %RSDs were ≤15% or r^2 ≥0.990. The initial calibration verification (ICV) recoveries were

within the control limit of ±20%, and continuing calibration verification (CCV) %Ds met method criteria.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

IV.3.2. *LABORATORY CONTROL SAMPLES*

LCS/LCSD recoveries and RPDs were within the respective laboratory control limits for pesticides and PCBs. Toxaphene and chlordane were not spiked into the pesticide LCS/LCSD samples.

IV.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) was recovered within the laboratory control limits of 10-104% in the site sample and PCB surrogate decachlorobiphenyl (DCB) was recovered within the laboratory control limits of 18-134%.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG. MEC^X evaluated method accuracy and precision based on the LCS/LCSD results.

IV.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatograms and retention times indicated no issues with target compound identification. The laboratory analyzed for seven Aroclors and 18 pesticide target compounds by Method 608.3.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Pesticides and PCB Aroclors were not detected in the sample. Reported nondetects are valid to the reporting limit.

The laboratory's extraction bench sheet for PCBs indicated the sample extract was cloudy with an emulsion.

V. EPA METHOD 314.0 — PERCHLORATE

M. Hilchey of MEC^X reviewed the SDG on March 5, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 314.0* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The analytical holding time, 28 days, was met.

V.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 value was ≥0.995. The initial calibration recovery was within QAPP control limits of 75-125% and the continuing calibration recoveries were within QAPP control limits of 85-115%. The MRL was recovered within the QAPP control limits of 70-130%. Interference check sample recovery was within the QAPP control limits of 80-120%.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blank and calibration blanks had no detects.

V.3.2. *LABORATORY CONTROL SAMPLES*

The LCS recovery was within the QAPP control limits of 85-115%.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample from this SDG.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Matrix spike/matrix spike duplicate analyses were not performed on the sample from this SDG.

V.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

V.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VI. EPA METHOD 625.1 — SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

K. Zilis of MEC[X] reviewed the SDG on March 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 625.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VI.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within seven days of collection and analyzed within 30 days of extraction.

VI.2. GC/MS TUNING AND CALIBRATION

The DFTPP tunes met the method abundance criteria. Samples were analyzed within 12 hours of the DFTPP injection time.

Calibration criteria were met. Initial calibration average relative response factors (RRFs) were within the method control limits, and the %RSDs were ≤35% or r^2 values ≥0.990. For applicable target compound pentachlorophenol, ICV and CCV RRFs were within the method control limits. ICV recoveries and CCV %Ds were within method control limits.

VI.3. QUALITY CONTROL SAMPLES

VI.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks above the MDL.

VI.3.2. *LABORATORY CONTROL SAMPLES*

LCS recovery was within the laboratory control limits with the exception of hexachlorocyclopentadiene with a recovery of 54% with limits of 60-140%. The nondetect result for this compound was qualified as estimated (UJ). Benzidine was not recovered at a concentration above the MDL. Raw data confirmed a detection at 9% recovery, above the laboratory QC limit of 5%. However, as this compound was recovered below 10%, the nondetect for benzidine was rejected (flagged R). No further qualifiers were applied.

VI.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within laboratory control limits.

VI.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC[X] evaluated method accuracy based on the LCS result.

VI.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

VI.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

Field blank or equipment blank samples were not identified for this SDG.

VI.4.2. *FIELD DUPLICATES:*

Field duplicate samples were not identified in this SDG.

VI.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the midpoint of the initial calibration standards: ±30 seconds for retention times and -50%/+100% for internal standard areas.

VI.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed 57 compounds by EPA Method 625.1. Review of the sample chromatogram, retention times, and spectra indicated no issues with target compound identification.

VI.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. The result reported below the RL was qualified as estimated (J) and coded with DNQ to comply with the NPDES permit reporting requirements. The sample did not require dilution.

The laboratory's preparation bench sheet indicated the sample extract was light yellow and cloudy.

VI.8. TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

The laboratory did not report TICs for this SDG.

VI.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

VII. EPA METHOD 8260B SIM—1,4-DIOXANE

K. Zilis of MEC^X reviewed the SDG on March 6, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 8260B* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

VII.1. HOLDING TIMES

Analytical holding times were met. The preserved water sample was analyzed within 14 days of collection.

VII.2. GC/MS TUNING AND CALIBRATION

The BFB tunes met the method abundance criteria. The sample was analyzed within 12 hours of the BFB injection time.

Calibration criteria were met. The initial calibration average RRF and the ICV and continuing calibration RRFs were ≥0.05 for 1,4-dioxane. The initial calibration %RSD was ≤15%. The second source ICV and CCV %Ds were within the control limit of ≤20%.

VII.3. QUALITY CONTROL SAMPLES

VII.3.1. *METHOD BLANKS*

Target compound 1,4-dioxane was not detected in the method blank.

VII.3.2. *LABORATORY CONTROL SAMPLES*

The recovery was within the laboratory control limits.

VII.3.3. *SURROGATE RECOVERY*

Recoveries were within the laboratory control limits.

VII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample from this SDG. MEC^X evaluated method accuracy based on the LCS results.

VII.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

VII.4.1. *TRIP BLANKS*

A trip blank was not identified for this SDG.

VII.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VII.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VII.5. INTERNAL STANDARDS PERFORMANCE

The internal standard retention times and area counts were within the control limits established by the continuing calibration standard: ±30 seconds for retention times and -50%/+100% for internal standard areas.

VII.6. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatogram, retention times, and spectra indicated no issues with target compound identification.

VII.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. The reported nondetect is valid to the reporting limit.

VII.8. TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for this SDG.

VII.9. SYSTEM PERFORMANCE

Review of the raw data indicated no issues with system performance.

VIII. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on March 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 180.1, 218.6, 300.0 and EPA-821-R-02-013 , Standard Methods for the Examination of Water and Wastewater 2540C, 2540D, 4500-NH3-G and 4500-CN-E , 5210B, 5310B, 5540C* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

VIII.1. HOLDING TIMES

The QAPP holding times, as listed below, were met.

- 48 hours from collection for nitrate as N and nitrite as N (300.0); biological oxygen demand (5310B); turbidity (180.1); MBAS (5540C)
- 7 days for total dissolved solids (2540C); total suspended solids (2540D)
- 28 days for ammonia (4500-NH3-G); chloride, fluoride and sulfate (300.0); total organic carbon (5210B)
- 14 days for total cyanide (4500-CN-E)
- 36 hours from collection for Chronic Toxicity – *Selenastrum* (EPA-821-R-02-213)
- 24 hours from collection for hexavalent chromium (218.6)

VIII.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values, as appropriate, were $\geq$0.995 and all initial calibration verification recoveries were within 95-105% for anions and 90-110% for the remaining analyses, as appropriate. All continuing calibration verification recoveries were within 90-110% for all appropriate analyses. The MRL recoveries for ammonia, MBAS and hexavalent chromium were within the laboratory control limits of 50-150%. Analytical balance calibration logs were not provided for TDS and TSS analyses. Instrument calibration information for BOD was not provided.

For chronic toxicity, instruments were calibrated as per the manufacturer requirements and standard reference toxicant testing was performed to verify culture health and sensitivity. Method Test Acceptability criteria (TAC) were met.

VIII.3. QUALITY CONTROL SAMPLES

VIII.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects with the exception of ammonia in a bracketing CCB (-0.123 mg/L). The associated sample result was a detect <5× the absolute value of the negative blank concentration and was qualified as estimated with low potential bias (J-). Positive controls were within the laboratory and method established compliance criteria for chronic toxicity.

VIII.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits. Positive controls were within the laboratory and method established compliance criteria for chronic toxicity.

VIII.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis was performed on the sample in this SDG for Method 180.1. The RPD met the laboratory acceptance limit. Laboratory duplicate analyses were not performed on the sample in this SDG for the remaining methods.

VIII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for Methods 4500-CN-E and 5310B. Recoveries and RPDs met laboratory acceptance limits. MS/MSD analyses were not performed on the sample in this SDG for the remaining methods.

VIII.4. SAMPLE RESULT VERIFICATION

Calculations were verified, and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. It should be noted that raw data was not provided for Method 180.1; therefore, the sample result could not be verified. Results reported below the RL and above the MDL were qualified as estimated (J) and coded with a DNQ to comply with the NPDES permit reporting requirements. Reported nondetects are valid to the MDL.

VIII.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VIII.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VIII.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402587011

Analysis Method E180.1

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Turbidity	N	TURBIDITY	0.37	0.10	0.040	NTU			

Analysis Method E200.7

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	120	100	50	ug/L			
Arsenic	T	7440-38-2	ND	10	8.9	ug/L	U	U	
Barium	T	7440-39-3	0.019	0.010	0.0050	mg/L			
Beryllium	T	7440-41-7	ND	2.0	1.0	ug/L	U	U	
Boron	T	7440-42-8	0.050	0.050	0.025	mg/L			
Chromium	T	7440-47-3	ND	5.0	2.5	ug/L	U	U	
Cobalt	T	7440-48-4	ND	10	5.0	ug/L	U	U	
Iron	T	7439-89-6	ND	0.10	0.050	mg/L	U	U	
Manganese	T	7439-96-5	18	20	15	ug/L	J,DX	J	DNQ
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Vanadium	T	7440-62-2	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	13	20	12	ug/L	J,DX	J	DNQ

Sample Name OUTFALL018_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	D	7429-90-5	83	100	50	ug/L	J,DX	J	H, DNQ
Arsenic	D	7440-38-2	ND	10	8.9	ug/L	U	UJ	H
Barium	D	7440-39-3	0.019	0.010	0.0050	mg/L		J	H
Beryllium	D	7440-41-7	ND	2.0	1.0	ug/L	U	UJ	H
Boron	D	7440-42-8	0.043	0.050	0.025	mg/L	J,DX	J	H, DNQ
Chromium	D	7440-47-3	ND	5.0	2.5	ug/L	U	UJ	H
Cobalt	D	7440-48-4	ND	10	5.0	ug/L	U	UJ	H
Iron	D	7439-89-6	ND	0.10	0.050	mg/L	U	UJ	H
Manganese	D	7439-96-5	17	20	15	ug/L	J,DX	J	H, DNQ
Nickel	D	7440-02-0	ND	10	5.0	ug/L	U	UJ	H

Analysis Method E200.7

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Vanadium	D	7440-62-2	ND	10	5.0	ug/L	U	UJ	H
Zinc	D	7440-66-6	ND	20	12	ug/L	U	UJ	H

Analysis Method E200.8

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	ND	2.0	0.50	ug/L	U	U	
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	1.5	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	T	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U	
Silver	T	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	T	7440-28-0	ND	1.0	0.20	ug/L	U	U	

Sample Name OUTFALL018_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	0.51	2.0	0.50	ug/L	J,DX	UJ	H, B
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	H
Copper	D	7440-50-8	1.4	2.0	0.50	ug/L	J,DX	J	H, DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	H
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	UJ	H
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	H
Thallium	D	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	H

Analysis Method E218.6

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chromium VI (Hexavalent)	T	18540-29-9	ND	1.0	0.25	ug/L	U	U	

Analysis Method E245.1

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	ND	0.20	0.10	ug/L	U	UJ	B

Analysis Method E245.1

Sample Name OUTFALL018_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6	ND	0.20	0.10	ug/L	U	UJ	H, B

Analysis Method E300

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	8.0	0.50	0.25	mg/L			
Fluoride	N	16984-48-8	ND	0.50	0.25	mg/L	U	U	
Nitrate (as N)	N	14797-55-8	1.4	0.11	0.055	mg/L			
Nitrite (as N)	N	14797-65-0	ND	0.15	0.025	mg/L	U	U	
Nitrite/Nitrate	N	NO2NO3	1.4	0.15	0.055	mg/L			
Sulfate	N	14808-79-8	150	2.5	1.3	mg/L			

Analysis Method E314.0

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Perchlorate	N	14797-73-0	ND	4.0	0.95	ug/L	U	U	

Analysis Method E608.3

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8	ND	0.0052	0.0041	ug/L	U	U	
4,4'-DDE	N	72-55-9	ND	0.0052	0.0031	ug/L	U	U	
4,4'-DDT	N	50-29-3	ND	0.010	0.0041	ug/L	U	U	
Aldrin	N	309-00-2	ND	0.0052	0.0015	ug/L	U	U	
alpha-BHC	N	319-84-6	ND	0.0052	0.0026	ug/L	U	U	
Aroclor-1016 (PCB-1016)	N	12674-11-2	ND	0.52	0.26	ug/L	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2	ND	0.52	0.26	ug/L	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5	ND	0.52	0.26	ug/L	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9	ND	0.52	0.26	ug/L	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6	ND	0.52	0.26	ug/L	U	U	

Analysis Method E608.3

Aroclor-1254 (PCB-1254)	N	11097-69-1	ND	0.52	0.26	ug/L	U	U
Aroclor-1260 (PCB-1260)	N	11096-82-5	ND	0.52	0.26	ug/L	U	U
beta-BHC	N	319-85-7	ND	0.010	0.0041	ug/L	U	U
Chlordane	N	57-74-9	ND	0.10	0.082	ug/L	U	U
delta-BHC	N	319-86-8	ND	0.0052	0.0036	ug/L	U	U
Dieldrin	N	60-57-1	ND	0.0052	0.0021	ug/L	U	U
Endosulfan I	N	959-98-8	ND	0.0052	0.0031	ug/L	U	U
Endosulfan II	N	33213-65-9	ND	0.0052	0.0021	ug/L	U	U
Endosulfan sulfate	N	1031-07-8	ND	0.010	0.0031	ug/L	U	U
Endrin	N	72-20-8	ND	0.0052	0.0021	ug/L	U	U
Endrin aldehyde	N	7421-93-4	ND	0.010	0.0021	ug/L	U	U
gamma-BHC (Lindane)	N	58-89-9	ND	0.010	0.0031	ug/L	U	U
Heptachlor	N	76-44-8	ND	0.0093	0.0031	ug/L	U	U
Heptachlor epoxide	N	1024-57-3	ND	0.0052	0.0026	ug/L	U	U
Toxaphene	N	8001-35-2	ND	0.52	0.25	ug/L	U	U

Analysis Method E625.1

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,4-Trichlorobenzene	N	120-82-1	ND	1.1	0.21	ug/L	U	U	
1,2-Dichlorobenzene	N	95-50-1	ND	0.53	0.21	ug/L	U	U	
1,2-Diphenylhydrazine	N	122-66-7	ND	1.1	0.21	ug/L	U	U	
1,3-Dichlorobenzene	N	541-73-1	ND	0.53	0.21	ug/L	U	U	
1,4-Dichlorobenzene	N	106-46-7	ND	0.53	0.21	ug/L	U	U	
2,2'-oxybis(1-Chloropropane)	N	108-60-1	ND	0.53	0.11	ug/L	U	U	
2,4,6-Trichlorophenol	N	88-06-2	ND	1.1	0.11	ug/L	U	U	
2,4-Dichlorophenol	N	120-83-2	ND	2.1	0.21	ug/L	U	U	
2,4-Dimethylphenol	N	105-67-9	ND	2.1	0.53	ug/L	U	U	
2,4-Dinitrophenol	N	51-28-5	ND	5.3	1.1	ug/L	U	U	
2,4-Dinitrotoluene	N	121-14-2	ND	5.3	2.1	ug/L	U	U	
2,6-Dinitrotoluene	N	606-20-2	ND	5.3	2.1	ug/L	U	U	
2-Chloronaphthalene	N	91-58-7	ND	0.53	0.11	ug/L	U	U	
2-Chlorophenol	N	95-57-8	ND	1.1	0.11	ug/L	U	U	
2-Nitrophenol	N	88-75-5	ND	2.1	0.21	ug/L	U	U	
3,3'-Dichlorobenzidine	N	91-94-1	ND	5.3	1.1	ug/L	U	U	
4,6-Dinitro-2-methylphenol	N	534-52-1	ND	5.3	1.1	ug/L	U	U	
4-Bromophenyl phenyl ether	N	101-55-3	ND	1.1	0.11	ug/L	U	U	
4-Chloro-3-methylphenol	N	59-50-7	ND	2.1	0.21	ug/L	U	U	
4-Chlorophenyl phenyl ether	N	7005-72-3	ND	0.53	0.11	ug/L	U	U	
4-Nitrophenol	N	100-02-7	ND	5.3	2.1	ug/L	U	U	

Analysis Method E625.1

Acenaphthene	N	83-32-9	ND	0.53	0.11	ug/L	U	U	
Acenaphthylene	N	208-96-8	ND	0.53	0.11	ug/L	U	U	
Anthracene	N	120-12-7	ND	0.53	0.11	ug/L	U	U	
Benzidine	N	92-87-5	ND	11	5.3	ug/L	U	R	L
Benzo(a)anthracene	N	56-55-3	ND	5.3	1.1	ug/L	U	U	
Benzo(a)pyrene	N	50-32-8	ND	2.1	0.21	ug/L	U	U	
Benzo(b)fluoranthene	N	205-99-2	ND	2.1	0.32	ug/L	U	U	
Benzo(g,h,i)perylene	N	191-24-2	ND	5.3	1.1	ug/L	U	U	
Benzo(k)fluoranthene	N	207-08-9	ND	0.53	0.11	ug/L	U	U	
bis(2-Chloroethoxy)methane	N	111-91-1	ND	0.53	0.21	ug/L	U	U	
bis(2-Chloroethyl)ether	N	111-44-4	ND	0.53	0.053	ug/L	U	U	
bis(2-Ethylhexyl)phthalate	N	117-81-7	ND	5.3	2.1	ug/L	U	U	
Butyl benzylphthalate	N	85-68-7	3.0	5.3	2.1	ug/L	J,DX	J	DNQ
Chrysene	N	218-01-9	ND	0.53	0.11	ug/L	U	U	
Dibenz(a,h)anthracene	N	53-70-3	ND	0.53	0.21	ug/L	U	U	
Diethyl phthalate	N	84-66-2	0.99	1.1	0.21	ug/L	J,DX	J	DNQ
Dimethyl phthalate	N	131-11-3	ND	0.53	0.11	ug/L	U	U	
Di-n-butylphthalate	N	84-74-2	ND	2.1	0.53	ug/L	U	U	
Di-n-octyl phthalate	N	117-84-0	ND	5.3	1.1	ug/L	U	U	
Fluoranthene	N	206-44-0	ND	0.53	0.11	ug/L	U	U	
Fluorene	N	86-73-7	ND	0.53	0.11	ug/L	U	U	
Hexachlorobenzene	N	118-74-1	ND	1.1	0.11	ug/L	U	U	
Hexachlorobutadiene	N	87-68-3	ND	2.1	0.53	ug/L	U	U	
Hexachlorocyclopentadiene	N	77-47-4	ND	5.3	2.1	ug/L	ULR	UJ	L
Hexachloroethane	N	67-72-1	ND	3.2	0.53	ug/L	U	U	
Indeno(1,2,3-cd)pyrene	N	193-39-5	ND	2.1	0.43	ug/L	U	U	
Isophorone	N	78-59-1	ND	1.1	0.21	ug/L	U	U	
Naphthalene	N	91-20-3	ND	1.1	0.053	ug/L	U	U	
Nitrobenzene	N	98-95-3	ND	1.1	0.21	ug/L	U	U	
N-Nitrosodimethylamine	N	62-75-9	ND	2.1	0.32	ug/L	U	U	
N-Nitrosodi-n-propylamine	N	621-64-7	ND	2.1	0.21	ug/L	U	U	
N-Nitrosodiphenylamine	N	86-30-6	ND	1.1	0.21	ug/L	U	U	
Pentachlorophenol	N	87-86-5	1.3	2.1	1.1	ug/L	J,DX	J	DNQ
Phenanthrene	N	85-01-8	ND	0.53	0.11	ug/L	U	U	
Phenol	N	108-95-2	ND	1.1	0.11	ug/L	U	U	
Pyrene	N	129-00-0	ND	0.53	0.11	ug/L	U	U	

Analysis Method EPA-821-R-02-013

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Selenastrum	N	CHRTOXSELENA	-75.62			% SURV			

Analysis Method SM2340

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	T	HARDNESSCACO3	120	0.33	0.17	mg/L			

Sample Name OUTFALL018_20200108_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	D	HARDNESSCACO3	120	0.33	0.17	mg/L		J	H

Analysis Method SM2540C

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	310	10	5.0	mg/L			

Analysis Method SM2540D

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	ND	1.0	0.50	mg/L	U	U	

Analysis Method SM4500-CN-E

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cyanide	N	57-12-5	ND	5.0	2.5	ug/L	U	U	

Analysis Method SM4500-NH3G

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N	0.131	0.200	0.100	mg/L	J,DX	J-	B, DNQ

Analysis Method SM5210B

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Biochemical Oxygen Demand	N	BOD	ND	2.0	2.0	mg/L	U	U	

Analysis Method SM5310B

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Organic Carbon (TOC)	N	TOC	4.8	1.0	0.65	mg/L			

Analysis Method SM5540

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Surfactants as MBAS	N	SURFASMBAS	0.11	0.10	0.050	mg/L			

Analysis Method SW8260SIM

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,4-Dioxane	N	123-91-1	ND	2.0	0.50	ug/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258701-1
Client Project/Site: Annual Outfall 018 Comp
Revision: 4

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/30/2020 7:16:07 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/30/2020 7:16:07 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258701-1	Outfall018_20200108_Comp	Water	01/08/20 09:10	01/08/20 15:50	
440-258701-2	Outfall018_20200108_Comp_F	Water	01/08/20 09:10	01/08/20 15:50	

Job ID: 440-258701-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258701-1

Comments
This report is being revised to exclude 1-1-dimethylhyrazine and Hyrazine results.

Receipt
The samples were received on 1/8/2020 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.2º C, 0.5º C, 2.3º C and 3.1º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method 625.1: The laboratory control sample and the laboratory control sample duplicate (LCS/LCSD) for preparation batch 440-589710 and analytical batch 440-590150 recovered outside below control limits for the following analyte: Hexachlorocyclopentadiene. This analyte has been identified as poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. The reported results may be biased low for these analytes.

Method 625.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-589710 and analytical batch 440-590150 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-589882 and analytical batch 440-589980. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-589882/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 440-589913 and analytical batch 440-590052 were outside control limits for Copper and Selenium. Sample matrix interference and/or non-homogeneity are suspected.

Method FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall018_20200108_Comp_F (440-258701-2). This sample was filtered and preserved upon receipt to the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 3510C, 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-589882. Method 8081-8082

Job ID: 440-258701-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Client Sample ID: Outfall018_20200108_Comp
Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1
Matrix: Water

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			01/09/20 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*01/09/20 13:54*	*1*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Acenaphthylene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Anthracene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzidine	ND		11	5.3	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzo[a]anthracene	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzo[b]fluoranthene	ND		2.1	0.32	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzo[k]fluoranthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzo[a]pyrene	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Bis(2-chloroethoxy)methane	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Bis(2-chloroethyl)ether	ND		0.53	0.053	ug/L		01/09/20 06:35	01/13/20 13:38	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
4-Bromophenyl phenyl ether	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Butyl benzyl phthalate	**3.0**	**J,DX**	5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
4-Chloro-3-methylphenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
2-Chloronaphthalene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
2-Chlorophenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
4-Chlorophenyl phenyl ether	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Chrysene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Dibenz(a,h)anthracene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Di-n-butyl phthalate	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 13:38	1
1,2-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
1,3-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
1,4-Dichlorobenzene	ND		0.53	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
3,3'-Dichlorobenzidine	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,4-Dichlorophenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Diethyl phthalate	**0.99**	**J,DX**	1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,4-Dimethylphenol	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 13:38	1
Dimethyl phthalate	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
4,6-Dinitro-2-methylphenol	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,4-Dinitrophenol	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,6-Dinitrotoluene	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
Di-n-octyl phthalate	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Fluoranthene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Fluorene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Hexachlorobenzene	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Hexachlorobutadiene	ND		2.1	0.53	ug/L		01/09/20 06:35	01/13/20 13:38	1
Hexachloroethane	ND		3.2	0.53	ug/L		01/09/20 06:35	01/13/20 13:38	1
Hexachlorocyclopentadiene	ND	LR	5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.43	ug/L		01/09/20 06:35	01/13/20 13:38	1
Isophorone	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.1	0.053	ug/L		01/09/20 06:35	01/13/20 13:38	1
Nitrobenzene	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
2-Nitrophenol	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
4-Nitrophenol	ND		5.3	2.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
N-Nitrosodimethylamine	ND		2.1	0.32	ug/L		01/09/20 06:35	01/13/20 13:38	1
N-Nitrosodiphenylamine	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
N-Nitrosodi-n-propylamine	ND		2.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
Pentachlorophenol	**1.3**	**J,DX**	2.1	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
Phenanthrene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Phenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Pyrene	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
1,2,4-Trichlorobenzene	ND		1.1	0.21	ug/L		01/09/20 06:35	01/13/20 13:38	1
2,4,6-Trichlorophenol	ND		1.1	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1
Benzo[g,h,i]perylene	ND		5.3	1.1	ug/L		01/09/20 06:35	01/13/20 13:38	1
bis (2-chloroisopropyl) ether	ND		0.53	0.11	ug/L		01/09/20 06:35	01/13/20 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*93*		*60 - 140*	*01/09/20 06:35*	*01/13/20 13:38*	*1*
2-Fluorophenol	*88*		*60 - 140*	*01/09/20 06:35*	*01/13/20 13:38*	*1*
2,4,6-Tribromophenol	*94*		*60 - 140*	*01/09/20 06:35*	*01/13/20 13:38*	*1*
Nitrobenzene-d5	*92*		*15 - 314*	*01/09/20 06:35*	*01/13/20 13:38*	*1*
Terphenyl-d14	*78*		*60 - 140*	*01/09/20 06:35*	*01/13/20 13:38*	*1*
Phenol-d5	*78*		*8 - 424*	*01/09/20 06:35*	*01/13/20 13:38*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0052	0.0015	ug/L		01/10/20 05:20	01/10/20 14:11	1
alpha-BHC	ND		0.0052	0.0026	ug/L		01/10/20 05:20	01/10/20 14:11	1
beta-BHC	ND		0.010	0.0041	ug/L		01/10/20 05:20	01/10/20 14:11	1
delta-BHC	ND		0.0052	0.0036	ug/L		01/10/20 05:20	01/10/20 14:11	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		01/10/20 05:20	01/10/20 14:11	1
Chlordane (technical)	ND		0.10	0.082	ug/L		01/10/20 05:20	01/10/20 14:11	1
4,4'-DDD	ND		0.0052	0.0041	ug/L		01/10/20 05:20	01/10/20 14:11	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		01/10/20 05:20	01/10/20 14:11	1
4,4'-DDT	ND		0.010	0.0041	ug/L		01/10/20 05:20	01/10/20 14:11	1
Dieldrin	ND		0.0052	0.0021	ug/L		01/10/20 05:20	01/10/20 14:11	1
Endosulfan I	ND		0.0052	0.0031	ug/L		01/10/20 05:20	01/10/20 14:11	1
Endosulfan II	ND		0.0052	0.0021	ug/L		01/10/20 05:20	01/10/20 14:11	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		01/10/20 05:20	01/10/20 14:11	1
Endrin	ND		0.0052	0.0021	ug/L		01/10/20 05:20	01/10/20 14:11	1
Endrin aldehyde	ND		0.010	0.0021	ug/L		01/10/20 05:20	01/10/20 14:11	1
Heptachlor	ND		0.0093	0.0031	ug/L		01/10/20 05:20	01/10/20 14:11	1
Heptachlor epoxide	ND		0.0052	0.0026	ug/L		01/10/20 05:20	01/10/20 14:11	1
Toxaphene	ND		0.52	0.25	ug/L		01/10/20 05:20	01/10/20 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*61*		*10 - 104*	*01/10/20 05:20*	*01/10/20 14:11*	*1*

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1221	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1232	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1242	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1248	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1254	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1
Aroclor 1260	ND		0.52	0.26	ug/L		01/09/20 05:38	01/09/20 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*91*		*18 - 134*	*01/09/20 05:38*	*01/09/20 13:09*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			01/08/20 22:19	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.0**		0.50	0.25	mg/L			01/08/20 23:19	1
Nitrate as N	**1.4**		0.11	0.055	mg/L			01/08/20 23:19	1
Fluoride	ND		0.50	0.25	mg/L			01/08/20 23:19	1
Nitrite as N	ND		0.15	0.025	mg/L			01/08/20 23:19	1
Sulfate	**150**		2.5	1.3	mg/L			01/08/20 23:36	5

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/16/20 13:15	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**1.4**		0.15	0.055	mg/L			01/17/20 13:07	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/09/20 09:22	01/14/20 13:00	1
Boron	**0.050**		0.050	0.025	mg/L		01/09/20 09:22	01/14/20 13:00	1
Barium	**0.019**		0.010	0.0050	mg/L		01/09/20 09:22	01/14/20 13:00	1
Beryllium	ND		2.0	1.0	ug/L		01/09/20 09:22	01/14/20 13:00	1
Cobalt	ND		10	5.0	ug/L		01/09/20 09:22	01/14/20 13:00	1
Chromium	ND		5.0	2.5	ug/L		01/09/20 09:22	01/14/20 13:00	1
Iron	ND		0.10	0.050	mg/L		01/09/20 09:22	01/14/20 13:00	1
Manganese	**18**	**J,DX**	20	15	ug/L		01/09/20 09:22	01/14/20 13:00	1
Nickel	ND		10	5.0	ug/L		01/09/20 09:22	01/14/20 13:00	1
Vanadium	ND		10	5.0	ug/L		01/09/20 09:22	01/14/20 13:00	1
Zinc	**13**	**J,DX**	20	12	ug/L		01/09/20 09:22	01/14/20 13:00	1
Aluminum	**120**		100	50	ug/L		01/09/20 09:22	01/14/20 13:00	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:55	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 07:49	01/10/20 17:55	1
Copper	**1.5**	**J,DX**	2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:55	1

Client Sample ID: Outfall018_20200108_Comp

Lab Sample ID: 440-258701-1

Date Collected: 01/08/20 09:10

Matrix: Water

Date Received: 01/08/20 15:50

Method: 200.8 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:55	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:55	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:55	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 07:49	01/10/20 17:55	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/09/20 13:42	01/09/20 20:09	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**120**		0.33	0.17	mg/L			01/15/20 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.37**		0.10	0.040	NTU			01/09/20 17:11	1
Total Dissolved Solids	**310**		10	5.0	mg/L			01/15/20 09:54	1
Total Suspended Solids	ND		1.0	0.50	mg/L			01/09/20 14:56	1
Cyanide, Total	ND		5.0	2.5	ug/L		01/10/20 10:17	01/10/20 14:50	1
Ammonia (as N)	**0.131**	**J,DX**	0.200	0.100	mg/L			01/10/20 13:42	1
Total Organic Carbon	**4.8**		1.0	0.65	mg/L			01/10/20 11:45	1
Methylene Blue Active Substances	**0.11**		0.10	0.050	mg/L			01/09/20 16:10	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/09/20 16:16	1

Client Sample ID: Outfall018_20200108_Comp_F

Lab Sample ID: 440-258701-2

Date Collected: 01/08/20 09:10

Matrix: Water

Date Received: 01/08/20 15:50

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/10/20 08:40	01/10/20 16:13	1
Boron	**0.043**	**J,DX**	0.050	0.025	mg/L		01/10/20 08:40	01/10/20 16:13	1
Barium	**0.019**		0.010	0.0050	mg/L		01/10/20 08:40	01/10/20 16:13	1
Beryllium	ND		2.0	1.0	ug/L		01/10/20 08:40	01/10/20 16:13	1
Cobalt	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 16:13	1
Chromium	ND		5.0	2.5	ug/L		01/10/20 08:40	01/10/20 16:13	1
Iron	ND		0.10	0.050	mg/L		01/10/20 08:40	01/10/20 16:13	1
Manganese	**17**	**J,DX**	20	15	ug/L		01/10/20 08:40	01/10/20 16:13	1
Nickel	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 16:13	1
Vanadium	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 16:13	1
Zinc	ND		20	12	ug/L		01/10/20 08:40	01/10/20 16:13	1
Aluminum	**83**	**J,DX**	100	50	ug/L		01/10/20 08:40	01/10/20 16:13	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:52	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 08:45	01/10/20 14:52	1
Copper	**1.4**	**J,DX**	2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:52	1
Lead	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:52	1
Antimony	**0.51**	**J,DX**	2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:52	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Client Sample ID: Outfall018_20200108_Comp_F
Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-2
Matrix: Water

Method: 200.8 - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:52	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 08:45	01/10/20 14:52	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/15/20 11:35	01/16/20 11:16	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**120**		0.33	0.17	mg/L			01/14/20 16:57	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Method	Method Description	Protocol	Laboratory
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
Subcontract	Weck-Hydrazine	None	Weck Lab
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Client Sample ID: Outfall018_20200108_Comp

Lab Sample ID: 440-258701-1

Date Collected: 01/08/20 09:10

Matrix: Water

Date Received: 01/08/20 15:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	10 mL	10 mL	589748	01/09/20 13:54	TCN	TAL IRV
Total/NA	Prep	625			935 mL	2.0 mL	589710	01/09/20 06:35	NAM	TAL IRV
Total/NA	Analysis	625.1		1			590150	01/13/20 13:38	YCL	TAL IRV
Total/NA	Prep	608			970 mL	2 mL	589882	01/10/20 05:20	L1H	TAL IRV
Total/NA	Analysis	608.3		1			589980	01/10/20 14:11	JM	TAL IRV
Total/NA	Prep	608			955 mL	2 mL	589694	01/09/20 05:38		TAL IRV
Total/NA	Analysis	608.3		1			589734	01/09/20 13:09	JM	TAL IRV
Total/NA	Analysis	218.6		1			589525	01/08/20 22:19	MN	TAL IRV
Total/NA	Analysis	300.0		1			589577	01/08/20 23:19	NTN	TAL IRV
Total/NA	Analysis	300.0		1			589578	01/08/20 23:19	NTN	TAL IRV
Total/NA	Analysis	300.0		5			589578	01/08/20 23:36	NTN	TAL IRV
Total/NA	Analysis	314.0		1			590842	01/16/20 13:15	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			591105	01/17/20 13:07	NN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	589749	01/09/20 09:22	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			590449	01/14/20 13:00	TQN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	589913	01/10/20 07:49	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			590052	01/10/20 17:55	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	589812	01/09/20 13:42	MEM	TAL IRV
Total/NA	Analysis	245.1		1			589909	01/09/20 20:09	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			589169	01/15/20 16:58	P1R	TAL IRV
Total/NA	Analysis	180.1		1			589846	01/09/20 17:11	ST	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	590629	01/15/20 09:54	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	589829	01/09/20 14:56	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	589964	01/10/20 10:17	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			590010	01/10/20 14:50	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	590017	01/10/20 13:42	KMY	TAL IRV
Total/NA	Analysis	SM 5310B		1	100 mL	100 mL	590072	01/10/20 11:45	YZ	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	589838	01/09/20 16:10	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	589840	01/09/20 16:16	MMP	TAL IRV

Client Sample ID: Outfall018_20200108_Comp_F

Lab Sample ID: 440-258701-2

Date Collected: 01/08/20 09:10

Matrix: Water

Date Received: 01/08/20 15:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	589806	01/10/20 06:00	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	589923	01/10/20 08:40	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			590038	01/10/20 16:13	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	589806	01/10/20 06:00	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	589925	01/10/20 08:45	M1G	TAL IRV
Dissolved	Analysis	200.8		1			590021	01/10/20 14:52	MQP	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Client Sample ID: Outfall018_20200108_Comp_F

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			100 mL	100 mL	589977	01/10/20 11:30	EP	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	590663	01/15/20 11:35	MEM	TAL IRV
Dissolved	Analysis	245.1		1			590948	01/16/20 11:16	MEM	TAL IRV
Dissolved	Analysis	SM 2340B		1			589844	01/14/20 16:57	P1R	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589748/2
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			01/09/20 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*01/09/20 10:38*	*1*

Lab Sample ID: LCS 440-589748/3
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			10.0	10.2		ug/L		102	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*93*		*80 - 120*

Lab Sample ID: 440-258718-A-1 MS
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		10.0	9.63		ug/L		96	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 120*

Lab Sample ID: 440-258718-A-1 MSD
Matrix: Water
Analysis Batch: 589748

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		10.0	10.3		ug/L		103	70 - 130	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 120*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Acenaphthylene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Anthracene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzidine	ND		10	5.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[a]anthracene	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[b]fluoranthene	ND		2.0	0.30	ug/L		01/09/20 06:35	01/13/20 11:37	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[a]pyrene	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-chloroethoxy)methane	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-chloroethyl)ether	ND		0.50	0.050	ug/L		01/09/20 06:35	01/13/20 11:37	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Bromophenyl phenyl ether	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Chloro-3-methylphenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Chloronaphthalene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Chlorophenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Chlorophenyl phenyl ether	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Chrysene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Dibenz(a,h)anthracene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Di-n-butyl phthalate	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,4-Dichlorobenzene	ND		0.50	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dichlorophenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Diethyl phthalate	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dimethylphenol	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Dimethyl phthalate	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
4,6-Dinitro-2-methylphenol	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dinitrophenol	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
2,6-Dinitrotoluene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Di-n-octyl phthalate	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Fluoranthene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Fluorene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorobenzene	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachloroethane	ND		3.0	0.50	ug/L		01/09/20 06:35	01/13/20 11:37	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		01/09/20 06:35	01/13/20 11:37	1
Isophorone	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Naphthalene	ND		1.0	0.050	ug/L		01/09/20 06:35	01/13/20 11:37	1
Nitrobenzene	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
2-Nitrophenol	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
4-Nitrophenol	ND		5.0	2.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodimethylamine	ND		2.0	0.30	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodiphenylamine	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
N-Nitrosodi-n-propylamine	ND		2.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1
Pentachlorophenol	ND		2.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
Phenanthrene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Phenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Pyrene	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.20	ug/L		01/09/20 06:35	01/13/20 11:37	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-589710/1-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1
Benzo[g,h,i]perylene	ND		5.0	1.0	ug/L		01/09/20 06:35	01/13/20 11:37	1
bis (2-chloroisopropyl) ether	ND		0.50	0.10	ug/L		01/09/20 06:35	01/13/20 11:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*97*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
2-Fluorophenol	*82*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
2,4,6-Tribromophenol	*94*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Nitrobenzene-d5	*91*		*15 - 314*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Terphenyl-d14	*107*		*60 - 140*	*01/09/20 06:35*	*01/13/20 11:37*	*1*
Phenol-d5	*86*		*8 - 424*	*01/09/20 06:35*	*01/13/20 11:37*	*1*

Lab Sample ID: LCS 440-589710/2-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	15.0	13.3		ug/L		89	60 - 132
Acenaphthylene	15.0	13.1		ug/L		88	54 - 126
Anthracene	15.0	13.3		ug/L		88	43 - 120
Benzidine	15.0	ND		ug/L		9	5 - 140
Benzo[a]anthracene	15.0	14.6		ug/L		97	42 - 133
Benzo[b]fluoranthene	15.0	15.4		ug/L		103	42 - 140
Benzo[k]fluoranthene	15.0	15.7		ug/L		104	25 - 146
Benzo[a]pyrene	15.0	14.7		ug/L		98	32 - 148
Bis(2-chloroethoxy)methane	15.0	13.7		ug/L		91	49 - 165
Bis(2-chloroethyl)ether	15.0	12.1		ug/L		81	43 - 126
Bis(2-ethylhexyl) phthalate	15.0	16.6		ug/L		110	29 - 137
4-Bromophenyl phenyl ether	15.0	13.0		ug/L		87	65 - 120
Butyl benzyl phthalate	15.0	16.0		ug/L		107	10 - 140
4-Chloro-3-methylphenol	15.0	16.5		ug/L		110	41 - 128
2-Chloronaphthalene	15.0	13.0		ug/L		87	65 - 120
2-Chlorophenol	15.0	12.1		ug/L		81	36 - 120
4-Chlorophenyl phenyl ether	15.0	13.6		ug/L		90	38 - 145
Chrysene	15.0	13.5		ug/L		90	44 - 140
Dibenz(a,h)anthracene	15.0	15.4		ug/L		103	10 - 200
Di-n-butyl phthalate	15.0	15.5		ug/L		103	8 - 120
1,2-Dichlorobenzene	15.0	11.1		ug/L		74	60 - 140
1,3-Dichlorobenzene	15.0	11.0		ug/L		74	60 - 140
1,4-Dichlorobenzene	15.0	11.2		ug/L		75	60 - 140
3,3'-Dichlorobenzidine	15.0	13.0		ug/L		87	8 - 213
2,4-Dichlorophenol	15.0	13.8		ug/L		92	53 - 122
Diethyl phthalate	15.0	16.2		ug/L		108	10 - 120
2,4-Dimethylphenol	15.0	13.2		ug/L		88	42 - 120
Dimethyl phthalate	15.0	14.6		ug/L		98	10 - 120
4,6-Dinitro-2-methylphenol	30.0	25.1		ug/L		84	53 - 130
2,4-Dinitrophenol	30.0	27.0		ug/L		90	10 - 173
2,4-Dinitrotoluene	15.0	15.1		ug/L		100	48 - 127

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-589710/2-A
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,6-Dinitrotoluene	15.0	14.6		ug/L		97	68 - 137
Di-n-octyl phthalate	15.0	17.4		ug/L		116	19 - 132
1,2-Diphenylhydrazine(as Azobenzene)	15.0	14.3		ug/L		95	60 - 140
Fluoranthene	15.0	15.1		ug/L		100	43 - 121
Fluorene	15.0	13.8		ug/L		92	70 - 120
Hexachlorobenzene	15.0	12.6		ug/L		84	8 - 142
Hexachlorobutadiene	15.0	11.0		ug/L		73	38 - 120
Hexachloroethane	15.0	10.7		ug/L		71	55 - 120
Hexachlorocyclopentadiene	15.0	8.04	LR	ug/L		54	60 - 140
Indeno[1,2,3-cd]pyrene	15.0	15.3		ug/L		102	10 - 151
Isophorone	15.0	15.6		ug/L		104	47 - 180
Naphthalene	15.0	12.6		ug/L		84	36 - 120
Nitrobenzene	15.0	12.7		ug/L		85	54 - 158
2-Nitrophenol	15.0	13.6		ug/L		91	45 - 167
4-Nitrophenol	30.0	29.1		ug/L		97	13 - 129
N-Nitrosodimethylamine	15.0	12.8		ug/L		86	60 - 140
N-Nitrosodiphenylamine	15.0	13.1		ug/L		87	60 - 140
N-Nitrosodi-n-propylamine	15.0	12.0		ug/L		80	14 - 198
Pentachlorophenol	30.0	25.9		ug/L		86	38 - 152
Phenanthrene	15.0	13.2		ug/L		88	65 - 120
Phenol	15.0	12.2		ug/L		81	17 - 120
Pyrene	15.0	16.7		ug/L		111	70 - 120
1,2,4-Trichlorobenzene	15.0	11.9		ug/L		79	57 - 130
2,4,6-Trichlorophenol	15.0	15.0		ug/L		100	52 - 129
Benzo[g,h,i]perylene	15.0	14.5		ug/L		97	10 - 195
bis (2-chloroisopropyl) ether	15.0	11.8		ug/L		79	63 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*84*		*60 - 140*
2-Fluorophenol	*80*		*60 - 140*
2,4,6-Tribromophenol	*90*		*60 - 140*
Nitrobenzene-d5	*86*		*15 - 314*
Terphenyl-d14	*100*		*60 - 140*
Phenol-d5	*76*		*8 - 424*

Lab Sample ID: 440-258718-M-1-B MSD
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		16.0	14.1		ug/L		89	47 - 145	1	48
Acenaphthylene	ND		16.0	13.0		ug/L		81	33 - 145	6	74
Anthracene	ND		16.0	13.2		ug/L		83	27 - 133	3	66
Benzidine	ND		16.0	ND	LN	ug/L		0	5 - 140	NC	35
Benzo[a]anthracene	ND		16.0	15.3		ug/L		96	33 - 143	0	53
Benzo[b]fluoranthene	ND		16.0	17.1		ug/L		107	24 - 159	2	71
Benzo[k]fluoranthene	ND		16.0	16.1		ug/L		101	11 - 162	2	63
Benzo[a]pyrene	ND		16.0	14.5		ug/L		91	17 - 163	4	72

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-M-1-B MSD
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethoxy)methane	ND		16.0	13.1		ug/L		82	33 - 184	11	54
Bis(2-chloroethyl)ether	ND		16.0	13.7		ug/L		86	12 - 158	1	108
Bis(2-ethylhexyl) phthalate	ND		16.0	18.0		ug/L		113	8 - 158	2	82
4-Bromophenyl phenyl ether	ND		16.0	14.4		ug/L		90	53 - 127	2	43
Butyl benzyl phthalate	ND		16.0	18.1		ug/L		113	10 - 152	8	60
4-Chloro-3-methylphenol	ND		16.0	18.1		ug/L		114	22 - 147	1	73
2-Chloronaphthalene	ND		16.0	14.1		ug/L		88	60 - 120	2	24
2-Chlorophenol	ND		16.0	13.3		ug/L		83	23 - 134	0	61
4-Chlorophenyl phenyl ether	ND		16.0	14.6		ug/L		92	25 - 158	3	61
Chrysene	ND		16.0	14.0		ug/L		88	17 - 168	1	87
Dibenz(a,h)anthracene	ND		16.0	16.3		ug/L		102	10 - 227	4	126
Di-n-butyl phthalate	ND		16.0	16.8		ug/L		105	1 - 120	1	47
1,2-Dichlorobenzene	ND		16.0	11.1		ug/L		69	60 - 140	3	35
1,3-Dichlorobenzene	ND		16.0	10.7		ug/L		67	60 - 140	2	35
1,4-Dichlorobenzene	ND		16.0	11.0		ug/L		69	60 - 140	2	35
3,3'-Dichlorobenzidine	ND		16.0	ND	LN	ug/L		0	10 - 262	NC	108
2,4-Dichlorophenol	ND		16.0	15.8		ug/L		99	39 - 135	0	50
Diethyl phthalate	ND		16.0	18.0		ug/L		113	10 - 120	1	100
2,4-Dimethylphenol	ND		16.0	15.7		ug/L		98	32 - 120	0	58
Dimethyl phthalate	ND		16.0	15.8		ug/L		99	10 - 120	1	183
4,6-Dinitro-2-methylphenol	ND		31.9	28.9		ug/L		91	10 - 181	0	203
2,4-Dinitrophenol	ND		31.9	33.8		ug/L		106	10 - 191	1	132
2,4-Dinitrotoluene	ND		16.0	16.5		ug/L		104	39 - 139	1	42
2,6-Dinitrotoluene	ND		16.0	16.1		ug/L		101	50 - 158	1	48
Di-n-octyl phthalate	ND		16.0	18.1		ug/L		114	4 - 146	0	69
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.0	9.72		ug/L		61	60 - 140	33	35
Fluoranthene	ND		16.0	16.6		ug/L		104	26 - 137	1	66
Fluorene	ND		16.0	14.8		ug/L		93	59 - 121	2	38
Hexachlorobenzene	ND		16.0	13.5		ug/L		85	10 - 152	1	55
Hexachlorobutadiene	ND		16.0	9.70		ug/L		61	24 - 120	6	62
Hexachloroethane	ND		16.0	9.39		ug/L		59	40 - 120	1	52
Hexachlorocyclopentadiene	ND	LR	16.0	7.01	LN	ug/L		44	60 - 140	16	35
Indeno[1,2,3-cd]pyrene	ND		16.0	17.0		ug/L		106	10 - 171	0	99
Isophorone	ND		16.0	17.6		ug/L		110	21 - 196	3	93
Naphthalene	ND		16.0	12.8		ug/L		80	21 - 133	3	65
Nitrobenzene	ND		16.0	15.7		ug/L		99	35 - 180	2	62
2-Nitrophenol	ND		16.0	15.5		ug/L		97	29 - 182	1	55
4-Nitrophenol	ND		31.9	32.7		ug/L		102	10 - 132	1	131
N-Nitrosodimethylamine	ND		16.0	15.4		ug/L		97	60 - 140	0	35
N-Nitrosodiphenylamine	ND		16.0	11.7		ug/L		73	60 - 140	3	35
N-Nitrosodi-n-propylamine	ND		16.0	14.7		ug/L		92	10 - 230	1	87
Pentachlorophenol	1.3	J,DX	31.9	34.0		ug/L		102	14 - 176	0	86
Phenanthrene	ND		16.0	14.2		ug/L		89	54 - 120	0	39
Phenol	ND		16.0	14.3		ug/L		90	5 - 120	1	64
Pyrene	ND		16.0	17.2		ug/L		108	52 - 120	0	49
1,2,4-Trichlorobenzene	ND		16.0	11.4		ug/L		71	44 - 142	6	50
2,4,6-Trichlorophenol	ND		16.0	16.7		ug/L		105	37 - 144	1	58
Benzo[g,h,i]perylene	ND		16.0	16.1		ug/L		101	10 - 219	1	97

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-M-1-B MSD
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
bis (2-chloroisopropyl) ether	ND		16.0	13.7		ug/L		86	36 - 166	3	76

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*60 - 140*
2-Fluorophenol	*89*		*60 - 140*
2,4,6-Tribromophenol	*96*		*60 - 140*
Nitrobenzene-d5	*92*		*15 - 314*
Terphenyl-d14	*94*		*60 - 140*
Phenol-d5	*84*		*8 - 424*

Lab Sample ID: 440-258718-O-1-C MS
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		16.1	14.0		ug/L		87	47 - 145
Acenaphthylene	ND		16.1	13.7		ug/L		85	33 - 145
Anthracene	ND		16.1	13.6		ug/L		84	27 - 133
Benzidine	ND		16.1	ND	LN	ug/L		0	5 - 140
Benzo[a]anthracene	ND		16.1	15.2		ug/L		94	33 - 143
Benzo[b]fluoranthene	ND		16.1	16.8		ug/L		104	24 - 159
Benzo[k]fluoranthene	ND		16.1	15.9		ug/L		98	11 - 162
Benzo[a]pyrene	ND		16.1	15.2		ug/L		94	17 - 163
Bis(2-chloroethoxy)methane	ND		16.1	14.6		ug/L		91	33 - 184
Bis(2-chloroethyl)ether	ND		16.1	13.6		ug/L		84	12 - 158
Bis(2-ethylhexyl) phthalate	ND		16.1	17.6		ug/L		109	8 - 158
4-Bromophenyl phenyl ether	ND		16.1	14.2		ug/L		88	53 - 127
Butyl benzyl phthalate	ND		16.1	16.7		ug/L		103	10 - 152
4-Chloro-3-methylphenol	ND		16.1	18.4		ug/L		114	22 - 147
2-Chloronaphthalene	ND		16.1	13.9		ug/L		86	60 - 120
2-Chlorophenol	ND		16.1	13.3		ug/L		82	23 - 134
4-Chlorophenyl phenyl ether	ND		16.1	14.2		ug/L		88	25 - 158
Chrysene	ND		16.1	14.2		ug/L		88	17 - 168
Dibenz(a,h)anthracene	ND		16.1	15.7		ug/L		97	10 - 227
Di-n-butyl phthalate	ND		16.1	16.7		ug/L		103	1 - 120
1,2-Dichlorobenzene	ND		16.1	11.4		ug/L		71	60 - 140
1,3-Dichlorobenzene	ND		16.1	10.9		ug/L		68	60 - 140
1,4-Dichlorobenzene	ND		16.1	11.2		ug/L		69	60 - 140
3,3'-Dichlorobenzidine	ND		16.1	ND	LN	ug/L		0	10 - 262
2,4-Dichlorophenol	ND		16.1	15.7		ug/L		97	39 - 135
Diethyl phthalate	ND		16.1	17.9		ug/L		111	10 - 120
2,4-Dimethylphenol	ND		16.1	15.8		ug/L		98	32 - 120
Dimethyl phthalate	ND		16.1	15.6		ug/L		97	10 - 120
4,6-Dinitro-2-methylphenol	ND		32.3	29.0		ug/L		90	10 - 181
2,4-Dinitrophenol	ND		32.3	34.0		ug/L		105	10 - 191
2,4-Dinitrotoluene	ND		16.1	16.4		ug/L		101	39 - 139
2,6-Dinitrotoluene	ND		16.1	16.0		ug/L		99	50 - 158
Di-n-octyl phthalate	ND		16.1	18.1		ug/L		112	4 - 146

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-258718-O-1-C MS
Matrix: Water
Analysis Batch: 590150

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 589710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Diphenylhydrazine(as Azobenzene)	ND		16.1	13.6		ug/L		84	60 - 140
Fluoranthene	ND		16.1	16.4		ug/L		101	26 - 137
Fluorene	ND		16.1	14.6		ug/L		90	59 - 121
Hexachlorobenzene	ND		16.1	13.4		ug/L		83	10 - 152
Hexachlorobutadiene	ND		16.1	9.16		ug/L		57	24 - 120
Hexachloroethane	ND		16.1	9.31		ug/L		58	40 - 120
Hexachlorocyclopentadiene	ND	LR	16.1	8.18	LN	ug/L		51	60 - 140
Indeno[1,2,3-cd]pyrene	ND		16.1	17.0		ug/L		105	10 - 171
Isophorone	ND		16.1	18.1		ug/L		112	21 - 196
Naphthalene	ND		16.1	13.2		ug/L		82	21 - 133
Nitrobenzene	ND		16.1	16.1		ug/L		100	35 - 180
2-Nitrophenol	ND		16.1	15.6		ug/L		97	29 - 182
4-Nitrophenol	ND		32.3	32.4		ug/L		100	10 - 132
N-Nitrosodimethylamine	ND		16.1	15.4		ug/L		96	60 - 140
N-Nitrosodiphenylamine	ND		16.1	12.0		ug/L		75	60 - 140
N-Nitrosodi-n-propylamine	ND		16.1	14.8		ug/L		92	10 - 230
Pentachlorophenol	1.3	J,DX	32.3	33.9		ug/L		101	14 - 176
Phenanthrene	ND		16.1	14.2		ug/L		88	54 - 120
Phenol	ND		16.1	14.1		ug/L		87	5 - 120
Pyrene	ND		16.1	17.1		ug/L		106	52 - 120
1,2,4-Trichlorobenzene	ND		16.1	12.1		ug/L		75	44 - 142
2,4,6-Trichlorophenol	ND		16.1	16.8		ug/L		104	37 - 144
Benzo[g,h,i]perylene	ND		16.1	16.3		ug/L		101	10 - 219
bis (2-chloroisopropyl) ether	ND		16.1	14.1		ug/L		88	36 - 166

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*88*		*60 - 140*
2-Fluorophenol	*88*		*60 - 140*
2,4,6-Tribromophenol	*94*		*60 - 140*
Nitrobenzene-d5	*93*		*15 - 314*
Terphenyl-d14	*92*		*60 - 140*
Phenol-d5	*84*		*8 - 424*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-589882/1-A
Matrix: Water
Analysis Batch: 589980

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589882

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		01/10/20 05:20	01/10/20 14:44	1
alpha-BHC	ND		0.0050	0.0025	ug/L		01/10/20 05:20	01/10/20 14:44	1
beta-BHC	ND		0.010	0.0040	ug/L		01/10/20 05:20	01/10/20 14:44	1
delta-BHC	ND		0.0050	0.0035	ug/L		01/10/20 05:20	01/10/20 14:44	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		01/10/20 05:20	01/10/20 14:44	1
Chlordane (technical)	ND		0.10	0.080	ug/L		01/10/20 05:20	01/10/20 14:44	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		01/10/20 05:20	01/10/20 14:44	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		01/10/20 05:20	01/10/20 14:44	1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 440-589882/1-A
Matrix: Water
Analysis Batch: 589980

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589882

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		0.010	0.0040	ug/L		01/10/20 05:20	01/10/20 14:44	1
Dieldrin	ND		0.0050	0.0020	ug/L		01/10/20 05:20	01/10/20 14:44	1
Endosulfan I	ND		0.0050	0.0030	ug/L		01/10/20 05:20	01/10/20 14:44	1
Endosulfan II	ND		0.0050	0.0020	ug/L		01/10/20 05:20	01/10/20 14:44	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		01/10/20 05:20	01/10/20 14:44	1
Endrin	ND		0.0050	0.0020	ug/L		01/10/20 05:20	01/10/20 14:44	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		01/10/20 05:20	01/10/20 14:44	1
Heptachlor	ND		0.0090	0.0030	ug/L		01/10/20 05:20	01/10/20 14:44	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		01/10/20 05:20	01/10/20 14:44	1
Toxaphene	ND		0.50	0.24	ug/L		01/10/20 05:20	01/10/20 14:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*56*		*10 - 104*	*01/10/20 05:20*	*01/10/20 14:44*	*1*

Lab Sample ID: LCS 440-589882/2-A
Matrix: Water
Analysis Batch: 589980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589882

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.400	0.331		ug/L		83	42 - 140
alpha-BHC	0.400	0.319		ug/L		80	37 - 140
beta-BHC	0.400	0.316		ug/L		79	17 - 147
delta-BHC	0.400	0.316		ug/L		79	19 - 140
gamma-BHC (Lindane)	0.400	0.318		ug/L		80	32 - 140
4,4'-DDD	0.400	0.350		ug/L		87	31 - 141
4,4'-DDE	0.400	0.319		ug/L		80	30 - 145
4,4'-DDT	0.400	0.337		ug/L		84	25 - 160
Dieldrin	0.400	0.347		ug/L		87	36 - 146
Endosulfan I	0.400	0.337		ug/L		84	45 - 153
Endosulfan II	0.400	0.338		ug/L		85	10 - 202
Endosulfan sulfate	0.400	0.350		ug/L		87	26 - 144
Endrin	0.400	0.350		ug/L		87	30 - 147
Endrin aldehyde	0.400	0.305		ug/L		76	60 - 140
Heptachlor	0.400	0.336		ug/L		84	34 - 140
Heptachlor epoxide	0.400	0.335		ug/L		84	37 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*67*		*10 - 104*

Lab Sample ID: LCSD 440-589882/3-A
Matrix: Water
Analysis Batch: 589980

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589882

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	0.400	0.346		ug/L		86	42 - 140	4	35
alpha-BHC	0.400	0.333		ug/L		83	37 - 140	4	36
beta-BHC	0.400	0.331		ug/L		83	17 - 147	5	44
delta-BHC	0.400	0.331		ug/L		83	19 - 140	4	52

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCSD 440-589882/3-A
Matrix: Water
Analysis Batch: 589980

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589882

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
gamma-BHC (Lindane)			0.400	0.332		ug/L		83	32 - 140	4	39
4,4'-DDD			0.400	0.367		ug/L		92	31 - 141	5	39
4,4'-DDE			0.400	0.337		ug/L		84	30 - 145	6	35
4,4'-DDT			0.400	0.355		ug/L		89	25 - 160	5	42
Dieldrin			0.400	0.364		ug/L		91	36 - 146	5	49
Endosulfan I			0.400	0.353		ug/L		88	45 - 153	5	28
Endosulfan II			0.400	0.355		ug/L		89	10 - 202	5	53
Endosulfan sulfate			0.400	0.369		ug/L		92	26 - 144	5	38
Endrin			0.400	0.367		ug/L		92	30 - 147	5	48
Endrin aldehyde			0.400	0.320		ug/L		80	60 - 140	5	30
Heptachlor			0.400	0.350		ug/L		87	34 - 140	4	43
Heptachlor epoxide			0.400	0.350		ug/L		88	37 - 142	4	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*68*		*10 - 104*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-589694/1-A
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589694

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1221	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1232	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1242	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1248	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1254	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1
Aroclor 1260	ND		0.50	0.25	ug/L		01/09/20 05:38	01/09/20 14:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*82*		*18 - 134*	*01/09/20 05:38*	*01/09/20 14:29*	*1*

Lab Sample ID: LCS 440-589694/5-A
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589694

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016			4.00	3.01		ug/L		75	50 - 140
Aroclor 1260			4.00	2.99		ug/L		75	8 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*85*		*18 - 134*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: 440-258718-M-1-A MS
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	ND		4.37	3.39		ug/L		78	50 - 140
Aroclor 1260	ND		4.37	3.24		ug/L		74	8 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*84*		*18 - 134*

Lab Sample ID: 440-258718-O-1-A MSD
Matrix: Water
Analysis Batch: 589734

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	ND		4.15	3.58		ug/L		86	50 - 140	5	36
Aroclor 1260	ND		4.15	3.28		ug/L		79	8 - 140	1	38

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*86*		*18 - 134*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-589525/6
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			01/08/20 07:26	1

Lab Sample ID: LCS 440-589525/5
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	50.0	47.9		ug/L		96	90 - 110

Lab Sample ID: MRL 440-589525/4
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	1.00	1.03		ug/L		103	50 - 150

Lab Sample ID: 440-258616-C-9 MS
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		50.0	50.9		ug/L		102	90 - 110

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography) (Continued)

Lab Sample ID: 440-258616-C-9 MSD
Matrix: Water
Analysis Batch: 589525

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		50.0	50.1		ug/L		100	90 - 110	1	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-589577/6
Matrix: Water
Analysis Batch: 589577

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			01/08/20 11:20	1
Nitrite as N	ND		0.15	0.025	mg/L			01/08/20 11:20	1

Lab Sample ID: LCS 440-589577/5
Matrix: Water
Analysis Batch: 589577

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.19		mg/L		105	90 - 110
Nitrite as N	1.52	1.50		mg/L		98	90 - 110

Lab Sample ID: 440-258616-D-10 MS
Matrix: Water
Analysis Batch: 589577

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.21	J,DX	2.26	3.18	LM	mg/L		131	80 - 120
Nitrite as N	ND		3.04	3.96	LM	mg/L		130	80 - 120

Lab Sample ID: 440-258616-D-10 MSD
Matrix: Water
Analysis Batch: 589577

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.21	J,DX	2.26	3.20	LM	mg/L		132	80 - 120	1	20
Nitrite as N	ND		3.04	3.98	LM	mg/L		131	80 - 120	0	20

Lab Sample ID: MB 440-589578/6
Matrix: Water
Analysis Batch: 589578

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			01/08/20 11:20	1
Fluoride	ND		0.50	0.25	mg/L			01/08/20 11:20	1
Sulfate	ND		0.50	0.25	mg/L			01/08/20 11:20	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-589578/5
Matrix: Water
Analysis Batch: 589578

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	5.01		mg/L		100	90 - 110		
Fluoride			5.00	4.89		mg/L		98	90 - 110		
Sulfate			5.00	5.09		mg/L		102	90 - 110		

Lab Sample ID: 440-258616-D-10 MS
Matrix: Water
Analysis Batch: 589578

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	650	EY	10.0	645	EY BB	mg/L		-79	80 - 120		
Fluoride	1.4		10.0	11.2		mg/L		98	80 - 120		
Sulfate	970	EY	10.0	954	EY BB	mg/L		-122	80 - 120		

Lab Sample ID: 440-258616-D-10 MSD
Matrix: Water
Analysis Batch: 589578

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	650	EY	10.0	646	EY BB	mg/L		-67	80 - 120	0	20
Fluoride	1.4		10.0	11.3		mg/L		98	80 - 120	1	20
Sulfate	970	EY	10.0	957	EY BB	mg/L		-99	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-590842/6
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			01/16/20 11:20	1

Lab Sample ID: LCS 440-590842/5
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			25.0	26.9		ug/L		108	85 - 115		

Lab Sample ID: MRL 440-590842/4
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			1.00	0.982	J,DX	ug/L		98	75 - 125		

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: MRL 440-590842/8
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.37		ug/L		109	75 - 125

Lab Sample ID: 440-258718-H-1 MS
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	26.0		ug/L		104	80 - 120

Lab Sample ID: 440-258718-H-1 MSD
Matrix: Water
Analysis Batch: 590842

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	26.5		ug/L		106	80 - 120	2	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-589749/1-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/09/20 09:22	01/09/20 16:46	1
Boron	ND		0.050	0.025	mg/L		01/09/20 09:22	01/09/20 16:46	1
Barium	ND		0.010	0.0050	mg/L		01/09/20 09:22	01/09/20 16:46	1
Beryllium	ND		2.0	1.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Cobalt	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Chromium	ND		5.0	2.5	ug/L		01/09/20 09:22	01/09/20 16:46	1
Iron	ND		0.10	0.050	mg/L		01/09/20 09:22	01/09/20 16:46	1
Manganese	ND		20	15	ug/L		01/09/20 09:22	01/09/20 16:46	1
Nickel	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Vanadium	ND		10	5.0	ug/L		01/09/20 09:22	01/09/20 16:46	1
Zinc	ND		20	12	ug/L		01/09/20 09:22	01/09/20 16:46	1
Aluminum	ND		100	50	ug/L		01/09/20 09:22	01/09/20 16:46	1

Lab Sample ID: LCS 440-589749/2-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	470		ug/L		94	85 - 115
Boron	0.500	0.471		mg/L		94	85 - 115
Barium	0.500	0.471		mg/L		94	85 - 115
Beryllium	500	476		ug/L		95	85 - 115
Calcium	2.50	2.43		mg/L		97	85 - 115
Cobalt	500	482		ug/L		96	85 - 115
Chromium	500	480		ug/L		96	85 - 115
Iron	0.500	0.454		mg/L		91	85 - 115
Magnesium	2.50	2.38		mg/L		95	85 - 115

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-589749/2-A
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	500	481		ug/L		96	85 - 115
Nickel	500	485		ug/L		97	85 - 115
Vanadium	500	478		ug/L		96	85 - 115
Zinc	500	480		ug/L		96	85 - 115
Aluminum	500	483		ug/L		97	85 - 115

Lab Sample ID: 440-258718-K-1-A MS
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	502		ug/L		100	70 - 130
Boron	0.056		0.500	0.542		mg/L		97	70 - 130
Barium	0.024		0.500	0.494		mg/L		94	70 - 130
Beryllium	ND		500	494		ug/L		99	70 - 130
Calcium	44		2.50	44.0	BB	mg/L		11	70 - 130
Cobalt	ND		500	488		ug/L		98	70 - 130
Chromium	ND		500	485		ug/L		97	70 - 130
Iron	0.082	J,DX	0.500	0.563		mg/L		96	70 - 130
Magnesium	7.8		2.50	9.79		mg/L		82	70 - 130
Manganese	15	J,DX	500	501		ug/L		97	70 - 130
Nickel	ND		500	487		ug/L		97	70 - 130
Vanadium	ND		500	498		ug/L		100	70 - 130
Zinc	ND		500	504		ug/L		101	70 - 130
Aluminum	120		500	655		ug/L		107	70 - 130

Lab Sample ID: 440-258718-K-1-B MSD
Matrix: Water
Analysis Batch: 589862

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 589749

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	488		ug/L		98	70 - 130	3	20
Boron	0.056		0.500	0.552		mg/L		99	70 - 130	2	20
Barium	0.024		0.500	0.498		mg/L		95	70 - 130	1	20
Beryllium	ND		500	499		ug/L		100	70 - 130	1	20
Calcium	44		2.50	46.9	BB	mg/L		127	70 - 130	6	20
Cobalt	ND		500	499		ug/L		100	70 - 130	2	20
Chromium	ND		500	489		ug/L		98	70 - 130	1	20
Iron	0.082	J,DX	0.500	0.564		mg/L		97	70 - 130	0	20
Magnesium	7.8		2.50	10.3		mg/L		101	70 - 130	5	20
Manganese	15	J,DX	500	508		ug/L		98	70 - 130	1	20
Nickel	ND		500	498		ug/L		100	70 - 130	2	20
Vanadium	ND		500	507		ug/L		101	70 - 130	2	20
Zinc	ND		500	505		ug/L		101	70 - 130	0	20
Aluminum	120		500	661		ug/L		108	70 - 130	1	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 440-589806/1-C
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 589923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		01/10/20 08:40	01/10/20 15:47	1
Boron	ND		0.050	0.025	mg/L		01/10/20 08:40	01/10/20 15:47	1
Barium	ND		0.010	0.0050	mg/L		01/10/20 08:40	01/10/20 15:47	1
Beryllium	ND		2.0	1.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Cobalt	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Chromium	ND		5.0	2.5	ug/L		01/10/20 08:40	01/10/20 15:47	1
Iron	ND		0.10	0.050	mg/L		01/10/20 08:40	01/10/20 15:47	1
Manganese	ND		20	15	ug/L		01/10/20 08:40	01/10/20 15:47	1
Nickel	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Vanadium	ND		10	5.0	ug/L		01/10/20 08:40	01/10/20 15:47	1
Zinc	ND		20	12	ug/L		01/10/20 08:40	01/10/20 15:47	1
Aluminum	ND		100	50	ug/L		01/10/20 08:40	01/10/20 15:47	1

Lab Sample ID: LCS 440-589806/2-C
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	514		ug/L		103	85 - 115
Boron	0.500	0.513		mg/L		103	85 - 115
Barium	0.500	0.526		mg/L		105	85 - 115
Beryllium	500	523		ug/L		105	85 - 115
Calcium	2.50	2.65		mg/L		106	85 - 115
Cobalt	500	532		ug/L		106	85 - 115
Chromium	500	530		ug/L		106	85 - 115
Iron	0.500	0.463		mg/L		93	85 - 115
Magnesium	2.50	2.67		mg/L		107	85 - 115
Manganese	500	529		ug/L		106	85 - 115
Nickel	500	535		ug/L		107	85 - 115
Vanadium	500	521		ug/L		104	85 - 115
Zinc	500	528		ug/L		106	85 - 115
Aluminum	500	530		ug/L		106	85 - 115

Lab Sample ID: 440-258718-B-2-E MS
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	524		ug/L		105	70 - 130
Boron	0.051		0.500	0.570		mg/L		104	70 - 130
Barium	0.028		0.500	0.530		mg/L		100	70 - 130
Beryllium	ND		500	522		ug/L		104	70 - 130
Calcium	44		2.50	46.5	BB	mg/L		85	70 - 130
Cobalt	ND		500	516		ug/L		103	70 - 130
Chromium	ND		500	518		ug/L		104	70 - 130
Iron	ND		0.500	0.467		mg/L		93	70 - 130
Magnesium	8.1		2.50	10.6		mg/L		98	70 - 130
Manganese	ND		500	522		ug/L		104	70 - 130
Nickel	ND		500	517		ug/L		103	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-258718-B-2-E MS
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	ND		500	524		ug/L		105	70 - 130
Zinc	ND		500	528		ug/L		106	70 - 130
Aluminum	ND		500	567		ug/L		113	70 - 130

Lab Sample ID: 440-258718-B-2-F MSD
Matrix: Water
Analysis Batch: 590038

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 589923

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	544		ug/L		109	70 - 130	4	20
Boron	0.051		0.500	0.590		mg/L		108	70 - 130	3	20
Barium	0.028		0.500	0.538		mg/L		102	70 - 130	1	20
Beryllium	ND		500	541		ug/L		108	70 - 130	4	20
Calcium	44		2.50	46.9	BB	mg/L		104	70 - 130	1	20
Cobalt	ND		500	541		ug/L		108	70 - 130	5	20
Chromium	ND		500	539		ug/L		108	70 - 130	4	20
Iron	ND		0.500	0.506		mg/L		101	70 - 130	8	20
Magnesium	8.1		2.50	10.5		mg/L		94	70 - 130	1	20
Manganese	ND		500	541		ug/L		108	70 - 130	4	20
Nickel	ND		500	537		ug/L		107	70 - 130	4	20
Vanadium	ND		500	544		ug/L		109	70 - 130	4	20
Zinc	ND		500	549		ug/L		110	70 - 130	4	20
Aluminum	ND		500	589		ug/L		118	70 - 130	4	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-589913/1-A
Matrix: Water
Analysis Batch: 590052

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:15	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 07:49	01/10/20 17:15	1
Copper	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:15	1
Lead	ND		1.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:15	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:15	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 07:49	01/10/20 17:15	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 07:49	01/10/20 17:15	1

Lab Sample ID: LCS 440-589913/2-A
Matrix: Water
Analysis Batch: 590052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	82.5		ug/L		103	85 - 115
Cadmium	80.0	79.2		ug/L		99	85 - 115
Copper	80.0	77.4		ug/L		97	85 - 115
Lead	80.0	79.7		ug/L		100	85 - 115
Antimony	80.0	86.7		ug/L		108	85 - 115
Selenium	80.0	76.0		ug/L		95	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-589913/2-A
Matrix: Water
Analysis Batch: 590052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Thallium			80.0	82.1		ug/L		103	85 - 115		

Lab Sample ID: 440-258791-A-21-B MS
Matrix: Water
Analysis Batch: 590052

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	1.7		80.0	80.3		ug/L		98	70 - 130
Cadmium	0.58	J,DX	80.0	80.3		ug/L		100	70 - 130
Copper	200		80.0	261		ug/L		72	70 - 130
Lead	11		80.0	89.8		ug/L		98	70 - 130
Antimony	1.8	J,DX	80.0	79.6		ug/L		97	70 - 130
Selenium	5.9		80.0	22.4	LN	ug/L		21	70 - 130
Thallium	ND		80.0	80.6		ug/L		101	70 - 130

Lab Sample ID: 440-258791-A-21-C MSD
Matrix: Water
Analysis Batch: 590052

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 589913

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	1.7		80.0	79.1		ug/L		97	70 - 130	1	20
Cadmium	0.58	J,DX	80.0	78.1		ug/L		97	70 - 130	3	20
Copper	200		80.0	258	LN	ug/L		68	70 - 130	1	20
Lead	11		80.0	86.1		ug/L		94	70 - 130	4	20
Antimony	1.8	J,DX	80.0	78.3		ug/L		96	70 - 130	2	20
Selenium	5.9		80.0	42.1	LN BA	ug/L		45	70 - 130	61	20
Thallium	ND		80.0	78.4		ug/L		98	70 - 130	3	20

Lab Sample ID: MB 440-589806/1-D
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 589925

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Cadmium	ND		1.0	0.25	ug/L		01/10/20 08:45	01/10/20 14:40	1
Copper	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Lead	ND		1.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Antimony	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Selenium	ND		2.0	0.50	ug/L		01/10/20 08:45	01/10/20 14:40	1
Thallium	ND		1.0	0.20	ug/L		01/10/20 08:45	01/10/20 14:40	1

Lab Sample ID: LCS 440-589806/2-D
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 589925

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Silver			80.0	84.0		ug/L		105	85 - 115		
Cadmium			80.0	80.2		ug/L		100	85 - 115		
Copper			80.0	78.9		ug/L		99	85 - 115		
Lead			80.0	80.9		ug/L		101	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-589806/2-D
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	80.0	87.8		ug/L		110	85 - 115
Selenium	80.0	75.6		ug/L		95	85 - 115
Thallium	80.0	83.9		ug/L		105	85 - 115

Lab Sample ID: 440-258718-B-2-H MS
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		80.0	81.6		ug/L		102	70 - 130
Cadmium	ND		80.0	79.1		ug/L		99	70 - 130
Copper	1.3	J,DX	80.0	78.8		ug/L		97	70 - 130
Lead	ND		80.0	80.1		ug/L		100	70 - 130
Antimony	ND		80.0	89.1		ug/L		111	70 - 130
Selenium	ND		80.0	75.4		ug/L		94	70 - 130
Thallium	ND		80.0	82.0		ug/L		102	70 - 130

Lab Sample ID: 440-258718-B-2-I MSD
Matrix: Water
Analysis Batch: 590021

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 589925

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	80.6		ug/L		101	70 - 130	1	20
Cadmium	ND		80.0	78.1		ug/L		98	70 - 130	1	20
Copper	1.3	J,DX	80.0	78.4		ug/L		96	70 - 130	1	20
Lead	ND		80.0	78.9		ug/L		99	70 - 130	2	20
Antimony	ND		80.0	88.0		ug/L		110	70 - 130	1	20
Selenium	ND		80.0	74.5		ug/L		93	70 - 130	1	20
Thallium	ND		80.0	80.2		ug/L		100	70 - 130	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-589812/1-A
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/09/20 13:42	01/09/20 19:50	1

Lab Sample ID: LCS 440-589812/2-A
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.01		ug/L		100	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-258718-K-1-C MS
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.13		ug/L		103	75 - 125

Lab Sample ID: 440-258718-K-1-D MSD
Matrix: Water
Analysis Batch: 589909

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 589812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.01		ug/L		100	75 - 125	3	20

Lab Sample ID: MB 440-589977/1-C
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 590663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/15/20 11:35	01/16/20 11:00	1

Lab Sample ID: LCS 440-589977/2-C
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.98		ug/L		99	85 - 115

Lab Sample ID: 440-258718-A-2-H MS
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.11		ug/L		103	75 - 125

Lab Sample ID: 440-258718-A-2-I MSD
Matrix: Water
Analysis Batch: 590948

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 590663

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.97		ug/L		99	75 - 125	3	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-589846/5
Matrix: Water
Analysis Batch: 589846

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			01/09/20 17:11	1

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: 440-258701-1 DU
Matrix: Water
Analysis Batch: 589846

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Turbidity	0.37			0.350		NTU				6	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-590629/1
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			01/15/20 09:54	1

Lab Sample ID: LCS 440-590629/2
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	1040		mg/L		104	90 - 110		

Lab Sample ID: 440-259059-I-1 DU
Matrix: Water
Analysis Batch: 590629

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	500			496		mg/L				0.2	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-589829/1
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			01/09/20 14:56	1

Lab Sample ID: LCS 440-589829/2
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	990		mg/L		99	85 - 115		

Lab Sample ID: 440-258678-B-1 DU
Matrix: Water
Analysis Batch: 589829

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	180			178		mg/L				0	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-589964/1-A
Matrix: Water
Analysis Batch: 590010

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589964

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		01/10/20 10:17	01/10/20 14:50	1

Lab Sample ID: LCS 440-589964/2-A
Matrix: Water
Analysis Batch: 590010

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	85.8		ug/L		86	80 - 120

Lab Sample ID: 440-258701-1 MS
Matrix: Water
Analysis Batch: 590010

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	96.6		ug/L		97	75 - 125

Lab Sample ID: 440-258701-1 MSD
Matrix: Water
Analysis Batch: 590010

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA
Prep Batch: 589964

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	98.0		ug/L		98	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-590017/10
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			01/10/20 13:10	1

Lab Sample ID: LCS 440-590017/11
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.040		mg/L		101	90 - 110

Lab Sample ID: MRL 440-590017/9
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.2240		mg/L		112	50 - 150

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-258719-B-5 MS
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	ND		5.00	5.080		mg/L		102	90 - 110		

Lab Sample ID: 440-258719-B-5 MSD
Matrix: Water
Analysis Batch: 590017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND		5.00	5.630	LM	mg/L		113	90 - 110	10	15

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-590072/8
Matrix: Water
Analysis Batch: 590072

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.65	mg/L			01/10/20 11:10	1

Lab Sample ID: LCS 440-590072/7
Matrix: Water
Analysis Batch: 590072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.6		mg/L		106	85 - 115

Lab Sample ID: 440-258701-1 MS
Matrix: Water
Analysis Batch: 590072

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	4.8		5.50	10.7		mg/L		107	85 - 115		

Lab Sample ID: 440-258701-1 MSD
Matrix: Water
Analysis Batch: 590072

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.8		5.50	9.63		mg/L		88	85 - 115	10	20

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-589838/4
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			01/09/20 16:10	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCS 440-589838/5
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.230		mg/L		92	90 - 110

Lab Sample ID: MRL 440-589838/3
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.105		mg/L		105	50 - 150

Lab Sample ID: 440-258718-E-1 MS
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.073	J,DX	0.250	0.345		mg/L		109	50 - 125

Lab Sample ID: 440-258718-E-1 MSD
Matrix: Water
Analysis Batch: 589838

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.073	J,DX	0.250	0.353		mg/L		112	50 - 125	2	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-589840/1
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/09/20 16:16	1

Lab Sample ID: LCS 440-589840/5
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	198		mg/L		100	85 - 115

Lab Sample ID: LCSD 440-589840/6
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	197		mg/L		99	85 - 115	1	20

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCSD 440-589840/7
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	203		mg/L		102	85 - 115	2	20

Lab Sample ID: 440-258678-A-1 DU
Matrix: Water
Analysis Batch: 589840

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	190			164		mg/L				15	20

GC/MS VOA

Analysis Batch: 589748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	8260B SIM	
MB 440-589748/2	Method Blank	Total/NA	Water	8260B SIM	
LCS 440-589748/3	Lab Control Sample	Total/NA	Water	8260B SIM	
440-258718-A-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
440-258718-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

GC/MS Semi VOA

Prep Batch: 589710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	625	
MB 440-589710/1-A	Method Blank	Total/NA	Water	625	
LCS 440-589710/2-A	Lab Control Sample	Total/NA	Water	625	
440-258718-M-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	625	
440-258718-O-1-C MS	Matrix Spike	Total/NA	Water	625	

Analysis Batch: 590150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	625.1	589710
MB 440-589710/1-A	Method Blank	Total/NA	Water	625.1	589710
LCS 440-589710/2-A	Lab Control Sample	Total/NA	Water	625.1	589710
440-258718-M-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	625.1	589710
440-258718-O-1-C MS	Matrix Spike	Total/NA	Water	625.1	589710

GC Semi VOA

Prep Batch: 589694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	608	
MB 440-589694/1-A	Method Blank	Total/NA	Water	608	
LCS 440-589694/5-A	Lab Control Sample	Total/NA	Water	608	
440-258718-M-1-A MS	Matrix Spike	Total/NA	Water	608	
440-258718-O-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608	

Analysis Batch: 589734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	608.3	589694
MB 440-589694/1-A	Method Blank	Total/NA	Water	608.3	589694
LCS 440-589694/5-A	Lab Control Sample	Total/NA	Water	608.3	589694
440-258718-M-1-A MS	Matrix Spike	Total/NA	Water	608.3	589694
440-258718-O-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	589694

Prep Batch: 589882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	608	
MB 440-589882/1-A	Method Blank	Total/NA	Water	608	
LCS 440-589882/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-589882/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 589980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	608.3	589882

GC Semi VOA (Continued)

Analysis Batch: 589980 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-589882/1-A	Method Blank	Total/NA	Water	608.3	589882
LCS 440-589882/2-A	Lab Control Sample	Total/NA	Water	608.3	589882
LCSD 440-589882/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	589882

HPLC/IC

Analysis Batch: 589525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	218.6	
MB 440-589525/6	Method Blank	Total/NA	Water	218.6	
LCS 440-589525/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-589525/4	Lab Control Sample	Total/NA	Water	218.6	
440-258616-C-9 MS	Matrix Spike	Total/NA	Water	218.6	
440-258616-C-9 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 589577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	300.0	
MB 440-589577/6	Method Blank	Total/NA	Water	300.0	
LCS 440-589577/5	Lab Control Sample	Total/NA	Water	300.0	
440-258616-D-10 MS	Matrix Spike	Total/NA	Water	300.0	
440-258616-D-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 589578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	300.0	
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	300.0	
MB 440-589578/6	Method Blank	Total/NA	Water	300.0	
LCS 440-589578/5	Lab Control Sample	Total/NA	Water	300.0	
440-258616-D-10 MS	Matrix Spike	Total/NA	Water	300.0	
440-258616-D-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 590842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	314.0	
MB 440-590842/6	Method Blank	Total/NA	Water	314.0	
LCS 440-590842/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-590842/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-590842/8	Lab Control Sample	Total/NA	Water	314.0	
440-258718-H-1 MS	Matrix Spike	Total/NA	Water	314.0	
440-258718-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Analysis Batch: 591105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	NO3NO2 Calc	

Metals

Analysis Batch: 589169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total Recoverable	Water	SM 2340B	

Metals

Prep Batch: 589749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total Recoverable	Water	200.2	
MB 440-589749/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-589749/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-258718-K-1-A MS	Matrix Spike	Total Recoverable	Water	200.2	
440-258718-K-1-B MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Filtration Batch: 589806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	FILTRATION	
MB 440-589806/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-589806/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-258718-B-2-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-258718-B-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-258718-B-2-H MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-258718-B-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 589812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	245.1	
MB 440-589812/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-589812/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-258718-K-1-C MS	Matrix Spike	Total/NA	Water	245.1	
440-258718-K-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 589844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	SM 2340B	

Analysis Batch: 589862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-589749/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	589749
LCS 440-589749/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	589749
440-258718-K-1-A MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	589749
440-258718-K-1-B MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	589749

Analysis Batch: 589909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	245.1	589812
MB 440-589812/1-A	Method Blank	Total/NA	Water	245.1	589812
LCS 440-589812/2-A	Lab Control Sample	Total/NA	Water	245.1	589812
440-258718-K-1-C MS	Matrix Spike	Total/NA	Water	245.1	589812
440-258718-K-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	589812

Prep Batch: 589913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total Recoverable	Water	200.2	
MB 440-589913/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-589913/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-258791-A-21-B MS	Matrix Spike	Total Recoverable	Water	200.2	

Metals (Continued)

Prep Batch: 589913 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258791-A-21-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 589923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	200.2	589806
MB 440-589806/1-C	Method Blank	Dissolved	Water	200.2	589806
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	200.2	589806
440-258718-B-2-E MS	Matrix Spike	Dissolved	Water	200.2	589806
440-258718-B-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	589806

Prep Batch: 589925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	200.2	589806
MB 440-589806/1-D	Method Blank	Dissolved	Water	200.2	589806
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	200.2	589806
440-258718-B-2-H MS	Matrix Spike	Dissolved	Water	200.2	589806
440-258718-B-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	589806

Filtration Batch: 589977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	FILTRATION	
MB 440-589977/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-258718-A-2-H MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-258718-A-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Analysis Batch: 590021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	200.8	589925
MB 440-589806/1-D	Method Blank	Dissolved	Water	200.8	589925
LCS 440-589806/2-D	Lab Control Sample	Dissolved	Water	200.8	589925
440-258718-B-2-H MS	Matrix Spike	Dissolved	Water	200.8	589925
440-258718-B-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	589925

Analysis Batch: 590038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	200.7 Rev 4.4	589923
MB 440-589806/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	589923
LCS 440-589806/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	589923
440-258718-B-2-E MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	589923
440-258718-B-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	589923

Analysis Batch: 590052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total Recoverable	Water	200.8	589913
MB 440-589913/1-A	Method Blank	Total Recoverable	Water	200.8	589913
LCS 440-589913/2-A	Lab Control Sample	Total Recoverable	Water	200.8	589913
440-258791-A-21-B MS	Matrix Spike	Total Recoverable	Water	200.8	589913
440-258791-A-21-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	589913

Metals

Analysis Batch: 590449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total Recoverable	Water	200.7 Rev 4.4	589749

Prep Batch: 590663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	245.1	589977
MB 440-589977/1-C	Method Blank	Dissolved	Water	245.1	589977
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	245.1	589977
440-258718-A-2-H MS	Matrix Spike	Dissolved	Water	245.1	589977
440-258718-A-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	589977

Analysis Batch: 590948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-2	Outfall018_20200108_Comp_F	Dissolved	Water	245.1	590663
MB 440-589977/1-C	Method Blank	Dissolved	Water	245.1	590663
LCS 440-589977/2-C	Lab Control Sample	Dissolved	Water	245.1	590663
440-258718-A-2-H MS	Matrix Spike	Dissolved	Water	245.1	590663
440-258718-A-2-I MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	590663

General Chemistry

Analysis Batch: 589829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 2540D	
MB 440-589829/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-589829/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-258678-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 589838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 5540C	
MB 440-589838/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-589838/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-589838/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-258718-E-1 MS	Matrix Spike	Total/NA	Water	SM 5540C	
440-258718-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 589840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM5210B	
USB 440-589840/1	Method Blank	Total/NA	Water	SM5210B	
LCS 440-589840/5	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-589840/6	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-589840/7	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-258678-A-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 589846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	180.1	
MB 440-589846/5	Method Blank	Total/NA	Water	180.1	
440-258701-1 DU	Outfall018_20200108_Comp	Total/NA	Water	180.1	

General Chemistry

Prep Batch: 589964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	Distill/CN	
MB 440-589964/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-589964/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-258701-1 MS	Outfall018_20200108_Comp	Total/NA	Water	Distill/CN	
440-258701-1 MSD	Outfall018_20200108_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 590010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 4500 CN E	589964
MB 440-589964/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	589964
LCS 440-589964/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	589964
440-258701-1 MS	Outfall018_20200108_Comp	Total/NA	Water	SM 4500 CN E	589964
440-258701-1 MSD	Outfall018_20200108_Comp	Total/NA	Water	SM 4500 CN E	589964

Analysis Batch: 590017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-590017/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-590017/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-590017/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-258719-B-5 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-258719-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 590072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 5310B	
MB 440-590072/8	Method Blank	Total/NA	Water	SM 5310B	
LCS 440-590072/7	Lab Control Sample	Total/NA	Water	SM 5310B	
440-258701-1 MS	Outfall018_20200108_Comp	Total/NA	Water	SM 5310B	
440-258701-1 MSD	Outfall018_20200108_Comp	Total/NA	Water	SM 5310B	

Analysis Batch: 590629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	SM 2540C	
MB 440-590629/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-590629/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-259059-I-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LR	LCS/LCSD recovery below method control limits

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Metals

Qualifier	Qualifier Description
BA	Relative percent difference out of control
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258701-1
Project/Site: Annual Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
625.1	625	Water	1,2-Dichlorobenzene
625.1	625	Water	1,3-Dichlorobenzene
625.1	625	Water	1,4-Dichlorobenzene

WECK LABORATORIES, INC.

Certificate of Analysis

SUPPLEMENTAL REPORT

Work Orders:	0A09045	**Report Date:**	3/13/2020
		Received Date:	1/9/2020
Project:	Annual Outfall 018 Comp	**Turnaround Time:**	1 workday
		Phones:	(949) 261-1022
		Fax:	(949) 260-3297
Attn:	TestAmerica, Irvine	**P.O. #:**	44009879
Client:	Eurofins Calscience - Irvine 17461 Derian Ave, Suite 100 Irvine, CA 92614	**Billing Code:**	

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 1/09/20 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Case Narrative

This is a Supplement to the Certificate of Analysis previously issued for the above referenced Project to remove unnecessary analytes.

Sample Results

Sample: Outfall018_20200108_Comp (440-258701-1) — Sampled: 01/08/20 9:10 by Client

0A09045-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8315M **Batch ID:** W0A1547 **Instr:** LCMS03 **Prepared:** 01/31/20 10:30 **Analyst:** PJS							
Monomethylhydrazine (MMH)	ND	2.0	2.0	ug/l	1	01/31/20	

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Quality Control Results

Hydrazine by LCMS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Blank (W0A1547-BLK1)					**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	ND	2.0	2.0	ug/l							
Hydrazine	ND	0.77	1.0	ug/l							
Monomethylhydrazine (MMH)	ND	2.0	2.0	ug/l							
LCS (W0A1547-BS1)					**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	20.5	2.0	2.0	ug/l	20.0		102	50-150			
Hydrazine	19.1	0.77	1.0	ug/l	20.0		96	50-150			
Monomethylhydrazine (MMH)	20.9	2.0	2.0	ug/l	20.0		105	50-150			
Matrix Spike (W0A1547-MS1)	**Source: 0A16040-01**				**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	21.3	2.0	2.0	ug/l	20.0	*ND*	107	50-150			
Hydrazine	19.0	0.77	1.0	ug/l	20.0	*ND*	95	50-150			
Monomethylhydrazine (MMH)	21.6	2.0	2.0	ug/l	20.0	*ND*	108	50-150			
Matrix Spike Dup (W0A1547-MSD1)	**Source: 0A16040-01**				**Prepared & Analyzed: 01/31/20**						
1,1-Dimethylhydrazine	21.6	2.0	2.0	ug/l	20.0	*ND*	108	50-150	1	30	
Hydrazine	21.6	0.77	1.0	ug/l	20.0	*ND*	108	50-150	13	30	
Monomethylhydrazine (MMH)	22.7	2.0	2.0	ug/l	20.0	*ND*	114	50-150	5	30	

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Notes and Definitions

Item	Definition
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 8315M in Water			
Monomethylhydrazine (MMH)	60-34-4	✓	

Reviewed by:

Regina M. Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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aquatic bioassay & consulting laboratories, inc

January 23, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall018_20200108_Comp (440-258701-1)
DATE RECEIVED:	8 Jan - 2020
ABC LAB. NO.:	CSE0210.029

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = -75.62 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-2812-3343	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	04-2547-6652	**Code:**	CSE0120.029	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	08 Jan-20 09:10	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	08 Jan-20 15:40	**CAS (PC):**		**Station:**	Outfall018_20200108_Comp (440-258
Sample Age:	27h (1.8 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
03-0618-8950	Cell Density	TST-Welch's t Test	<1.0E-37	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
03-0618-8950	Cell Density	Control CV	0.06065	<<	0.2	Yes	Passes Criteria
03-0618-8950	Cell Density	Control Resp	1.11E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.114E+6	1.058E+6	1.171E+6	1.017E+6	1.218E+6	2.389E+4	6.758E+4	6.07%	0.00%
100		8	1.957E+6	1.806E+6	2.107E+6	1.721E+6	2.185E+6	6.370E+4	1.802E+5	9.21%	-75.62%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.017E+6	1.113E+6	1.025E+6	1.109E+6	1.120E+6	1.168E+6	1.143E+6	1.218E+6
100		2.185E+6	1.721E+6	1.904E+6	2.137E+6	1.952E+6	1.780E+6	2.147E+6	1.827E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	03-0618-8950	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	23 Jan-20 12:22	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	05-2812-3343	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	04-2547-6652	**Code:**	CSE0120.029	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	08 Jan-20 09:10	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	08 Jan-20 15:40	**CAS (PC):**		**Station:**	Outfall018_20200108_Comp (440-258
Sample Age:	27h (1.8 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	16.94	0.7064	8	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.06065	<<	0.2	Yes	Passes Criteria
Control Resp	1.11E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.839E+12	2.839E+12	1	153.3	<1.0E-37	Significant Effect
Error	2.592E+11	1.851E+10	14			
Total	3.098E+12		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	9.455	8.862	0.0082	Unequal Variances
	Mod Levene Equality of Variance Test	8.016	8.862	0.0133	Equal Variances
	Variance Ratio F Test	7.109	8.885	0.0191	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2448	3.878	0.7884	Normal Distribution
	D'Agostino Skewness Test	0.2165	2.576	0.8286	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1095	0.2471	1.0000	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9724	0.8408	0.8764	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.114E+6	1.058E+6	1.171E+6	1.116E+6	1.017E+6	1.218E+6	2.389E+4	6.07%	0.00%
100		8	1.957E+6	1.806E+6	2.107E+6	1.928E+6	1.721E+6	2.185E+6	6.370E+4	9.21%	-75.62%

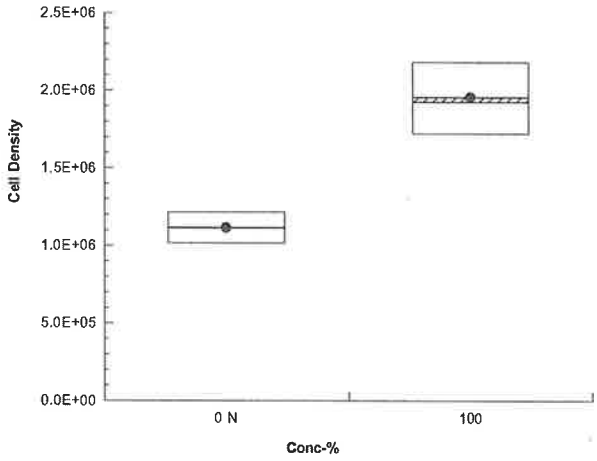
Cell Density Detail

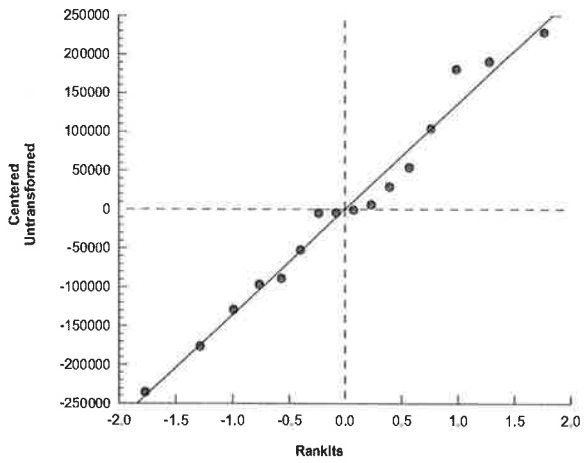
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.017E+6	1.113E+6	1.025E+6	1.109E+6	1.120E+6	1.168E+6	1.143E+6	1.218E+6
100		2.185E+6	1.721E+6	1.904E+6	2.137E+6	1.952E+6	1.780E+6	2.147E+6	1.827E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	03-0618-8950	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	23 Jan-20 12:22	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	05-2812-3343	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**

Sample ID:	04-2547-6652	**Code:**	CSE0120.029	**Project:**	Boeing NPDES SSFL Outfalls
Sample Date:	08 Jan-20 09:10	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	08 Jan-20 15:40	**CAS (PC):**		**Station:**	Outfall018_20200108_Comp (440-258
Sample Age:	27h (1.8 °C)	**Client:**	Eurofins Calscience		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	75			75	75	0	0	0.0%	0
100		1	60			60	60	0	0	0.0%	0
Overall		2	67.5	-27.8	162.8	60	75	7.5	10.61	15.71%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	435.6	426.6	444.6	430	448	3.234	7.232	1.66%	0
100		5	559.6	549.6	569.6	552	572	3.586	8.019	1.43%	0
Overall		10	497.6	450.6	544.6	430	572	20.79	65.75	13.21%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	114			114	114	0	0	0.0%	0
100		1	140			140	140	0	0	0.0%	0
Overall		2	127	-38.18	292.2	114	140	13	18.38	14.48%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.681	8.159	7.6	8.1	0.08602	0.1924	2.43%	0
100		5	8	7.804	8.196	7.8	8.2	0.07071	0.1581	1.98%	0
Overall		10	7.96	7.837	8.083	7.6	8.2	0.05416	0.1713	2.15%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
100		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
Overall		10	24.42	24.26	24.58	24	24.6	0.07118	0.2251	0.92%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		75					
100				60					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		435					
100				552					
0	N	2		431					
100				555					
0	N	3		430					
100				556					
0	N	4		434					
100				563					
0	N	5		448					
100				572					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		114					
100				140					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.6					
100				7.8					
0	N	2		8					
100				8.1					
0	N	3		7.9					
100				7.9					
0	N	4		8					
100				8					
0	N	5		8.1					
100				8.2					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.5					
100				24.5					
0	N	2		24.5					
100				24.5					
0	N	3		24.6					
100				24.6					
0	N	4		24.5					
100				24.5					
0	N	5		24					
100				24					

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

C440-258701

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150910.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Aquatic Bioassay		Accreditations Required (See note): State Program - California		Job #: 440-258701-1
Address: 29 North Olive Street,	Due Date Requested: 1/20/2020			
City: Ventura	TAT Requested (days):			
State, Zip: CA, 93001				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Chronic-Selenestrum)/ Chronic-Selenestrum	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall018_20200108_Comp (440-258701-1)	1/8/20	09:10 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				1/8/20 1740	Aquatic Bioassay
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

-029

Temp. deg. C = 1.8° C

Chlorine (mg/L) = <0.1

NH3 (mg/L) = <0.1

Test America

CHAIN OF CUSTODY FORM

4/30/2020 (Rev. 4)

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 018
Comp

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Sampler: Dan Smith

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	R/A: Total Dissolved Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	R: Cyanide (SM4500-CN-E / E335.2)	R: Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E503.0 or E503.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	R: Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura, CA	A: 1,4-Dioxane (E624 (SW8260M_SIM))	A: Total Organic Carbon (415.2 (SM 5310B))	A: Monomethyl hydrazine (SW6315M/DV-WC-0077)	A: Cr (VI), Total (E218.6)	R: Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 018	Outfall018_20200108_Comp_F	1/8/2020 0910	WM	1 L Poly	1	None	190	No	X											Filter and preserve w/in 24hrs of receipt at lab. Outfall 018 analyze for Al.
			WM	borosilicate vials	1	None	320	No										X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200108_Comp	1/8/2020 0910	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2.5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No				X								Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	40 mL VOA	3	HCl	240	No					X							
			WM	1 L Glass Amber	1	HCl	245	No						X						
			WM	1 L Glass Amber	2	None	255	No							X					
			WM	500 mL Poly	1	None	260	No								X				
	Outfall018_20200108_Comp_Extra	1/8/2020 0910	WM	40 mL VOA	3	HCl	240	No					H							Hold
			WM	1 L Glass Amber	2	None	255	No							H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Honn	01/08/20	H&A	[illegible]	0-1-8-20
[signature]	1.8.20/1540	11:A	[signature]	1850 / 1540

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On ice _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: __X__

Chronic toxicity only on this COC

Test America

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

									ANALYSIS REQUIRED																
									R/A	R	R	R	R/A	R	R	R	A	A	R					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals: Mercury (E245.1)				Comments
Outfall 018	Outfall018_20200108_Comp	1/8/2020	WM	500 mL Poly	1	HNO_3	80	No	X										X				Outfall 018 analyze for Al.
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
		0910	WM	1 L Poly	1	None	185	No							X								
	Outfall018_20200108_Comp_Extra	1/8/2020	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
		0910	WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
			Leticia	01-8-20
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
[signature]	1-9-20 / 1540	H:A	[signature]	1-8-20 / 1540
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: __X__
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months
Data Requirements (Check)
No Level IV: _____ All Level IV: __X__

Chronic toxicity only on this COC

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 9 January - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 80.00 ug/l

IC25 = 108.50 ug/l
IC50 = 137.00 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
19-2114-5898	Cell Density	Dunnett Multiple Comparison Test		80	140	105.8		11.4%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	TU	S
18-5076-8423	Cell Density	Linear Interpolation (ICPIN)		IC5	85.7	62.45	86.08		1
				IC10	91.4	80.77	92.17		
				IC15	97.1	88	98.25		
				IC20	102.8	95.23	104.4		
				IC25	108.5	102.3	110.4		
				IC40	125.6	121.6	128.8		
				IC50	137	132.9	141.2		

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
18-5076-8423	Cell Density	Control CV	0.0486	<<	0.2	Yes	Passes Criteria
19-2114-5898	Cell Density	Control CV	0.0486	<<	0.2	Yes	Passes Criteria
18-5076-8423	Cell Density	Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria
19-2114-5898	Cell Density	Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.066E+6	9.833E+5	1.148E+6	1.017E+6	1.112E+6	2.590E+4	5.179E+4	4.86%	0.00%
20		4	1.031E+6	9.726E+5	1.089E+6	1.001E+6	1.083E+6	1.836E+4	3.672E+4	3.56%	3.26%
40		4	1.531E+6	1.352E+6	1.710E+6	1.380E+6	1.621E+6	5.617E+4	1.123E+5	7.34%	-43.65%
80		4	1.237E+6	1.059E+6	1.415E+6	1.075E+6	1.330E+6	5.597E+4	1.119E+5	9.05%	-16.05%
140		4	5.760E+5	5.306E+5	6.214E+5	5.450E+5	6.130E+5	1.428E+4	2.855E+4	4.96%	45.95%
180		4	2.715E+5	2.404E+5	3.026E+5	2.460E+5	2.900E+5	9.768E+3	1.954E+4	7.20%	74.52%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	19-2114-5898	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	80	140	105.8		11.36%

Dunnett Multiple Comparison Test

Control vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	20	0.6906	2.407	1E+05	6	CDF	0.5623	Non-Significant Effect
	40	-9.246	2.407	1E+05	6	CDF	1.0000	Non-Significant Effect
	80	-3.398	2.407	1E+05	6	CDF	1.0000	Non-Significant Effect
	140*	9.733	2.407	1E+05	6	CDF	2.7E-05	Significant Effect
	180*	15.79	2.407	1E+05	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.0486	<<	0.2	Yes	Passes Criteria
Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.16E+12	8.32E+11	5	164.3	<1.0E-37	Significant Effect
Error	9.114E+10	5.063E+09	18			
Total	4.251E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.08	15.09	0.0337	Equal Variances
	Levene Equality of Variance Test	3.072	4.248	0.0354	Equal Variances
	Mod Levene Equality of Variance Test	1.595	4.248	0.2120	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.7214	3.878	0.0597	Normal Distribution
	D'Agostino Kurtosis Test	1.627	2.576	0.1038	Normal Distribution
	D'Agostino Skewness Test	2.109	2.576	0.0349	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	7.096	9.21	0.0288	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1445	0.2056	0.2154	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9093	0.884	0.0340	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.066E+6	9.833E+5	1.148E+6	1.067E+6	1.017E+6	1.112E+6	2.590E+4	4.86%	0.00%
20		4	1.031E+6	9.726E+5	1.089E+6	1.020E+6	1.001E+6	1.083E+6	1.836E+4	3.56%	3.26%
40		4	1.531E+6	1.352E+6	1.710E+6	1.562E+6	1.380E+6	1.621E+6	5.617E+4	7.34%	-43.65%
80		4	1.237E+6	1.059E+6	1.415E+6	1.271E+6	1.075E+6	1.330E+6	5.597E+4	9.05%	-16.05%
140		4	5.760E+5	5.306E+5	6.214E+5	5.730E+5	5.450E+5	6.130E+5	1.428E+4	4.96%	45.95%
180		4	2.715E+5	2.404E+5	3.026E+5	2.750E+5	2.460E+5	2.900E+5	9.768E+3	7.20%	74.52%

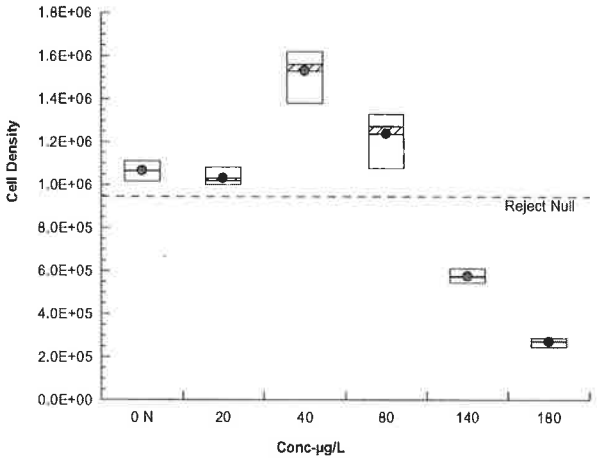
Selenastrum Growth Test
Aquatic Bioassay & Consulting Labs, Inc.

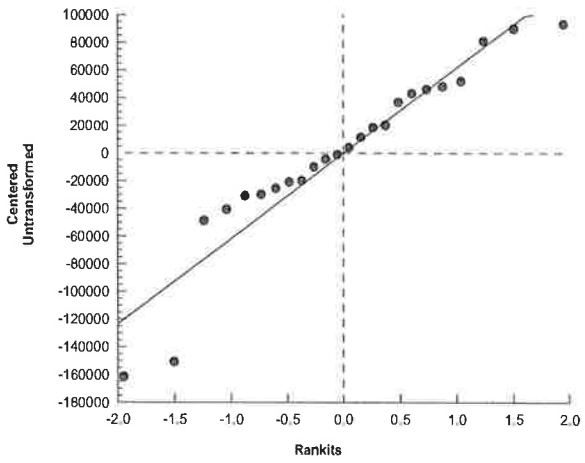
Analysis ID: 19-2114-5898 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.5
Analyzed: 22 Jan-20 9:45 **Analysis:** Parametric-Control vs Treatments **Status Level:** 1

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Graphics





Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	18-5076-8423	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX
Sample Age:	n/a	**Client:**	Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.0486	<<	0.2	Yes	Passes Criteria
Control Resp	1.07E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	85.7	62.45	86.08
IC10	91.4	80.77	92.17
IC15	97.1	88	98.25
IC20	102.8	95.23	104.4
IC25	108.5	102.3	110.4
IC40	125.6	121.6	128.8
IC50	137	132.9	141.2

Cell Density Summary

			Calculated Variate						Isotonic Variate	
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	N	4	1.066E+6	1.017E+6	1.112E+6	5.179E+4	4.86%	0.0%	1216000	0.0%
20		4	1.031E+6	1.001E+6	1.083E+6	3.672E+4	3.56%	3.26%	1216000	0.0%
40		4	1.531E+6	1.380E+6	1.621E+6	1.123E+5	7.34%	-43.65%	1216000	0.0%
80		4	1.237E+6	1.075E+6	1.330E+6	1.119E+5	9.05%	-16.05%	1216000	0.0%
140		4	5.760E+5	5.450E+5	6.130E+5	2.855E+4	4.96%	45.95%	576000	52.64%
180		4	2.715E+5	2.460E+5	2.900E+5	1.954E+4	7.20%	74.52%	271500	77.67%

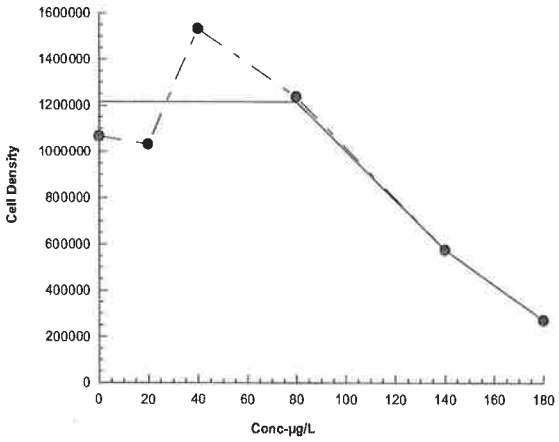
Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.017E+6	1.112E+6	1.025E+6	1.109E+6
20		1.010E+6	1.001E+6	1.030E+6	1.083E+6
40		1.511E+6	1.621E+6	1.380E+6	1.612E+6
80		1.330E+6	1.075E+6	1.257E+6	1.285E+6
140		5.800E+5	6.130E+5	5.450E+5	5.660E+5
180		2.460E+5	2.830E+5	2.900E+5	2.670E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-5076-8423	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	22 Jan-20 9:45	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	19-1613-4120	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	09 Jan-20 12:37	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	13 Jan-20 14:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	4d 2h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	00-9210-6147	**Code:**	SEL010920	**Project:**	REF TOX		
Sample Date:	09 Jan-20 12:37	**Material:**	Cadmium chloride	**Source:**	Reference Toxicant		
Receipt Date:		**CAS (PC):**		**Station:**	REF TOX		
Sample Age:	n/a	**Client:**	Internal Lab				

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	75			75	75	0	0	0.0%	0
20		1	66			66	66	0	0	0.0%	0
40		1	66			66	66	0	0	0.0%	0
80		1	56			56	56	0	0	0.0%	0
140		1	56			56	56	0	0	0.0%	0
180		1	73			73	73	0	0	0.0%	0
Overall		6	65.33	56.84	73.82	56	75	3.303	8.091	12.38%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	435.6	426.6	444.6	430	448	3.234	7.232	1.66%	0
20		5	449.2	421.6	476.8	421	475	9.952	22.25	4.95%	0
40		5	415.2	407.3	423.1	407	423	2.835	6.34	1.53%	0
80		5	393.6	390.6	396.6	391	397	1.077	2.408	0.61%	0
140		5	371.8	365.1	378.5	365	379	2.417	5.404	1.45%	0
180		5	367.6	352.4	382.8	352	380	5.492	12.28	3.34%	0
Overall		30	405.5	393.2	417.8	352	475	5.99	32.81	8.09%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	114			114	114	0	0	0.0%	0
20		1	108			108	108	0	0	0.0%	0
40		1	107			107	107	0	0	0.0%	0
80		1	106			106	106	0	0	0.0%	0
140		1	107			107	107	0	0	0.0%	0
180		1	130			130	130	0	0	0.0%	0
Overall		6	112	102.3	121.7	106	130	3.786	9.274	8.28%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.92	7.681	8.159	7.6	8.1	0.08602	0.1924	2.43%	0
20		5	7.9	7.704	8.096	7.7	8.1	0.07071	0.1581	2.0%	0
40		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
80		5	7.94	7.732	8.148	7.7	8.1	0.07483	0.1673	2.11%	0
140		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
180		5	7.92	7.736	8.104	7.7	8.1	0.06633	0.1483	1.87%	0
Overall		30	7.92	7.865	7.975	7.6	8.1	0.02687	0.1472	1.86%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
20		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
40		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
80		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
140		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
180		5	24.42	24.12	24.72	24	24.6	0.1068	0.2388	0.98%	0
Overall		30	24.42	24.34	24.5	24	24.6	0.03965	0.2172	0.89%	0 (0%)

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		75					
20				66					
40				66					
80				56					
140				56					
180				73					

Conductivity-µmhos

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		435					
20				421					
40				407					
80				391					
140				365					
180				352					
0	N	2		431					
20				435					
40				411					
80				392					
140				369					
180				358					
0	N	3		430					
20				448					
40				416					
80				393					
140				371					
180				370					
0	N	4		434					
20				467					
40				419					
80				395					
140				375					
180				378					
0	N	5		448					
20				475					
40				423					
80				397					
140				379					
180				380					

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		114					
20				108					
40				107					
80				106					
140				107					
180				130					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

pH-Units

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.6					
20				7.7					
40				7.7					
80				7.7					
140				7.7					
180				7.7					
0	N	2		8					
20				7.8					
40				7.9					
80				7.9					
140				7.9					
180				7.9					
0	N	3		7.9					
20				7.9					
40				7.9					
80				7.9					
140				7.9					
180				7.9					
0	N	4		8					
20				8.1					
40				8.1					
80				8.1					
140				8					
180				8					
0	N	5		8.1					
20				8					
40				8					
80				8.1					
140				8.1					
180				8.1					

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	2		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	3		24.6					
20				24.6					
40				24.6					
80				24.6					
140				24.6					
180				24.6					
0	N	4		24.5					
20				24.5					
40				24.5					
80				24.5					
140				24.5					
180				24.5					
0	N	5		24					
20				24					
40				24					
80				24					
140				24					
180				24					

CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002 011, 018] Outfall 018 Comp
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories In.	Field Manager Mark Dominick 978 234 5033, 818.599 0702 (cell)
Sampler Dan Smith	

R/A R R R A A A A R

ANALYSIS REQUIRED

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN E / E335.2)	Gross Alpha(E900.0) Gross Beta(E900.0) Tritium (H-3) (E906.0) Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E905.0) K-40, CS 137 (E901.0 or E901.1)	[illegible]	1,4 Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 /SM 5310B)	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI) Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 018	Outfa l018_20200108_Comp_F	1/8/2020 0910	WM	1 L Poly	1	None	160	No	X										Filter and preserve within 24hrs of receipt at lab Outfall 018 analyze for 4l
			WM	borosilicate vials	1	None	321	No										X	Sample receiving DO NOT OPEN SAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200108_Comp	1/8/2020 0910	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No			X								Unfiltered and unpreserved analysis, Separate RAD onto another work order Analyze duplicate per MS/MSD
			WM	1 L Glass Amber	1	None	230	No											
			WM	1 Gal Cube	6	None	235	No											Only test if first or second qtr events of the year Deliver to AEC Lab in Ventura CA
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							Y				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall018_20200108_Comp_Extra	1/8/2020 0910	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/08/20	H&A	[illegible]	01-8-20
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible]	01/08/20	15:50		
Relinquished By	Date/Time	Company	Received By	Date/Time
			JO	1/8/20 1550 EC-IRV

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV ___X___

3 1/3 1, 2.3/2.3, 0 2/0.2, 0.5/0 5 IR-93



440-258701 Chain of Custody

1/8/20 CT

CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich Inc its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler Dan Smith	Field Manager Mark Dominick 978 234 5033, 818 599 0702 (cell)

									ANALYSIS REQUIRED																	
									R/A	R	R	R	R/A	R	R	R	A	A	R							
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) Ag, Al, As, Ba, B, Be, Ca, Cr, Fe, Mn, Ni, V, Zn; Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODLab))	Surfactants (MBAS) (SM5540C(E425.1))	Cl, F, SO4, Nitrate N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Ammonia N (E350.2)	Priority Pollutants Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals Mercury (E245.1)					Comments
Outfall 018	Outfall018_20200108_Comp	1/8/2020 0910	WM	500 mL Poly	1	HNO_3	90	No	X										X						Outfall 018 analyze for Al
			WM	1 L Glass Amber	1	None	110	No		X															
			WM	1 L Poly	1	None	115	No			X														
			WM	500 mL Poly	2	None	120	No				X													
			WM	500 mL Poly	2	None	125	No					X												48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X											48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X									
			WM	1 L Glass Amber	2	None	250	No									Y								
			WM	1 L Glass Amber	2	None	175	No										X							
			WM	1 L Poly	1	None	185	No							X										
	Outfall018_20200108_Comp_Extra	1/8/2020 0910	WM	1 L Glass Amber	2	None	110	No		H															Hold
			WM	500 mL Poly	2	None	140	No				H													Hold
			WM	500 mL Poly	2	None	155	No					H												Hold
			WM	1 L Glass Amber	2	None	250	No									H								Hold
			WM	1 L Glass Amber	2	None	175	No										H							Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time	Turn around time (Check) 24 Hour ____ 72 Hour ____ 10 Day __x__ 48 Hour ____ 5 Day ____ Normal ____
Relinquished By Letim	Date/Time 01/ex/20 15:50	Company	Received By	Date/Time	Sample Integrity (Check) Intact ____ On Ice ____
Relinquished By	Date/Time	Company	Received by JO	Date/Time 1/8/20 1550 EC-IRV	Store samples for 6 months Data Requirements (Check) No Level IV ____ All Level IV __y__

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258701-1

Login Number: 258701
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes

440-258701 Field Sheet

Tracking # : 1119-9742-9063

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other_____

Job:_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:_____

Therm. ID: AK-7 Corr. Factor: (+)/(-) 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☑

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W9-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258701-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 March 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-258701-2

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL018_20200108_COMP	440-258701-1	N/A	Water	1/8/20 9:10 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-258701-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (914 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

L. Calvin of MEC[X] reviewed the SDG on March 6, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were met. Following are findings associated with instrument performance:

III.2.1. *GC COLUMN PERFORMANCE*

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as <25%.

III.2.2. *MASS SPECTROMETER PERFORMANCE*

The mass spectrometer performance was acceptable with the static resolving power >10,000.

III.3. CALIBRATION

Calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD and OCDF, and for totals HxCDD, HxCDF, HpCDD and HpCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared peaks comprising the method blank totals to those in the sample totals. The retention times of total HpCDD peaks in the sample matched those in the method blank, at similar concentrations; therefore, the result for total HpCDD was qualified as a nondetect (U) at the level of contamination. Sample totals HxCDD, HxCDF and

total HpCDF were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.

III.7. COMPOUND IDENTIFICATION

Compound identification was verified. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not performed, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating a representative number of sample results. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 914 ml sample volume was available for extraction.

Isomers and total HpCDD previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,7,8,9-HxCDD and 1,2,3,7,8-PeCDD reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Total PeCDD consisted of the single isomer EMPC peak qualified in the sample and was therefore also qualified as an estimated nondetect (UJ). Totals HpCDF, HxCDD and HxCDF included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402587012

Analysis Method E1613B

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000037	0.00011	0.00000075	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000016	0.00011	0.00000036	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000017	0.000055	0.00000043	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000058	0.000055	0.00000032	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000019	0.000055	0.00000045	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000019	0.000055	0.00000030	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000038	0.000055	0.00000046	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000021	0.000055	0.00000031	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000024	0.000055	0.00000051	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000028	0.000055	0.00000030	ug/L	J,DXqMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000017	0.000055	0.00000044	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000028	0.000055	0.00000062	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000019	0.000055	0.0000011	ug/L	J,DXq	UJ	*III
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000016	0.000055	0.00000029	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000017	0.000055	0.00000062	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000061	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.0000015	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000037	0.000055	0.00000043	ug/L	J,DXqMB	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000011	0.000055	0.00000032	ug/L	J,DXqMB	J	B, DNQ, *III
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000085	0.000055	0.00000029	ug/L	J,DXqMB	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000079	0.000055	0.00000044	ug/L	J,DXqMB	J	B, DNQ, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000046	0.000055	0.00000062	ug/L	J,DX	J	DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000019	0.000055	0.0000011	ug/L	J,DXq	UJ	*III
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000061	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.0000015	ug/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258701-2
Client Project/Site: Annual Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
1/24/2020 5:24:55 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
1/24/2020 5:24:55 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258701-1	Outfall018_20200108_Comp	Water	01/08/20 09:10	01/08/20 15:50	

Job ID: 440-258701-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258701-2

Comments
No additional comments.

Receipt
The samples were received on 1/8/2020 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.2º C, 0.5º C, 2.3º C and 3.1º C.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall018_20200108_Comp (440-258701-1), (CCV 320-352632/2), (LCS 320-351765/2-A) and (MB 320-351765/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall018_20200108_Comp (440-258701-1) were provided in wide-mouth amber glass bottles.

preparation batch 320-351765
Method: 1613B_Sox_Sep_P
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000011	0.0000015	ug/L		01/20/20 08:35	01/23/20 16:25	1
2,3,7,8-TCDF	ND		0.000011	0.00000061	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,7,8-PeCDD	**0.0000019**	**J,DX q**	0.000055	0.0000011	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,7,8-PeCDF	**0.0000028**	**J,DX**	0.000055	0.00000062	ug/L		01/20/20 08:35	01/23/20 16:25	1
2,3,4,7,8-PeCDF	**0.0000017**	**J,DX**	0.000055	0.00000062	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,4,7,8-HxCDD	**0.0000038**	**J,DX MB**	0.000055	0.00000046	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,6,7,8-HxCDD	**0.0000024**	**J,DX**	0.000055	0.00000051	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,7,8,9-HxCDD	**0.0000017**	**J,DX q**	0.000055	0.00000044	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,4,7,8-HxCDF	**0.0000019**	**J,DX**	0.000055	0.00000030	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,6,7,8-HxCDF	**0.0000021**	**J,DX**	0.000055	0.00000031	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,7,8,9-HxCDF	**0.0000028**	**J,DX q MB**	0.000055	0.00000030	ug/L		01/20/20 08:35	01/23/20 16:25	1
2,3,4,6,7,8-HxCDF	**0.0000016**	**J,DX**	0.000055	0.00000029	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,4,6,7,8-HpCDD	**0.0000058**	**J,DX MB**	0.000055	0.00000032	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,4,6,7,8-HpCDF	**0.0000017**	**J,DX q MB**	0.000055	0.00000043	ug/L		01/20/20 08:35	01/23/20 16:25	1
1,2,3,4,7,8,9-HpCDF	**0.0000019**	**J,DX**	0.000055	0.00000045	ug/L		01/20/20 08:35	01/23/20 16:25	1
OCDD	**0.000016**	**J,DX MB**	0.00011	0.00000036	ug/L		01/20/20 08:35	01/23/20 16:25	1
OCDF	**0.0000037**	**J,DX q MB**	0.00011	0.00000075	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total TCDD	ND		0.000011	0.0000015	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total TCDF	ND		0.000011	0.00000061	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total PeCDD	**0.0000019**	**J,DX q**	0.000055	0.0000011	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total PeCDF	**0.0000046**	**J,DX**	0.000055	0.00000062	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total HxCDD	**0.0000079**	**J,DX q MB**	0.000055	0.00000044	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total HxCDF	**0.0000085**	**J,DX q MB**	0.000055	0.00000029	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total HpCDD	**0.000011**	**J,DX q MB**	0.000055	0.00000032	ug/L		01/20/20 08:35	01/23/20 16:25	1
Total HpCDF	**0.0000037**	**J,DX q MB**	0.000055	0.00000043	ug/L		01/20/20 08:35	01/23/20 16:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-1,2,3,7,8-PeCDD	*58*		*25 - 181*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-1,2,3,7,8-PeCDF	*61*		*24 - 185*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-2,3,4,7,8-PeCDF	*65*		*21 - 178*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-1,2,3,4,7,8-HxCDD	*65*		*32 - 141*	*01/20/20 08:35*	*01/23/20 16:25*	*1*
13C-1,2,3,6,7,8-HxCDD	*58*		*28 - 130*	*01/20/20 08:35*	*01/23/20 16:25*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Client Sample ID: Outfall018_20200108_Comp
Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1
Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDF	67		26 - 152	01/20/20 08:35	01/23/20 16:25	1
13C-1,2,3,6,7,8-HxCDF	63		26 - 123	01/20/20 08:35	01/23/20 16:25	1
13C-1,2,3,7,8,9-HxCDF	62		29 - 147	01/20/20 08:35	01/23/20 16:25	1
13C-2,3,4,6,7,8-HxCDF	63		28 - 136	01/20/20 08:35	01/23/20 16:25	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	01/20/20 08:35	01/23/20 16:25	1
13C-1,2,3,4,6,7,8-HpCDF	62		28 - 143	01/20/20 08:35	01/23/20 16:25	1
13C-1,2,3,4,7,8,9-HpCDF	66		26 - 138	01/20/20 08:35	01/23/20 16:25	1
13C-OCDD	69		17 - 157	01/20/20 08:35	01/23/20 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	87		35 - 197	01/20/20 08:35	01/23/20 16:25	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			914.2 mL	20 uL	351765	01/20/20 08:35	RDR	TAL SAC
Total/NA	Analysis	1613B		1			352632	01/23/20 16:25	ALM	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-351765/1-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 351765

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000016	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,7,8-TCDF	ND		0.000010	0.00000049	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000096	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000054	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000055	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8-HxCDD	0.00000199	J,DX q	0.000050	0.00000037	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000035	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000026	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000026	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,7,8,9-HxCDF	0.00000115	J,DX	0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,6,7,8-HpCDD	0.00000186	J,DX	0.000050	0.00000024	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,6,7,8-HpCDF	0.00000142	J,DX q	0.000050	0.00000042	ug/L		01/20/20 08:35	01/23/20 14:49	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1
OCDD	0.00000692	J,DX	0.00010	0.00000047	ug/L		01/20/20 08:35	01/23/20 14:49	1
OCDF	0.00000444	J,DX	0.00010	0.00000086	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total TCDD	ND		0.000010	0.0000016	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total TCDF	ND		0.000010	0.00000049	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total PeCDD	ND		0.000050	0.00000096	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total PeCDF	ND		0.000050	0.00000054	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HxCDD	0.00000199	J,DX q	0.000050	0.00000035	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HxCDF	0.00000115	J,DX	0.000050	0.00000025	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HpCDD	0.00000319	J,DX q	0.000050	0.00000024	ug/L		01/20/20 08:35	01/23/20 14:49	1
Total HpCDF	0.00000142	J,DX q	0.000050	0.00000040	ug/L		01/20/20 08:35	01/23/20 14:49	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*01/20/20 08:35*	*01/23/20 14:49*	*1*
13C-1,2,3,7,8-PeCDF	*58*		*24 - 185*	*01/20/20 08:35*	*01/23/20 14:49*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-351765/1-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 351765

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	62		21 - 178	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8-HxCDD	59		32 - 141	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8-HxCDF	61		26 - 152	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	01/20/20 08:35	01/23/20 14:49	1
13C-2,3,4,6,7,8-HxCDF	58		28 - 136	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,6,7,8-HpCDF	58		28 - 143	01/20/20 08:35	01/23/20 14:49	1
13C-1,2,3,4,7,8,9-HpCDF	64		26 - 138	01/20/20 08:35	01/23/20 14:49	1
13C-OCDD	61		17 - 157	01/20/20 08:35	01/23/20 14:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197	01/20/20 08:35	01/23/20 14:49	1

Lab Sample ID: LCS 320-351765/2-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 351765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000181		ug/L		90	67 - 158
2,3,7,8-TCDF	0.000200	0.000184		ug/L		92	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000892		ug/L		89	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000888		ug/L		89	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000840		ug/L		84	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000830	MB	ug/L		83	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000872		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000826		ug/L		83	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000803		ug/L		80	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000867		ug/L		87	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000856	MB	ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000875		ug/L		88	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000887	MB	ug/L		89	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000873	MB	ug/L		87	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000814		ug/L		81	78 - 138
OCDD	0.00200	0.00178	MB	ug/L		89	78 - 144
OCDF	0.00200	0.00193	MB	ug/L		96	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	52		20 - 175
13C-2,3,7,8-TCDF	54		22 - 152
13C-1,2,3,7,8-PeCDD	55		21 - 227
13C-1,2,3,7,8-PeCDF	59		21 - 192
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-1,2,3,4,7,8-HxCDD	58		21 - 193
13C-1,2,3,6,7,8-HxCDD	53		25 - 163
13C-1,2,3,4,7,8-HxCDF	61		19 - 202
13C-1,2,3,6,7,8-HxCDF	56		21 - 159

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-351765/2-A
Matrix: Water
Analysis Batch: 352632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 351765

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,7,8,9-HxCDF	57		17 - 205
13C-2,3,4,6,7,8-HxCDF	57		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	51		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	54		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	60		20 - 186
13C-OCDD	56		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	87		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Specialty Organics

Prep Batch: 351765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	1613B	
MB 320-351765/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-351765/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 352632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	1613B	351765
MB 320-351765/1-A	Method Blank	Total/NA	Water	1613B	351765
LCS 320-351765/2-A	Lab Control Sample	Total/NA	Water	1613B	351765

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258701-2
Project/Site: Annual Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-20 *
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-29-20 *
Hawaii	State	<cert No.>	01-29-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20 *
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Michigan	State Program	9947	01-31-20
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20 *
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-29-20
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19 *
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002 011, 018] Outfall 018 Comp
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories In.	Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler Dan Smith	Field Manager Mark Dominick 978 234 5033, 818.599 0702 (cell)

									ANALYSIS REQUIRED											
									R/A	R	R	R	A	A	A	A	R			
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN E / E335.2)	Gross Alpha(E900.0) Gross Beta(E900.0) Tritium (H-3) (E906.0) Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E905.0) K-40, CS 137 (E901.0 or E901.1)	[illegible]	1,4 Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 /SM 5310B)	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI) Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 018	Outfa l018_20200108_Comp_F	1/8/2020 0910	WM	1 L Poly	1	None	160	No	X											Filter and preserve within 24hrs of receipt at lab Outfall 018 analyze for 4l
			WM	borosilicate vials	1	None	321	No									X			Sample receiving DO NOT OPEN SAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200108_Comp	1/8/2020 0910	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2.5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis, Separate RAD onto another work order Analyze duplicate per MS/MSD
			WM	1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second qtr events of the year Deliver to ABC Lab in Ventura CA
			WM	40 mL VOA	3	HCl	240	No					X							
			WM	1 L Glass Amber	1	HCl	245	No						X						
			WM	1 L Glass Amber	2	None	255	No							Y					
			WM	500 mL Poly	1	None	260	No								X				
	Outfall018_20200108_Comp_Extra	1/8/2020 0910	WM	40 mL VOA	3	HCl	240	No					H							Hold
			WM	1 L Glass Amber	2	None	255	No							H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/08/20	H&A	[illegible]	01-8-20
Relinquished By	Date/Time	Company	Received By	Date/Time
[illegible]	01/08/20	15:50		
Relinquished By	Date/Time	Company	Received By	Date/Time
			[illegible]	1/8/20 1550 EC-IRV

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV ___X___

31/31, 2.3/2.3, 0.2/0.2, 0.5/0.5 IR-93

440-258701 Chain of Custody

1/8/20 CT

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1/24/2020

2019-2020 Rainy Season
Version 2

st America

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich Inc its subsidiaries and affiliates and TestAmerica Laboratories Inc

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager Katherine Miller
520 289 8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc)) (R)	Surfactants (MBAS) (SM5540C/E425.1) (R)	Cl, F, SO4, Nitrate N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) (R/A)	Turbidity TDS (SM2540C/E160.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia N (E350.2) (R)	Priority Pollutants Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245.1) (R)				Comments
Outfall 018	Outfall018_20200108_Comp	1/8/2020	WM	500 mL Poly	1	HNO_3	90	No	X										X				Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO2 & NO3
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
		0910	WM	1 L Poly	1	None	185	No							X								
	Outfall018_20200108_Comp_Extra	1/8/2020	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
		0910	WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
			Letiein	01-8-20
Letim	01/08/20	15:50		
			[illegible]	1/8/20 1550 EC-IRV

Turn around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150941.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258701-1
Address: 880 Riverside Parkway,	Due Date Requested: 1/20/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Annual Outfall 018 Comp	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall018_20200108_Comp (440-258701-1)	1/8/20	09:10 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Kenney	1/9/2020 1700	EC-IRV	[signature]	1/10/20 9:15	ETA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: OBS 0.3 Corr 0.8

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258701-2

Login Number: 258701
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258701-2

Login Number: 258701
List Number: 3
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 01/10/20 04:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 0.3 corr 0.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-258701-1	Outfall018_20200108_Comp	54	58	58	61	65	65	58	67
MB 320-351765/1-A	Method Blank	54	59	52	58	62	59	54	61

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-258701-1	Outfall018_20200108_Comp	63	62	63	60	62	66	69
MB 320-351765/1-A	Method Blank	58	58	58	55	58	64	61

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-351765/2-A	Lab Control Sample	52	54	55	59	62	58	53	61

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-351765/2-A	Lab Control Sample	56	57	57	51	54	60	56

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-2

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento Sample Receiving Notes

440-258701 Field Sheet

Tracking # : 1119-9742-9063

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

Job: _____

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-7 Corr. Factor: (+)/(-) 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☐

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W9-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-258701-3

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

6 March 2020

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-258701-3

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL018_20200108_COMP	440-258701-1	N/A	Water	1/8/20 9:10 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, HASL-300 U Mod

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt forms and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-258701-3:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact.
- Field and laboratory personnel signed and dated the COCs.
- Some corrections to the original COCs were not dated. The cross-outs did not affect data quality.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. VARIOUS EPA METHODS —RADIONUCLIDES

E. Wessling of MEC[X] reviewed the SDG on March 6, 2020

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *EPA Methods 900, 901.1, 903.0, 904.0, 905.0, 906.0 and HASL-300 U Mod* and the *National Functional Guidelines for Superfund Inorganic Method Data Review* (2017).

III.1. HOLDING TIMES:

According to the case narrative, the sample was received properly preserved.

III.2. CALIBRATION:

The detector efficiencies for gross alpha and radium-226 were less than 20%; therefore, the detected result for gross alpha and radium-226 were qualified as estimated nondetects (UJ). All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits. Calibration checks were verified as acceptable for all methods with the exception of cross-talk for gross beta and strontium-90. These daily checks were noted as DOEF and as a conservative measure these isotopes were qualified as estimated, (J for detects and UJ for nondetects).

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target isotopes were not detected in the method blanks above the MDC. However, a comparison normalized absolute difference of the sample results and the method blank results indicated the method blank and the sample results were not significantly different at the 5% level of confidence for gross beta. The detected sample result for gross beta was qualified as estimated (J+).

III.3.2. *LABORATORY CONTROL SAMPLES:*

The recoveries were within laboratory-established control limits.

III.3.3. *LABORATORY DUPLICATES:*

Laboratory duplicates were performed on the sample from this SDG for cesium-137 and potassium-40. DERs were <1.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE:*

Matrix spike (MS)/MSD analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level IV review was performed on the sample in this data package. Calculations were verified from the raw data and were determined to be accurate within a reasonable margin of error attributable to differences in significant figures. Reported nondetects are valid to the MDC.

III.5. FIELD QC SAMPLES:

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. The following are findings associated with field QC samples:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS:*

This SDG had no identified field blank or equipment blank samples.

III.5.2. *FIELD DUPLICATES:*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402587013

Analysis Method E900

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	-0.0488	0.928	3.00	1.91	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	2.53	0.823	4.00	1.04	pCi/L		J+	B, R

Analysis Method E901.1

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	0.394	10.6	20.0	12.8	pCi/L	U	U	
Potassium-40	13966-00-2	-51.6	175	220	220	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0414	0.0472	1.00	0.0751	pCi/L	U	UJ	*III

Analysis Method E904.0

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.0435	0.273	1.00	0.477	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.376	0.279	3.00	0.436	pCi/L	U	UJ	R

Analysis Method E906.0

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	-149	173	500	341	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.120	0.131	1.00	0.164	pCi/L	U	U	

Analysis Method RADIUM

Sample Name OUTFALL018_20200108_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/8/2020 9:10:00 AM **Validation Level:** 8

Lab Sample Name: 440-258701-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.477	0.277			pCi/L	U	UJ	*III

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-258701-3
Client Project/Site: Annual Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
2/7/2020 8:26:27 AM
Lena Davidkova, Project Manager II
(949)260-3229
lena.davidkova@testamericainc.com

Designee for

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Lena Davidkova
Project Manager II
2/7/2020 8:26:27 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-258701-1	Outfall018_20200108_Comp	Water	01/08/20 09:10	01/08/20 15:50	

Job ID: 440-258701-3

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-258701-3

Comments
No additional comments.

Receipt
The samples were received on 1/8/2020 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.2º C, 0.5º C, 2.3º C and 3.1º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-456711

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall018_20200108_Comp (440-258701-1), (LCS 160-456711/2-A), (LCSB 160-456711/3-A), (MB 160-456711/1-A), (440-258718-Y-1-E), (440-258718-Y-1-F MS), (440-258718-Y-1-H MSBT), (440-258718-Y-1-I MSBTD) and (440-258718-Y-1-G MSD)

Method 901.1: Gamma Prep Batch 160-456597

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Outfall018_20200108_Comp (440-258701-1), (LCS 160-456597/2-A), (MB 160-456597/1-A) and (440-258701-A-1-B DU)

Method 903.0: Radium-226 Prep Batch 160-456626
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Job ID: 440-258701-3 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200108_Comp (440-258701-1), (LCS 160-456626/1-A), (MB 160-456626/15-A), (440-258718-Y-1-B), (440-258718-Q-1-C MS) and (440-258718-Q-1-D MSD)

Method 904.0: Radium-228 Prep Batch 160-456630
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200108_Comp (440-258701-1), (LCS 160-456630/1-A), (MB 160-456630/15-A), (440-258718-Y-1-C), (440-258718-Q-1-E MS) and (440-258718-Q-1-F MSD)

Method 905: Strontium-90 Prep Batch 160-456576

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The absolute value of the negative result for the method blank associated with the following samples in batch 160-456576 is outside the three sigma uncertainty: Outfall018_20200108_Comp (440-258701-1), (LCS 160-456576/1-A), (MB 160-456576/12-A), (440-258718-Y-1-A), (440-258718-Q-1-A MS) and (440-258718-Q-1-B MSD). A recount was not possible due to the passing of a full decay cycle of yttrium-90 (Sr-90). The data has been qualified and reported.

Method 906.0: LSC Tritium Prep Batch 160-456611

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200108_Comp (440-258701-1), (LCS 160-456611/2-A), (MB 160-456611/1-A), (440-258718-W-1-A), (440-258718-P-1-A MS) and (440-258718-P-1-B MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-456651
The tracer resolution was greater than 100 keV. The analyte peaks were resolvable within the appropriate region(s) of interest, and no interferent peaks were seen. The laboratory does not believe this excursion adversely affects the data.(LCS 160-456651/2-A) and (440-258718-Q-1-G MS)

Method A-01-R: Isotopic Uranium Prep Batch 160-456651
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200108_Comp (440-258701-1), (LCS 160-456651/2-A), (MB 160-456651/1-A), (440-258718-Y-1-D), (440-258718-Q-1-G MS) and (440-258718-Q-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-456651

The following samples have a slight yellow discoloration and suspended solids. Outfall018_20200108_Comp (440-258701-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.0488	U	0.928	0.928	3.00	1.91	pCi/L	01/14/20 08:41	01/18/20 14:51	1
Gross Beta	**2.53**		0.783	0.823	4.00	1.04	pCi/L	01/14/20 08:41	01/18/20 14:51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.394	U	10.6	10.6	20.0	12.8	pCi/L	01/13/20 10:04	01/15/20 15:01	1
Potassium-40	-51.6	U	175	175		220	pCi/L	01/13/20 10:04	01/15/20 15:01	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0414	U	0.0470	0.0472	1.00	0.0751	pCi/L	01/13/20 12:03	02/04/20 12:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.7*		*40 - 110*	*01/13/20 12:03*	*02/04/20 12:13*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0435	U	0.273	0.273	1.00	0.477	pCi/L	01/13/20 13:08	01/16/20 16:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.7*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:20*	*1*
Y Carrier	*86.0*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:20*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.376	U	0.278	0.279	3.00	0.436	pCi/L	01/13/20 07:50	01/21/20 11:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*64.3*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*
Y Carrier	*87.5*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-149	U	173	173	500	341	pCi/L	01/13/20 11:44	01/14/20 14:53	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.120	U	0.130	0.131	1.00	0.164	pCi/L	01/13/20 16:40	01/22/20 07:51	1

Client Sample ID: Outfall018_20200108_Comp
Lab Sample ID: 440-258701-1
Date Collected: 01/08/20 09:10
Matrix: Water
Date Received: 01/08/20 15:50

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	83.2		30 - 110	01/13/20 16:40	01/22/20 07:51	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-3

Client Sample ID: Outfall018_20200108_Comp

Date Collected: 01/08/20 09:10
Date Received: 01/08/20 15:50

Lab Sample ID: 440-258701-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.06 g	1.0 g	456711	01/14/20 08:41	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	457193	01/18/20 14:51	AJD	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	456597	01/13/20 10:04	LTC	TAL SL
Total/NA	Analysis	901.1		1			456809	01/15/20 15:01	AJD	TAL SL
Total/NA	Prep	PrecSep-21			1000.1 mL	1.0 g	456626	01/13/20 12:03	MMO	TAL SL
Total/NA	Analysis	903.0		1			459158	02/04/20 12:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.1 mL	1.0 g	456630	01/13/20 13:08	MNH	TAL SL
Total/NA	Analysis	904.0		1			457020	01/16/20 16:20	KLS	TAL SL
Total/NA	Prep	PrecSep-7			999.7 mL	1.0 g	456576	01/13/20 07:50	MNH	TAL SL
Total/NA	Analysis	905		1			457492	01/21/20 11:19	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	456611	01/13/20 11:44	KNF	TAL SL
Total/NA	Analysis	906.0		1			456785	01/14/20 14:53	JS	TAL SL
Total/NA	Prep	ExtChrom			500.05 mL	1.0 mL	456651	01/13/20 16:40	KLH	TAL SL
Total/NA	Analysis	A-01-R		1			457588	01/22/20 07:51	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-456711/1-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456711

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.0000	U	0.610	0.610	3.00	1.20	pCi/L	01/14/20 08:41	01/18/20 14:49	1
Gross Beta	0.1550	U	0.511	0.511	4.00	0.890	pCi/L	01/14/20 08:41	01/18/20 14:49	1

Lab Sample ID: LCS 160-456711/2-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	49.78		7.41	3.00	1.89	pCi/L	100	75 - 125

Lab Sample ID: LCSB 160-456711/3-A
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	85.0	82.46		8.78	4.00	0.900	pCi/L	97	75 - 125

Lab Sample ID: 440-258718-Y-1-F MS
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	0.439	U	49.5	32.12		5.68	3.00	2.49	pCi/L	64	60 - 140

Lab Sample ID: 440-258718-Y-1-G MSD
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	0.439	U	49.5	30.19		5.41	3.00	2.47	pCi/L	60	60 - 140	0.17	1

Lab Sample ID: 440-258718-Y-1-H MSBT
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	2.44		85.0	84.84		9.03	4.00	0.938	pCi/L	97	60 - 140

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-258718-Y-1-I MSBTD
Matrix: Water
Analysis Batch: 457193

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456711

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	2.44		84.9	84.68		9.00	4.00	0.937	pCi/L	97	60 - 140	0.01	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-456597/1-A
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456597

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.971	U	14.9	14.9	20.0	18.0	pCi/L	01/13/20 10:04	01/15/20 13:26	1
Potassium-40	32.75	U	83.8	83.9		145	pCi/L	01/13/20 10:04	01/15/20 13:26	1

Lab Sample ID: LCS 160-456597/2-A
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456597

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	132600		15300		422	pCi/L	98	90 - 111
Cesium-137	44000	43580		4370	20.0	134	pCi/L	99	90 - 111
Cobalt-60	27100	26460		2620		67.3	pCi/L	98	89 - 110

Lab Sample ID: 440-258701-1 DU
Matrix: Water
Analysis Batch: 456808

Client Sample ID: Outfall018_20200108_Comp
Prep Type: Total/NA
Prep Batch: 456597

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	0.394	U	-2.589	U	10.5	20.0	13.2	pCi/L	0.14	1
Potassium-40	-51.6	U	-57.70	U	121		184	pCi/L	0.02	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-456626/15-A
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456626

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02711	U	0.0456	0.0457	1.00	0.102	pCi/L	01/13/20 12:03	02/04/20 12:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*01/13/20 12:03*	*02/04/20 12:14*	*1*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-456626/1-A
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456626

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	8.788		0.907	1.00	0.0772	pCi/L	77	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-C MS
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456626

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0761	U	11.4	9.953		1.02	1.00	0.0711	pCi/L	87	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*98.8*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-D MSD
Matrix: Water
Analysis Batch: 459158

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456626

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0761	U	11.3	9.906		1.03	1.00	0.123	pCi/L	87	75 - 138	0.02	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-456630/15-A
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456630

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1136	U	0.208	0.209	1.00	0.354	pCi/L	01/13/20 13:08	01/16/20 16:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:22*	*1*
Y Carrier	*83.6*		*40 - 110*	*01/13/20 13:08*	*01/16/20 16:22*	*1*

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-456630/1-A
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456630

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.20	9.655		1.12	1.00	0.465	pCi/L	105	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*
Y Carrier	*83.0*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-E MS
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456630

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	-0.157	U	9.20	8.903		1.06	1.00	0.431	pCi/L	97	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*98.8*		*40 - 110*
Y Carrier	*83.6*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-F MSD
Matrix: Water
Analysis Batch: 457020

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456630

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	-0.157	U	9.20	8.437		1.01	1.00	0.402	pCi/L	92	45 - 150	0.22	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*
Y Carrier	*84.5*		*40 - 110*

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-456576/12-A
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456576

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.2796	U	0.150	0.152	3.00	0.314	pCi/L	01/13/20 07:50	01/21/20 11:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*92.5*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*
Y Carrier	*91.2*		*40 - 110*	*01/13/20 07:50*	*01/21/20 11:19*	*1*

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCS 160-456576/1-A
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456576

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.93	8.753		0.931	3.00	0.326	pCi/L	110	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*78.2*		*40 - 110*
Y Carrier	*92.0*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-A MS
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456576

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	-0.0868	U	7.93	7.549		0.833	3.00	0.323	pCi/L	95	19 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Sr Carrier	*85.8*		*40 - 110*
Y Carrier	*85.2*		*40 - 110*

Lab Sample ID: 440-258718-Q-1-B MSD
Matrix: Water
Analysis Batch: 457492

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456576

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	-0.0868	U	7.93	8.107		0.874	3.00	0.311	pCi/L	102	19 - 150	0.33	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Sr Carrier	*87.0*		*40 - 110*
Y Carrier	*84.1*		*40 - 110*

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-456611/1-A
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-92.34	U	177	177	500	335	pCi/L	01/13/20 11:44	01/14/20 14:07	1

Lab Sample ID: LCS 160-456611/2-A
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2510	2752		448	500	337	pCi/L	110	75 - 114		

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-258718-P-1-A MS
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456611

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	-60.8	U	2510	2441		414	500	326	pCi/L	97	67 - 130

Lab Sample ID: 440-258718-P-1-B MSD
Matrix: Water
Analysis Batch: 456785

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456611

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-60.8	U	2500	2509		427	500	340	pCi/L	100	67 - 130	0.08	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-456651/1-A
Matrix: Water
Analysis Batch: 457582

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456651

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.06531	U	0.1016	0.1017	1.00	0.145	pCi/L	01/13/20 16:40	01/22/20 07:51	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*78.7*		*30 - 110*	*01/13/20 16:40*	*01/22/20 07:51*	*1*

Lab Sample ID: LCS 160-456651/2-A
Matrix: Water
Analysis Batch: 457584

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456651

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234			12.7	12.15		1.45	1.00	0.187	pCi/L	95	75 - 125
Uranium-238			13.0	12.57		1.49	1.00	0.147	pCi/L	97	75 - 125

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*61.3*		*30 - 110*

Lab Sample ID: 440-258718-Q-1-G MS
Matrix: Water
Analysis Batch: 457597

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 456651

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	0.162		12.7	12.57		1.52	1.00	0.204	pCi/L	97	65 - 146
Uranium-238	0.118	U	13.0	13.02		1.56	1.00	0.134	pCi/L	99	68 - 143

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*57.5*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-258718-Q-1-H MSD
Matrix: Water
Analysis Batch: 457569

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 456651

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.162		12.7	12.14		1.41	1.00	0.110	pCi/L	94	65 - 146	0.15	1
Uranium-238	0.118	U	13.0	13.38		1.52	1.00	0.0951	pCi/L	102	68 - 143	0.12	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*68.5*		*30 - 110*

Rad

Prep Batch: 456576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	PrecSep-7	
MB 160-456576/12-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-456576/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-258718-Q-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-258718-Q-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 456597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-456597/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-456597/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-258701-1 DU	Outfall018_20200108_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 456611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-456611/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-456611/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-258718-P-1-A MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-258718-P-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 456626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	PrecSep-21	
MB 160-456626/15-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-456626/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-258718-Q-1-C MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-258718-Q-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 456630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	PrecSep_0	
MB 160-456630/15-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-456630/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-258718-Q-1-E MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-258718-Q-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 456651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	ExtChrom	
MB 160-456651/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-456651/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-258718-Q-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-258718-Q-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 456711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258701-1	Outfall018_20200108_Comp	Total/NA	Water	Evaporation	
MB 160-456711/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-456711/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-456711/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Rad (Continued)

Prep Batch: 456711 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-258718-Y-1-F MS	Matrix Spike	Total/NA	Water	Evaporation	
440-258718-Y-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-258718-Y-1-H MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-258718-Y-1-I MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-3

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258701-3
Project/Site: Annual Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State Program	CA ELAP 2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19 *
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2020 Annual Outfall [001, 002 011, 018] Outfall 018 Comp
Test America Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates and TestAmerica Laboratories In.	Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler Dan Smith	Field Manager Mark Dominick 978 234 5033, 818.599 0702 (cell)

									ANALYSIS REQUIRED											
									R/A	R	R	R	A	A	A	A	R			
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN E / E335.2)	Gross Alpha(E900.0) Gross Beta(E900.0) Tritium (H-3) (E906.0) Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E905.0) K-40, CS 137 (E901.0 or E901.1)	[illegible]	1,4 Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 /SM 5310B)	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI) Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 018	Outfa l018_20200108_Comp_F	1/8/2020 0910	WM	1 L Poly	1	None	160	No	X											Filter and preserve within 24hrs of receipt at lab Outfall 018 analyze for 4l
			WM	borosilicate vials	1	None	321	No									X			Sample receiving DO NOT OPEN SAG Bag to be opened in Mercury Prep using Frain procedures
	Outfall018_20200108_Comp	1/8/2020 0910	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2.5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis, Separate RAD onto another work order Analyze duplicate per MS/MSD
			WM	1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second qtr events of the year Deliver to AEC Lab in Ventura CA
			WM	40 mL VOA	3	HCl	240	No					X							
			WM	1 L Glass Amber	1	HCl	245	No						X						
			WM	1 L Glass Amber	2	None	255	No							Y					
			WM	500 mL Poly	1	None	260	No								X				
	Outfall018_20200108_Comp_Extra	1/8/2020 0910	WM	40 mL VOA	3	HCl	240	No					H							Hold
			WM	1 L Glass Amber	2	None	255	No							H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Honn	01/08/20	H&A	[signature]	01-8-20
[signature]	01/08/20	15:50		
Relinquished By	Date/Time	Company	Received By	Date/Time
			[signature]	1/8/20 1550

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day ___X___
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV ___X___

EC-IRV

31/31, 2.3/2.3, 02/0.2, 0.5/0.5 IR-93

440-258701 Chain of Custody

1/8/20 CT

st America

CHAIN OF CUSTODY FORM

Client Name/Address
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich Inc its subsidiaries and affiliates and TestAmerica Laboratories Inc

Sampler Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Annual Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager Katherine Miller
520 289 8606, 520 904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200.7) As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc)) (R)	Surfactants (MBAS) (SM5540C/E425.1) (R)	Cl, F, SO4, Nitrate N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) (R/A)	Turbidity TDS (SM2540C/E160.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia N (E350.2) (R)	Priority Pollutants Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245.1) (R)				Comments
Outfall 018	Outfall018_20200108_Comp	1/8/2020	WM	500 mL Poly	1	HNO_3	90	No	X										X				Outfall 018 analyze for Al
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO2 & NO3
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
		0910	WM	1 L Poly	1	None	185	No							X								
	Outfall018_20200108_Comp_Extra	1/8/2020	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
		0910	WM	1 L Glass Amber	2	None	175	No										H					Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
			Letiein	01-8-20
Letim	01/08/20	15:50		
			[illegible]	1/8/20 1550 EC-IRV

Turn around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150914.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258701-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/20/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall018_20200108_Comp (440-258701-1)	1/8/20	09:10 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Kenney	1/9/2020 1700	EC-IRV		1.10.20 9:20	ETA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-150934.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-258701-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/20/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Annual Outfall 018 Comp	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall018_20200108_Comp (440-258701-1)	1/8/20	09:10 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
A. Renney	1/9/2020 1700	EC-IRV		1/10/20 9:20	ETAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258701-3

Login Number: 258701
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-258701-3

Login Number: 258701
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 01/10/20 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 018 Comp

Job ID: 440-258701-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-258701-1	Outfall018_20200108_Comp	92.7
440-258718-Q-1-C MS	Matrix Spike	98.8
440-258718-Q-1-D MSD	Matrix Spike Duplicate	99.1
LCS 160-456626/1-A	Lab Control Sample	106
MB 160-456626/15-A	Method Blank	109

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-258701-1	Outfall018_20200108_Comp	92.7	86.0
440-258718-Q-1-E MS	Matrix Spike	98.8	83.6
440-258718-Q-1-F MSD	Matrix Spike Duplicate	99.1	84.5
LCS 160-456630/1-A	Lab Control Sample	106	83.0
MB 160-456630/15-A	Method Blank	109	83.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-258701-1	Outfall018_20200108_Comp	64.3	87.5
440-258718-Q-1-A MS	Matrix Spike	85.8	85.2
440-258718-Q-1-B MSD	Matrix Spike Duplicate	87.0	84.1
LCS 160-456576/1-A	Lab Control Sample	78.2	92.0
MB 160-456576/12-A	Method Blank	92.5	91.2

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-258701-1	Outfall018_20200108_Comp	83.2
440-258718-Q-1-G MS	Matrix Spike	57.5
440-258718-Q-1-H MSD	Matrix Spike Duplicate	68.5
LCS 160-456651/2-A	Lab Control Sample	61.3
MB 160-456651/1-A	Method Blank	78.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-258701-3
Project/Site: Annual Outfall 018 Comp

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

440-258701 Field Sheet

Tracking # : 1119-9742-9063

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other_____

Job:_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:_____

Therm. ID: AK-7 Corr. Factor: (+)/ -) 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.3 °C Corrected: 0.8 °C

From: Temp Blank ☑ Sample ☐

During Initial Triage	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 1/10/20

During Labeling	Yes	No	NA
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
NCM Filed	☐	☐	☐ ✓

Initials: JG Date: 1/10/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W9-E

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-262966-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

06 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-262966-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
OUTFALL018_20200313_GRAB	440-262966-1	Water	3/13/20 14:20	E120.1, E1664, E624, SM2540F

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklist, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-262966-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine; however, no evidence of tampering was noted.
- The case narrative indicated that two of three vials for the VOC analysis of the trip blank were received with headspace. A third vial without headspace remained for analysis. No qualification was necessary.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 624.1—VOLATILE ORGANIC COMPOUNDS (VOCS)

E. Wessling of MEC[X] reviewed the SDG on April 8, 2020

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Volatile Organics (DVP-2, Rev. 2), EPA Method 624.1* and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2017).

III.1. HOLDING TIMES

Analytical holding times were met. The preserved water site sample and trip blank were analyzed within 14 days of collection.

III.2. GC/MS TUNING AND CALIBRATION

The BFB tunes were not evaluated in a Level II validation.

Calibration criteria were not evaluated in a Level II validation.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank above the MDL.

III.3.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the laboratory control limits.

III.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits.

III.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the site sample in this SDG. MEC[X] evaluated method accuracy based on the associated LCS results.

III.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *TRIP BLANKS*

Sample TB-20200313 was identified as the trip blank associated with the site sample in this SDG. The trip blank had no target compound detects above the MDL.

III.4.2. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.4.3. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. Internal Standards Performance

The internal standards were not evaluated in a Level II validation.

III.6. Compound Identification

Compound identification was not evaluated in a Level II validation. The laboratory analyzed for target compounds 1,1-dichloroethene, 1,2-dichloroethane and trichloroethene by Method 624.1.

III.7. Compound Quantification and Reported Detection Limits

Compound quantification was not evaluated in a Level II validation. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.8. Tentatively Identified Compounds

The laboratory did not report TICs for this SDG.

III.9. System Performance

Review of the raw data was not performed in a Level II validation.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^X reviewed the SDG on April 6, 2020.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 120.1 and 1664, Standard Methods for the Examination of Water and Wastewater 2540F* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. Holding Times

The QAPP holding times, as listed below, were met.

- 28 days for specific conductance (Method 120.1) and Oil and Grease (HEM, Method 1664)
- 7 days for total settleable solids (2540F)

IV.2. Calibration

Instrument calibration review is not performed at Level II validation. The initial and continuing calibration verification recoveries met laboratory control limits for Method 120.0.

IV.3. Quality Control Samples

IV.3.1. *Method Blanks*

The method blanks had no detections for Methods 120.1 and 1664. Method blanks do not apply to Method 2540C.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample and laboratory control sample duplicate recoveries were within the laboratory control limits for applicable methods. Laboratory control sample analysis does not apply to Method 2540C.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Sample result verification is not performed at Level II validation. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402629661

Analysis Method E120.1

Sample Name OUTFALL018_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 2:20:00 PM **Validation Level:** 9

Lab Sample Name: 440-262966-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	660	1.0	1.0	umhos/c			

Analysis Method E1664

Sample Name OUTFALL018_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 2:20:00 PM **Validation Level:** 9

Lab Sample Name: 440-262966-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE		5.2	1.4	mg/L	U	U	

Analysis Method E624

Sample Name OUTFALL018_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 2:20:00 PM **Validation Level:** 9

Lab Sample Name: 440-262966-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,1-Dichloroethene	N	75-35-4		0.50	0.25	ug/L	U	U	
1,2-Dichloroethane	N	107-06-2		0.50	0.25	ug/L	U	U	
Trichloroethene	N	79-01-6		0.50	0.25	ug/L	U	U	

Analysis Method SM2540F

Sample Name OUTFALL018_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 2:20:00 PM **Validation Level:** 9

Lab Sample Name: 440-262966-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Settleable solids	N	SETTLEABLSOLIDS		0.10	0.10	ml/l/hr	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-262966-1
Client Project/Site: Routine Outfall 018 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
3/25/2020 10:57:40 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
3/25/2020 10:57:40 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-262966-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-262966-1	Outfall018_20200313_Grab	Water	03/13/20 14:20	03/13/20 17:25	
440-262966-3	TB-20200313	Water	03/13/20 14:20	03/13/20 17:25	

Job ID: 440-262966-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-262966-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2020 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-600560.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602093 and analytical batch 440-602118. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200313_Grab
Lab Sample ID: 440-262966-1
Date Collected: 03/13/20 14:20
Matrix: Water
Date Received: 03/13/20 17:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/18/20 11:09	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/18/20 11:09	1
Trichloroethene	ND		0.50	0.25	ug/L			03/18/20 11:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*60 - 140*		*03/18/20 11:09*	*1*
Dibromofluoromethane (Surr)	*111*		*60 - 140*		*03/18/20 11:09*	*1*
Toluene-d8 (Surr)	*102*		*60 - 140*		*03/18/20 11:09*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.4	mg/L		03/24/20 10:33	03/24/20 12:22	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**660**		1.0	1.0	umhos/cm			03/24/20 09:18	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/14/20 13:32	1

Client Sample ID: TB-20200313
Lab Sample ID: 440-262966-3
Date Collected: 03/13/20 14:20
Matrix: Water
Date Received: 03/13/20 17:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/18/20 11:33	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/18/20 11:33	1
Trichloroethene	ND		0.50	0.25	ug/L			03/18/20 11:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*60 - 140*		*03/18/20 11:33*	*1*
Dibromofluoromethane (Surr)	*106*		*60 - 140*		*03/18/20 11:33*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*03/18/20 11:33*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-262966-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-262966-1

Client Sample ID: Outfall018_20200313_Grab

Lab Sample ID: 440-262966-1

Date Collected: 03/13/20 14:20
Matrix: Water
Date Received: 03/13/20 17:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	601097	03/18/20 11:09	TCN	TAL IRV
Total/NA	Analysis	120.1		1			602074	03/24/20 09:18	XL	TAL IRV
Total/NA	Prep	1664A			970 mL	1000 mL	602093	03/24/20 10:33	L1H	TAL IRV
Total/NA	Analysis	1664A		1			602118	03/24/20 12:22	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	600560	03/14/20 13:32	HZ	TAL IRV

Client Sample ID: TB-20200313

Lab Sample ID: 440-262966-3

Date Collected: 03/13/20 14:20
Matrix: Water
Date Received: 03/13/20 17:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	601097	03/18/20 11:33	TCN	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601097/4
Matrix: Water
Analysis Batch: 601097

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/18/20 07:56	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/18/20 07:56	1
Trichloroethene	ND		0.50	0.25	ug/L			03/18/20 07:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*60 - 140*		*03/18/20 07:56*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 140*		*03/18/20 07:56*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*03/18/20 07:56*	*1*

Lab Sample ID: LCS 440-601097/1002
Matrix: Water
Analysis Batch: 601097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			25.0	23.9		ug/L		96	19 - 212		
1,2-Dichloroethane			25.0	23.9		ug/L		96	72 - 137		
Trichloroethene			25.0	23.6		ug/L		94	75 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*60 - 140*
Dibromofluoromethane (Surr)	*107*		*60 - 140*
Toluene-d8 (Surr)	*97*		*60 - 140*

Lab Sample ID: 440-263032-A-3 MS
Matrix: Water
Analysis Batch: 601097

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	ND		10.0	9.34		ug/L		93	10 - 234		
1,2-Dichloroethane	ND		10.0	10.8		ug/L		108	49 - 155		
Trichloroethene	ND		10.0	9.70		ug/L		97	70 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*60 - 140*
Dibromofluoromethane (Surr)	*108*		*60 - 140*
Toluene-d8 (Surr)	*98*		*60 - 140*

Lab Sample ID: 440-263032-A-3 MSD
Matrix: Water
Analysis Batch: 601097

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		10.0	9.55		ug/L		96	10 - 234	2	32
1,2-Dichloroethane	ND		10.0	10.2		ug/L		102	49 - 155	5	49
Trichloroethene	ND		10.0	9.06		ug/L		91	70 - 157	7	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263032-A-3 MSD
Matrix: Water
Analysis Batch: 601097

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*60 - 140*
Dibromofluoromethane (Surr)	*104*		*60 - 140*
Toluene-d8 (Surr)	*94*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-602074/3
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/24/20 09:16	1

Lab Sample ID: LCS 440-602074/4
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	946	932		umhos/cm		99	90 - 110

Lab Sample ID: 440-263222-A-2 DU
Matrix: Water
Analysis Batch: 602074

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	390		392		umhos/cm		0.5	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-602093/1-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/24/20 10:33	03/24/20 12:22	1

Lab Sample ID: LCS 440-602093/2-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602093

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	34.4		mg/L		86	78 - 114

Lab Sample ID: LCSD 440-602093/3-A
Matrix: Water
Analysis Batch: 602118

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602093

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	34.7		mg/L		87	78 - 114	1	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-262966-1

GC/MS VOA

Analysis Batch: 601097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262966-1	Outfall018_20200313_Grab	Total/NA	Water	624.1	
440-262966-3	TB-20200313	Total/NA	Water	624.1	
MB 440-601097/4	Method Blank	Total/NA	Water	624.1	
LCS 440-601097/1002	Lab Control Sample	Total/NA	Water	624.1	
440-263032-A-3 MS	Matrix Spike	Total/NA	Water	624.1	
440-263032-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 600560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262966-1	Outfall018_20200313_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 602074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262966-1	Outfall018_20200313_Grab	Total/NA	Water	120.1	
MB 440-602074/3	Method Blank	Total/NA	Water	120.1	
LCS 440-602074/4	Lab Control Sample	Total/NA	Water	120.1	
440-263222-A-2 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 602093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262966-1	Outfall018_20200313_Grab	Total/NA	Water	1664A	
MB 440-602093/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-602093/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-602093/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 602118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262966-1	Outfall018_20200313_Grab	Total/NA	Water	1664A	602093
MB 440-602093/1-A	Method Blank	Total/NA	Water	1664A	602093
LCS 440-602093/2-A	Lab Control Sample	Total/NA	Water	1664A	602093
LCSD 440-602093/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	602093

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-262966-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262966-1
Project/Site: Routine Outfall 018 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

3/13/20 LD

Test America

440-262966 Chain of Custody

CHAIN OF CUSTODY FORM

R R R R

Client Name/Address:	Project	ANALYSIS REQUIRED	Field Readings	Meter serial #
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Grab		Field Readings: (include units) Time of Readings:_____	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218			DO 10.18 mg/L pH 8.33 pH unit Temp 12.10 °C °F	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories inc	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: RH Date/Time: 03/13/2020	
Sampler: Dan Smith	Field Manager: Mark Dominick 978 234.5033, 818.599 0702 (cell)			

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 018	Outfall018_20200313_Grab	3/13/2020 1420	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall018_20200313_Grab_Extra	3/13/2020 1420	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			WM	500 mL Poly	1	None	75	No				H	Hold
Trip Blanks	TB-20200313	3/13/2020 1420	WQ	40 mL VOA	3	HCl	30	No		X			

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/13/2020 1450	H&A		3-13-20 1458
	Date/Time	Company	Received By	Date/Time
Jeffrey Proctor	3-13-20 1725	DCS		
Relinquished By	Date/Time	Company	Received By	Date/Time
EC		IRV		3/18/20 1725

Turn-around time. (Check)
24 Hour. _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal. _____

Sample Integrity: (Check)
Intact. _____ On Ice _____
Store samples for 6 months.
Data Requirements (Check)
No Level IV. _____ All Level IV. ___X___

1289 50/50

3/25/2020

2019-2020 Rainy Season
Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262966-1

Login Number: 262966
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263076-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014

www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263076-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Outfall018_20200314_Comp	440-263076-1	N/A	Water	3/14/20 2:30 PM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263076-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (966 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, OCDD and OCDF, and for totals HxCDD, HxCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The concentrations in the method blank for OCDD and OCDF were insufficient to qualify the site sample. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was performed. The nondetect for 2,3,7,8-TCDF from the more selective confirmation column was accepted as the preferred value and the original value rejected.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 966 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF, 1,2,3,6,7,8-HxCDD, 2,3,4,6,7,8-HxCDF and 1,2,3,7,8-PeCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402630761

Analysis Method E1613B

Sample Name Outfall018_20200314_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/14/2020 2:30:00 PM **Validation Level:** 9

Lab Sample Name: 440-263076-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000012	0.00010	0.00000092	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000064	0.00010	0.0000011	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000080	0.000052	0.00000082	ug/L	J,DX	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000091	0.000052	0.00000035	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000014	0.000052	0.00000098	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000029	0.000052	0.00000059	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000032	0.000052	0.00000091	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000016	0.000052	0.00000062	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000019	0.000052	0.0000010	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	ND	0.000052	0.00000065	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	ND	0.000052	0.00000088	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.00000090	0.000052	0.00000072	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.00000090	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000015	0.000052	0.00000059	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000016	0.000052	0.00000068	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.0000021	0.000010	0.00000022	ug/L	J,DX	R	D
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000063	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000092	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000013	0.000052	0.00000082	ug/L	J,DXq	J	*III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000021	0.000052	0.00000035	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000084	0.000052	0.00000059	ug/L	J,DXqMB	J	B, *III, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000088	0.000052	0.00000088	ug/L	J,DXqMB	J	B, *III, DNQ

Analysis Method	*E1613B*								
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000059	0.000052	0.00000068	ug/L	J,DXq	J	*III, DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000019	0.000052	0.00000090	ug/L	J,DXq	J	*III, DNQ
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.0000021	0.000010	0.00000022	ug/L	J,DX	J	DNQ
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000092	ug/L	U	U	

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263076-1
Client Project/Site: Routine Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/7/2020 3:15:13 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 3:15:13 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263076-1	Outfall018_20200314_Comp	Water	03/14/20 14:30	03/14/20 17:30	
440-263076-3	Outfall018_20200314_Comp_F	Water	03/14/20 14:30	03/14/20 17:30	

Job ID: 440-263076-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263076-1

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.3º C, 2.1º C and 4.4º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall018_20200314_Comp (440-263076-1), (CCV 320-366401/17), (LCS 320-365527/2-A) and (MB 320-365527/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following samples requested dissolved metals and were not filtered in the field: Outfall018_20200314_Comp (440-263076-1) and Outfall018_20200314_Comp_F (440-263076-3). These samples were filtered and preserved upon receipt to the laboratory.

03/16/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for analytical batch 440-601371 contained Magnesium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

Method 200.7 Rev 4.4: The method blank for preparation batch 440-600817 and 440-600971 and analytical batch 440-601371 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.7 Rev 4.4: The initial calibration verification (ICV) result for batch 440-601371 was above the upper control limit for Zinc. Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister

Job ID: 440-263076-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 625: A LCSD was added due to about 30 mL of the MS spilling during the extraction procedure. The LCSD was added to provide precision data for the batch.

Outfall018_20200314_Comp (440-263076-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Outfall018_20200314_Comp (440-263076-1) were received in wide-mouth amber glass bottles.

preparation batch 320-365527
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Outfall018_20200314_Comp

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.3	0.11	ug/L		03/18/20 08:11	03/20/20 15:28	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:28	1
N-Nitrosodimethylamine	ND		5.3	0.32	ug/L		03/18/20 08:11	03/20/20 15:28	1
Pentachlorophenol	**1.2**	**J,DX**	5.3	1.1	ug/L		03/18/20 08:11	03/20/20 15:28	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		03/18/20 08:11	03/20/20 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*95*		*60 - 120*	*03/18/20 08:11*	*03/20/20 15:28*	*1*
2-Fluorobiphenyl	*89*		*51 - 120*	*03/18/20 08:11*	*03/20/20 15:28*	*1*
2-Fluorophenol	*80*		*43 - 120*	*03/18/20 08:11*	*03/20/20 15:28*	*1*
Nitrobenzene-d5	*91*		*53 - 150*	*03/18/20 08:11*	*03/20/20 15:28*	*1*
Phenol-d5	*85*		*45 - 150*	*03/18/20 08:11*	*03/20/20 15:28*	*1*
Terphenyl-d14	*75*		*12 - 142*	*03/18/20 08:11*	*03/20/20 15:28*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.021	ug/L		03/18/20 05:58	03/19/20 00:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*57*		*10 - 104*	*03/18/20 05:58*	*03/19/20 00:42*	*1*
DCB Decachlorobiphenyl (Surr)	*72*		*18 - 134*	*03/18/20 05:58*	*03/19/20 00:42*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13**		0.50	0.25	mg/L			03/14/20 19:22	1
Nitrate as N	**0.27**		0.11	0.055	mg/L			03/14/20 19:22	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 19:22	1

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**240**		10	5.0	mg/L			03/14/20 20:13	20

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 11:13	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.27**		0.15	0.055	mg/L			03/20/20 14:42	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000092	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,7,8-PeCDD	ND		0.000052	0.00000090	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,7,8-PeCDF	**0.00000090**	**J,DX q**	0.000052	0.00000072	ug/L		03/18/20 08:33	03/21/20 12:20	1
2,3,4,7,8-PeCDF	**0.0000016**	**J,DX**	0.000052	0.00000068	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,4,7,8-HxCDD	**0.0000032**	**J,DX MB**	0.000052	0.00000091	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,6,7,8-HxCDD	**0.0000019**	**J,DX q**	0.000052	0.0000010	ug/L		03/18/20 08:33	03/21/20 12:20	1

Client Sample ID: Outfall018_20200314_Comp
Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1
Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8,9-HxCDD	ND		0.000052	0.00000088	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,4,7,8-HxCDF	**0.0000029**	**J,DX**	0.000052	0.00000059	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,6,7,8-HxCDF	**0.0000016**	**J,DX**	0.000052	0.00000062	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,7,8,9-HxCDF	ND		0.000052	0.00000065	ug/L		03/18/20 08:33	03/21/20 12:20	1
2,3,4,6,7,8-HxCDF	**0.0000015**	**J,DX q**	0.000052	0.00000059	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,4,6,7,8-HpCDD	**0.0000091**	**J,DX MB**	0.000052	0.00000035	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,4,6,7,8-HpCDF	**0.0000080**	**J,DX**	0.000052	0.00000082	ug/L		03/18/20 08:33	03/21/20 12:20	1
1,2,3,4,7,8,9-HpCDF	**0.0000014**	**J,DX q**	0.000052	0.00000098	ug/L		03/18/20 08:33	03/21/20 12:20	1
OCDD	**0.000064**	**J,DX MB**	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 12:20	1
OCDF	**0.000012**	**J,DX MB**	0.00010	0.00000092	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total TCDD	ND		0.000010	0.00000092	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total TCDF	**0.0000021**	**J,DX**	0.000010	0.00000022	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total PeCDD	**0.0000019**	**J,DX q**	0.000052	0.00000090	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total PeCDF	**0.0000059**	**J,DX q**	0.000052	0.00000068	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total HxCDD	**0.0000088**	**J,DX q MB**	0.000052	0.00000088	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total HxCDF	**0.0000084**	**J,DX q MB**	0.000052	0.00000059	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total HpCDD	**0.000021**	**J,DX MB**	0.000052	0.00000035	ug/L		03/18/20 08:33	03/21/20 12:20	1
Total HpCDF	**0.000013**	**J,DX q**	0.000052	0.00000082	ug/L		03/18/20 08:33	03/21/20 12:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*66*		*25 - 164*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-2,3,7,8-TCDF	*74*		*24 - 169*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,7,8-PeCDD	*64*		*25 - 181*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,7,8-PeCDF	*64*		*24 - 185*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-2,3,4,7,8-PeCDF	*79*		*21 - 178*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*75*		*32 - 141*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*68*		*28 - 130*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*82*		*26 - 152*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*74*		*26 - 123*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*72*		*29 - 147*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*78*		*28 - 136*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*68*		*28 - 143*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*64*		*26 - 138*	*03/18/20 08:33*	*03/21/20 12:20*	*1*
13C-OCDD	*55*		*17 - 157*	*03/18/20 08:33*	*03/21/20 12:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*78*		*35 - 197*	*03/18/20 08:33*	*03/21/20 12:20*	*1*

Client Sample ID: Outfall018_20200314_Comp

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.000010	0.00000063	ug/L		03/18/20 08:33	03/25/20 00:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*03/18/20 08:33*	*03/25/20 00:03*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*83*		*35 - 197*	*03/18/20 08:33*	*03/25/20 00:03*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**		100	50	ug/L		03/17/20 09:40	03/18/20 02:42	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 02:42	1
Iron	ND		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 02:42	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 02:42	1
Manganese	ND		20	15	ug/L		03/17/20 09:40	03/18/20 02:42	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 18:09	1
Copper	**1.7**	**J,DX**	2.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:09	1
Lead	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:09	1
Selenium	**0.53**	**J,DX**	2.0	0.50	ug/L		03/17/20 10:00	03/17/20 18:09	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 06:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.39**		0.10	0.040	NTU			03/14/20 20:07	1
Total Dissolved Solids	**490**		10	5.0	mg/L			03/18/20 10:01	1
Total Suspended Solids	**0.50**	**J,DX**	1.0	0.50	mg/L			03/20/20 15:24	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:34	1
Ammonia (as N)	ND		0.200	0.100	mg/L			03/23/20 13:10	1
Methylene Blue Active Substances	**0.097**	**J,DX**	0.10	0.050	mg/L			03/15/20 10:49	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/15/20 10:16	1

Client Sample ID: Outfall018_20200314_Comp_F

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-3

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**140**		100	50	ug/L		03/17/20 13:32	03/18/20 22:39	1
Arsenic	ND		10	8.9	ug/L		03/17/20 13:32	03/18/20 22:39	1
Iron	ND		0.10	0.050	mg/L		03/17/20 13:32	03/18/20 22:39	1
Zinc	ND		20	12	ug/L		03/17/20 13:32	03/18/20 22:39	1
Manganese	ND		20	15	ug/L		03/17/20 13:32	03/18/20 22:39	1

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Client Sample ID: Outfall018_20200314_Comp_F
Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-3
Matrix: Water

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 13:30	03/17/20 14:38	1
Copper	**1.6**	**J,DX**	2.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:38	1
Lead	ND		1.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:38	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:38	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:18	03/18/20 15:17	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
EPA	Bioassay	EPA	Aquatic
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Client Sample ID: Outfall018_20200314_Comp

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			950 mL	2.0 mL	601122	03/18/20 08:11	NAM	TAL IRV
Total/NA	Analysis	625.1		1			601579	03/20/20 15:28	HN	TAL IRV
Total/NA	Prep	608			970 mL	2 mL	601089	03/18/20 05:58	L1H	TAL IRV
Total/NA	Analysis	608.3		1			601220	03/19/20 00:42	D1D	TAL IRV
Total/NA	Analysis	300.0		1			600528	03/14/20 19:22	NTN	TAL IRV
Total/NA	Analysis	300.0		1			600529	03/14/20 19:22	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	20			600529	03/14/20 20:13	NTN	TAL IRV
Total/NA	Analysis	314.0		1			602275	03/25/20 11:13	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			601698	03/20/20 14:42	NN	TAL IRV
Total/NA	Prep	1613B	RA		966.4 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B	RA	1			367395	03/25/20 00:03	ALM	TAL SAC
Total/NA	Prep	1613B			966.4 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			366401	03/21/20 12:20	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	600756	03/17/20 09:40	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			601118	03/18/20 02:42	VS	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	600753	03/17/20 10:00	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			601042	03/17/20 18:09	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602360	03/25/20 13:54	MEM	TAL IRV
Total/NA	Analysis	245.1		1			602527	03/26/20 06:42	MEM	TAL IRV
Total/NA	Analysis	180.1		1			600573	03/14/20 20:07	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	601166	03/18/20 10:01	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	601707	03/20/20 15:24	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	601903	03/23/20 10:17	CKL	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			601977	03/23/20 15:34	CKL	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	601978	03/23/20 13:10	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	600600	03/15/20 10:49	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	600599	03/15/20 10:16	KYP	TAL IRV

Client Sample ID: Outfall018_20200314_Comp_F

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	600817	03/16/20 20:48	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600971	03/17/20 13:32	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			601371	03/18/20 22:39	VS	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	600817	03/16/20 20:48	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	600970	03/17/20 13:30	M1G	TAL IRV
Dissolved	Analysis	200.8		1			600987	03/17/20 14:38	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	600817	03/16/20 20:48	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	601071	03/18/20 08:18	DB	TAL IRV
Dissolved	Analysis	245.1		1			601310	03/18/20 15:17	DB	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-601122/1-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		03/18/20 08:11	03/20/20 09:01	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		03/18/20 08:11	03/20/20 09:01	1
Pentachlorophenol	ND		5.0	1.0	ug/L		03/18/20 08:11	03/20/20 09:01	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/18/20 08:11	03/20/20 09:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*60 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorobiphenyl	*82*		*51 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
2-Fluorophenol	*85*		*43 - 120*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Nitrobenzene-d5	*76*		*53 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Phenol-d5	*80*		*45 - 150*	*03/18/20 08:11*	*03/20/20 09:01*	*1*
Terphenyl-d14	*87*		*12 - 142*	*03/18/20 08:11*	*03/20/20 09:01*	*1*

Lab Sample ID: LCS 440-601122/2-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	15.0	14.2		ug/L		95	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	13.3		ug/L		89	29 - 137
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
Pentachlorophenol	30.0	24.9		ug/L		83	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*91*		*60 - 120*
2-Fluorobiphenyl	*84*		*51 - 120*
2-Fluorophenol	*86*		*43 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Phenol-d5	*71*		*45 - 150*
Terphenyl-d14	*89*		*12 - 142*

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	15.0	15.4		ug/L		103	52 - 129	8	35
Bis(2-ethylhexyl) phthalate	15.0	14.8		ug/L		98	29 - 137	10	35
N-Nitrosodimethylamine	15.0	16.9		ug/L		112	60 - 140	22	35
Pentachlorophenol	30.0	29.0		ug/L		97	38 - 152	15	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*99*		*60 - 120*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*80*		*43 - 120*
Nitrobenzene-d5	*88*		*53 - 150*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-601122/17-A
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601122

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Phenol-d5	*95*		*45 - 150*
Terphenyl-d14	*97*		*12 - 142*

Lab Sample ID: 440-263045-K-1-A MS
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	ND		16.2	16.9		ug/L		104	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.2	14.9		ug/L		92	8 - 158
N-Nitrosodimethylamine	ND		16.2	20.3		ug/L		125	60 - 140
Pentachlorophenol	ND		32.4	34.1		ug/L		105	14 - 176

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	*99*		*60 - 120*
2-Fluorobiphenyl	*88*		*51 - 120*
2-Fluorophenol	*97*		*43 - 120*
Nitrobenzene-d5	*88*		*53 - 150*
Phenol-d5	*110*		*45 - 150*
Terphenyl-d14	*79*		*12 - 142*

Lab Sample ID: 440-263045-M-1-A MSD
Matrix: Water
Analysis Batch: 601579

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	ND		16.4	15.4		ug/L		94	37 - 144	9	58
Bis(2-ethylhexyl) phthalate	ND		16.4	13.0		ug/L		79	8 - 158	14	82
N-Nitrosodimethylamine	ND		16.4	18.4		ug/L		112	60 - 140	10	35
Pentachlorophenol	ND		32.8	31.1		ug/L		95	14 - 176	9	86

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	*91*		*60 - 120*
2-Fluorobiphenyl	*79*		*51 - 120*
2-Fluorophenol	*74*		*43 - 120*
Nitrobenzene-d5	*80*		*53 - 150*
Phenol-d5	*92*		*45 - 150*
Terphenyl-d14	*66*		*12 - 142*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/18/20 05:58	03/18/20 21:10	1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 440-601089/1-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601089

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	59		10 - 104	03/18/20 05:58	03/18/20 21:10	1
DCB Decachlorobiphenyl (Surr)	70		18 - 134	03/18/20 05:58	03/18/20 21:10	1

Lab Sample ID: LCS 440-601089/2-A
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601089

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC			0.400	0.298		ug/L		75	37 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	78		10 - 104
DCB Decachlorobiphenyl (Surr)	84		18 - 134

Lab Sample ID: 440-263045-H-1-A MSD
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC	ND		0.402	0.260		ug/L		65	37 - 140	1	36

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	75		10 - 104
DCB Decachlorobiphenyl (Surr)	83		18 - 134

Lab Sample ID: 440-263045-H-1-B MS
Matrix: Water
Analysis Batch: 601220

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601089

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC	ND		0.406	0.261		ug/L		64	37 - 140		

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	77		10 - 104
DCB Decachlorobiphenyl (Surr)	87		18 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-600528/6
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/14/20 17:46	1
Nitrite as N	ND		0.15	0.025	mg/L			03/14/20 17:46	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-600528/5
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.10		mg/L		97	90 - 110
Nitrite as N	1.52	1.49		mg/L		98	90 - 110

Lab Sample ID: 440-263076-1 MS
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.27		1.13	1.40		mg/L		100	80 - 120
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120

Lab Sample ID: 440-263076-1 MSD
Matrix: Water
Analysis Batch: 600528

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.27		1.13	1.30		mg/L		91	80 - 120	7	20
Nitrite as N	ND		1.52	1.50		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 440-600529/6
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/14/20 17:46	1
Sulfate	ND		0.50	0.25	mg/L			03/14/20 17:46	1

Lab Sample ID: LCS 440-600529/5
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.80		mg/L		96	90 - 110
Sulfate	5.00	5.05		mg/L		101	90 - 110

Lab Sample ID: 440-263076-1 MS
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13		5.00	18.5		mg/L		109	80 - 120
Sulfate	310	EY	5.00	323	EY BB	mg/L		170	80 - 120

Lab Sample ID: 440-263076-1 MSD
Matrix: Water
Analysis Batch: 600529

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13		5.00	18.7		mg/L		113	80 - 120	1	20
Sulfate	310	EY	5.00	322	EY BB	mg/L		154	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602275/6
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/25/20 10:20	1

Lab Sample ID: LCS 440-602275/5
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	10.0	10.0		ug/L		100	85 - 115

Lab Sample ID: MRL 440-602275/4
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	ND		ug/L		83	75 - 125

Lab Sample ID: MRL 440-602275/8
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.63		ug/L		116	75 - 125

Lab Sample ID: 440-263076-1 MS
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		10.0	10.0		ug/L		100	80 - 120

Lab Sample ID: 440-263076-1 MSD
Matrix: Water
Analysis Batch: 602275

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		10.0	10.2		ug/L		102	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,7,8-TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8-PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDD	0.00000318	J,DX	0.000050	0.0000010	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000012	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000070	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000073	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDF	0.00000180	J,DX	0.000050	0.00000076	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDD	0.00000587	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000014	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDD	0.0000202	J,DX	0.00010	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDF	0.00000627	J,DX	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDD	0.00000318	J,DX	0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDF	0.00000180	J,DX	0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDD	0.0000101	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*73*		*25 - 164*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,7,8-TCDF	*81*		*24 - 169*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8-PeCDD	*63*		*25 - 181*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8-PeCDF	*67*		*24 - 185*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,4,7,8-PeCDF	*74*		*21 - 178*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*74*		*32 - 141*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*66*		*28 - 130*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*81*		*26 - 152*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*74*		*26 - 123*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*78*		*28 - 136*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*03/18/20 08:33*	*03/21/20 08:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*28 - 143*	*03/18/20 08:33*	*03/21/20 08:20*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/18/20 08:33	03/21/20 08:20	1
13C-OCDD	50		17 - 157	03/18/20 08:33	03/21/20 08:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/18/20 08:33	03/21/20 08:20	1

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			0.000200	0.000234		ug/L		117	67 - 158		
2,3,7,8-TCDF			0.000200	0.000262		ug/L		131	75 - 158		
1,2,3,7,8-PeCDD			0.00100	0.00111		ug/L		111	70 - 142		
1,2,3,7,8-PeCDF			0.00100	0.00123		ug/L		123	80 - 134		
2,3,4,7,8-PeCDF			0.00100	0.00114		ug/L		114	68 - 160		
1,2,3,4,7,8-HxCDD			0.00100	0.00101	MB	ug/L		101	70 - 164		
1,2,3,6,7,8-HxCDD			0.00100	0.00112		ug/L		112	76 - 134		
1,2,3,7,8,9-HxCDD			0.00100	0.00102		ug/L		102	64 - 162		
1,2,3,4,7,8-HxCDF			0.00100	0.00110		ug/L		110	72 - 134		
1,2,3,6,7,8-HxCDF			0.00100	0.00119		ug/L		119	84 - 130		
1,2,3,7,8,9-HxCDF			0.00100	0.00120	MB	ug/L		120	78 - 130		
2,3,4,6,7,8-HxCDF			0.00100	0.00117		ug/L		117	70 - 156		
1,2,3,4,6,7,8-HpCDD			0.00100	0.000997	MB	ug/L		100	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.00100	0.00108		ug/L		108	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.00100	0.00102		ug/L		102	78 - 138		
OCDD			0.00200	0.00201	MB	ug/L		100	78 - 144		
OCDF			0.00200	0.00231	MB	ug/L		115	63 - 170		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	75		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	74		13 - 328
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	79		19 - 202
13C-1,2,3,6,7,8-HxCDF	71		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	75		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	63		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	68		20 - 186
13C-OCDD	52		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	81		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-600756/1-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/17/20 09:40	03/18/20 01:47	1
Arsenic	ND		10	8.9	ug/L		03/17/20 09:40	03/18/20 01:47	1
Iron	ND		0.10	0.050	mg/L		03/17/20 09:40	03/18/20 01:47	1
Zinc	ND		20	12	ug/L		03/17/20 09:40	03/18/20 01:47	1
Manganese	ND		20	15	ug/L		03/17/20 09:40	03/18/20 01:47	1

Lab Sample ID: LCS 440-600756/2-A
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	497		ug/L		99	85 - 115
Arsenic	500	477		ug/L		95	85 - 115
Iron	0.500	0.471		mg/L		94	85 - 115
Magnesium	2.50	2.53		mg/L		101	85 - 115
Zinc	500	491		ug/L		98	85 - 115
Manganese	500	495		ug/L		99	85 - 115

Lab Sample ID: 440-263091-A-2-B MS
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	950		500	1400		ug/L		91	70 - 130
Arsenic	27		500	453		ug/L		85	70 - 130
Iron	18		0.500	18.3	BB	mg/L		10	70 - 130
Magnesium	0.55		2.50	2.89		mg/L		94	70 - 130
Zinc	900		500	1340		ug/L		86	70 - 130
Manganese	540		500	1010		ug/L		94	70 - 130

Lab Sample ID: 440-263091-A-2-C MSD
Matrix: Water
Analysis Batch: 601118

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 600756

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	950		500	1370		ug/L		84	70 - 130	2	20
Arsenic	27		500	451		ug/L		85	70 - 130	1	20
Iron	18		0.500	17.7	BB	mg/L		-120	70 - 130	4	20
Magnesium	0.55		2.50	2.87		mg/L		93	70 - 130	1	20
Zinc	900		500	1310		ug/L		80	70 - 130	2	20
Manganese	540		500	985		ug/L		88	70 - 130	3	20

Lab Sample ID: MB 440-600817/1-C
Matrix: Water
Analysis Batch: 601371

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600971

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/17/20 13:32	03/18/20 22:33	1
Arsenic	ND		10	8.9	ug/L		03/17/20 13:32	03/18/20 22:33	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 440-600817/1-C
Matrix: Water
Analysis Batch: 601371

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600971

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0564	J,DX	0.10	0.050	mg/L		03/17/20 13:32	03/18/20 22:33	1
Zinc	ND		20	12	ug/L		03/17/20 13:32	03/18/20 22:33	1
Manganese	ND		20	15	ug/L		03/17/20 13:32	03/18/20 22:33	1

Lab Sample ID: LCS 440-600817/2-C
Matrix: Water
Analysis Batch: 601371

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600971

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	460		ug/L		92	85 - 115
Arsenic	500	473		ug/L		95	85 - 115
Iron	0.500	0.476		mg/L		95	85 - 115
Magnesium	2.50	2.32		mg/L		93	85 - 115
Zinc	500	468		ug/L		94	85 - 115
Manganese	500	468		ug/L		94	85 - 115

Lab Sample ID: 440-263076-3 MS
Matrix: Water
Analysis Batch: 601371

Client Sample ID: Outfall018_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600971

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	140		500	622		ug/L		97	70 - 130
Arsenic	ND		500	491		ug/L		98	70 - 130
Iron	ND		0.500	0.478		mg/L		96	70 - 130
Magnesium	8.6	MB	2.50	10.7		mg/L		83	70 - 130
Zinc	ND		500	472		ug/L		94	70 - 130
Manganese	ND		500	469		ug/L		94	70 - 130

Lab Sample ID: 440-263076-3 MSD
Matrix: Water
Analysis Batch: 601371

Client Sample ID: Outfall018_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600971

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	140		500	633		ug/L		99	70 - 130	2	20
Arsenic	ND		500	500		ug/L		100	70 - 130	2	20
Iron	ND		0.500	0.482		mg/L		96	70 - 130	1	20
Magnesium	8.6	MB	2.50	10.6		mg/L		81	70 - 130	0	20
Zinc	ND		500	482		ug/L		96	70 - 130	2	20
Manganese	ND		500	479		ug/L		96	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-600753/1-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 10:00	03/17/20 17:22	1
Copper	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1
Lead	ND		1.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 440-600753/1-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		2.0	0.50	ug/L		03/17/20 10:00	03/17/20 17:22	1

Lab Sample ID: LCS 440-600753/2-A
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	78.2		ug/L		98	85 - 115
Copper	80.0	78.1		ug/L		98	85 - 115
Lead	80.0	71.5		ug/L		89	85 - 115
Selenium	80.0	75.7		ug/L		95	85 - 115

Lab Sample ID: 440-263045-G-1-C MS
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	78.2		ug/L		98	70 - 130
Copper	2.1		80.0	75.5		ug/L		92	70 - 130
Lead	0.63	J,DX	80.0	73.4		ug/L		91	70 - 130
Selenium	ND		80.0	75.6		ug/L		94	70 - 130

Lab Sample ID: 440-263045-G-1-D MSD
Matrix: Water
Analysis Batch: 601042

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 600753

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	76.5		ug/L		96	70 - 130	2	20
Copper	2.1		80.0	75.5		ug/L		92	70 - 130	0	20
Lead	0.63	J,DX	80.0	71.7		ug/L		89	70 - 130	2	20
Selenium	ND		80.0	75.0		ug/L		94	70 - 130	1	20

Lab Sample ID: MB 440-600817/1-B
Matrix: Water
Analysis Batch: 600987

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 600970

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/17/20 13:30	03/17/20 14:34	1
Copper	ND		2.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:34	1
Lead	ND		1.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:34	1
Selenium	ND		2.0	0.50	ug/L		03/17/20 13:30	03/17/20 14:34	1

Lab Sample ID: LCS 440-600817/2-B
Matrix: Water
Analysis Batch: 600987

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600970

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	77.8		ug/L		97	85 - 115
Copper	80.0	77.7		ug/L		97	85 - 115
Lead	80.0	78.3		ug/L		98	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-600817/2-B
Matrix: Water
Analysis Batch: 600987

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 600970

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	80.0	81.8		ug/L		102	85 - 115

Lab Sample ID: 440-263076-3 MS
Matrix: Water
Analysis Batch: 600987

Client Sample ID: Outfall018_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600970

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	73.2		ug/L		91	70 - 130
Copper	1.6	J,DX	80.0	75.5		ug/L		92	70 - 130
Lead	ND		80.0	75.0		ug/L		94	70 - 130
Selenium	ND		80.0	77.0		ug/L		96	70 - 130

Lab Sample ID: 440-263076-3 MSD
Matrix: Water
Analysis Batch: 600987

Client Sample ID: Outfall018_20200314_Comp_F
Prep Type: Dissolved
Prep Batch: 600970

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	75.9		ug/L		95	70 - 130	4	20
Copper	1.6	J,DX	80.0	78.1		ug/L		96	70 - 130	3	20
Lead	ND		80.0	77.4		ug/L		97	70 - 130	3	20
Selenium	ND		80.0	78.5		ug/L		98	70 - 130	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602360/1-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/25/20 13:54	03/26/20 06:37	1

Lab Sample ID: LCS 440-602360/2-A
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.79		ug/L		95	85 - 115

Lab Sample ID: 440-263076-1 MS
Matrix: Water
Analysis Batch: 602527

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.94		ug/L		99	75 - 125

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-263076-1 MSD — **Client Sample ID: Outfall018_20200314_Comp**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 602527 — **Prep Batch: 602360**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.87		ug/L		97	75 - 125	2	20

Lab Sample ID: MB 440-600817/1-D — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 601310 — **Prep Batch: 601071**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/18/20 08:18	03/18/20 15:12	1

Lab Sample ID: LCS 440-600817/2-D — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 601310 — **Prep Batch: 601071**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.92		ug/L		98	85 - 115

Lab Sample ID: 440-263076-3 MS — **Client Sample ID: Outfall018_20200314_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 601310 — **Prep Batch: 601071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.02		ug/L		101	75 - 125

Lab Sample ID: 440-263076-3 MSD — **Client Sample ID: Outfall018_20200314_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 601310 — **Prep Batch: 601071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.93		ug/L		98	75 - 125	2	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-600573/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 600573

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/14/20 20:07	1

Lab Sample ID: 440-263045-D-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 600573

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	49		48.1		NTU		1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-601166/1
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/18/20 10:01	1

Lab Sample ID: LCS 440-601166/2
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	962		mg/L		96	90 - 110

Lab Sample ID: 440-262945-A-1 DU
Matrix: Water
Analysis Batch: 601166

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2500		2430		mg/L		3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-601707/1
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/20/20 15:24	1

Lab Sample ID: LCS 440-601707/2
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	1060		mg/L		106	85 - 115

Lab Sample ID: 440-263053-A-2 DU
Matrix: Water
Analysis Batch: 601707

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	69		68.7		mg/L		1	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-601903/1-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/23/20 10:17	03/23/20 15:33	1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCS 440-601903/2-A
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601903

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			100	98.0		ug/L		98	80 - 120		

Lab Sample ID: 440-263045-F-1-A MS
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND		100	98.8		ug/L		99	75 - 125		

Lab Sample ID: 440-263045-F-1-B MSD
Matrix: Water
Analysis Batch: 601977

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 601903

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	97.8		ug/L		98	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-601978/10
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			03/23/20 12:22	1

Lab Sample ID: LCS 440-601978/11
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			5.00	5.240		mg/L		105	90 - 110		

Lab Sample ID: MRL 440-601978/9
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			0.200	0.2110		mg/L		106	50 - 150		

Lab Sample ID: 440-263149-D-1 MS
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	1.76		5.00	6.490		mg/L		95	90 - 110		

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-263149-D-1 MSD
Matrix: Water
Analysis Batch: 601978

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	1.76		5.00	6.810		mg/L		101	90 - 110	5	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-600600/4
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/15/20 10:49	1

Lab Sample ID: LCS 440-600600/5
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.266		mg/L		106	90 - 110

Lab Sample ID: MRL 440-600600/3
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.100	0.128		mg/L		128	50 - 150

Lab Sample ID: 440-263076-1 MS
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.097	J,DX	0.250	0.318		mg/L		88	50 - 125

Lab Sample ID: 440-263076-1 MSD
Matrix: Water
Analysis Batch: 600600

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.097	J,DX	0.250	0.347		mg/L		100	50 - 125	9	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-600599/3
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/15/20 10:16	1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-600599/7
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			199	172		mg/L		87	85 - 115		

Lab Sample ID: LCSD 440-600599/8
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	187		mg/L		94	85 - 115	8	20

Lab Sample ID: LCSD 440-600599/9
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	171		mg/L		86	85 - 115	1	20

Lab Sample ID: 440-263076-1 DU
Matrix: Water
Analysis Batch: 600599

Client Sample ID: Outfall018_20200314_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	ND			ND		mg/L				NC	20

GC/MS Semi VOA

Prep Batch: 601122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	625	
MB 440-601122/1-A	Method Blank	Total/NA	Water	625	
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625	
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625	
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625	

Analysis Batch: 601579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	625.1	601122
MB 440-601122/1-A	Method Blank	Total/NA	Water	625.1	601122
LCS 440-601122/2-A	Lab Control Sample	Total/NA	Water	625.1	601122
LCSD 440-601122/17-A	Lab Control Sample Dup	Total/NA	Water	625.1	601122
440-263045-K-1-A MS	Matrix Spike	Total/NA	Water	625.1	601122
440-263045-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625.1	601122

GC Semi VOA

Prep Batch: 601089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	608	
MB 440-601089/1-A	Method Blank	Total/NA	Water	608	
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608	
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608	
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608	

Analysis Batch: 601220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	608.3	601089
MB 440-601089/1-A	Method Blank	Total/NA	Water	608.3	601089
LCS 440-601089/2-A	Lab Control Sample	Total/NA	Water	608.3	601089
440-263045-H-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	601089
440-263045-H-1-B MS	Matrix Spike	Total/NA	Water	608.3	601089

HPLC/IC

Analysis Batch: 600528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	300.0	
MB 440-600528/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600528/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	300.0	
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	300.0	

Analysis Batch: 600529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	300.0	
440-263076-1 - DL	Outfall018_20200314_Comp	Total/NA	Water	300.0	
MB 440-600529/6	Method Blank	Total/NA	Water	300.0	
LCS 440-600529/5	Lab Control Sample	Total/NA	Water	300.0	
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	300.0	
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	300.0	

HPLC/IC

Analysis Batch: 601698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 602275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	314.0	
MB 440-602275/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602275/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602275/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602275/8	Lab Control Sample	Total/NA	Water	314.0	
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	314.0	
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 365527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1 - RA	Outfall018_20200314_Comp	Total/NA	Water	1613B	
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	1613B	
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 366401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	1613B	365527
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	365527
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	365527

Analysis Batch: 367395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1 - RA	Outfall018_20200314_Comp	Total/NA	Water	1613B	365527

Metals

Prep Batch: 600753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263045-G-1-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263045-G-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 600756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total Recoverable	Water	200.2	
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263091-A-2-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263091-A-2-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Filtration Batch: 600817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 600817 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	
MB 440-600817/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-600817/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-600817/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-600817/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-600817/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-600817/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 600970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817
MB 440-600817/1-B	Method Blank	Dissolved	Water	200.2	600817
LCS 440-600817/2-B	Lab Control Sample	Dissolved	Water	200.2	600817
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817

Prep Batch: 600971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817
MB 440-600817/1-C	Method Blank	Dissolved	Water	200.2	600817
LCS 440-600817/2-C	Lab Control Sample	Dissolved	Water	200.2	600817
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	200.2	600817

Analysis Batch: 600987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	200.8	600970
MB 440-600817/1-B	Method Blank	Dissolved	Water	200.8	600970
LCS 440-600817/2-B	Lab Control Sample	Dissolved	Water	200.8	600970
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	200.8	600970
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	200.8	600970

Analysis Batch: 601042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total Recoverable	Water	200.8	600753
MB 440-600753/1-A	Method Blank	Total Recoverable	Water	200.8	600753
LCS 440-600753/2-A	Lab Control Sample	Total Recoverable	Water	200.8	600753
440-263045-G-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	600753
440-263045-G-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	600753

Prep Batch: 601071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	600817
MB 440-600817/1-D	Method Blank	Dissolved	Water	245.1	600817
LCS 440-600817/2-D	Lab Control Sample	Dissolved	Water	245.1	600817
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	600817
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	600817

Metals

Analysis Batch: 601118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total Recoverable	Water	200.7 Rev 4.4	600756
MB 440-600756/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	600756
LCS 440-600756/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	600756
440-263091-A-2-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	600756
440-263091-A-2-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	600756

Analysis Batch: 601310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	601071
MB 440-600817/1-D	Method Blank	Dissolved	Water	245.1	601071
LCS 440-600817/2-D	Lab Control Sample	Dissolved	Water	245.1	601071
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	601071
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	245.1	601071

Analysis Batch: 601371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-3	Outfall018_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600971
MB 440-600817/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	600971
LCS 440-600817/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	600971
440-263076-3 MS	Outfall018_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600971
440-263076-3 MSD	Outfall018_20200314_Comp_F	Dissolved	Water	200.7 Rev 4.4	600971

Prep Batch: 602360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	245.1	
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	245.1	
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	245.1	

Analysis Batch: 602527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	245.1	602360
MB 440-602360/1-A	Method Blank	Total/NA	Water	245.1	602360
LCS 440-602360/2-A	Lab Control Sample	Total/NA	Water	245.1	602360
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	245.1	602360
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	245.1	602360

General Chemistry

Analysis Batch: 600573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	180.1	
MB 440-600573/5	Method Blank	Total/NA	Water	180.1	
440-263045-D-1 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 600599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM5210B	
USB 440-600599/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-600599/7	Lab Control Sample	Total/NA	Water	SM5210B	

General Chemistry (Continued)

Analysis Batch: 600599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 440-600599/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-600599/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263076-1 DU	Outfall018_20200314_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 600600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM 5540C	
MB 440-600600/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-600600/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-600600/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263076-1 MS	Outfall018_20200314_Comp	Total/NA	Water	SM 5540C	
440-263076-1 MSD	Outfall018_20200314_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 601166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM 2540C	
MB 440-601166/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-601166/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-262945-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 601707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM 2540D	
MB 440-601707/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-601707/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263053-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 601903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	Distill/CN	
MB 440-601903/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 601977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM 4500 CN E	601903
MB 440-601903/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	601903
LCS 440-601903/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-A MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	601903
440-263045-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	601903

Analysis Batch: 601978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-601978/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-601978/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-601978/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263149-D-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263149-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263076-1
Project/Site: Routine Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4	200.2	Water	Arsenic
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

aquatic bioassay & consulting laboratories, inc

April 6, 2020

Mr. Christian Bondoc
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Mr. Bondoc:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:*

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Outfall018_20200314_Comp (440-263076-1)
DATE RECEIVED:	16 March - 2020
ABC LAB. NO.:	CSE0320.096

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = 21.28 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	07-4755-2795	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:03	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	05-6278-9529	**Code:**	CSE0320.096sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 14:30	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall018_20200314_Comp
Sample Age:	72h (2.3 °C)	**Client:**	Eurofins Calscience		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
14-9232-7443	Cell Density	TST-Welch's t Test	0.0214	100% passed cell density	1

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
14-9232-7443	Cell Density	Control CV	0.03766	<<	0.2	Yes	Passes Criteria
14-9232-7443	Cell Density	Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.232E+6	1.365E+6	1.706E+4	4.826E+4	3.77%	0.00%
100		8	1.009E+6	9.686E+5	1.049E+6	9.320E+5	1.070E+6	1.697E+4	4.801E+4	4.76%	21.28%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		9.990E+5	1.028E+6	1.070E+6	1.061E+6	1.022E+6	9.320E+5	1.005E+6	9.530E+5

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	14-9232-7443	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:46	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1
Batch ID:	07-4755-2795	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	17 Mar-20 14:03	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	21 Mar-20 14:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO **Age:**
Sample ID:	05-6278-9529	**Code:**	CSE0320.096sel	**Project:**	Boeing-SSFL NPDES
Sample Date:	14 Mar-20 14:30	**Material:**	Sample Water	**Source:**	Bioassay Report
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall018_20200314_Comp
Sample Age:	72h (2.3 °C)	**Client:**	Eurofins Calscience		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	2.245	0.6938	13	CDF	0.0214	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.03766	<<	0.2	Yes	Passes Criteria
Control Resp	1.28E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.973E+11	2.973E+11	1	128.3	<1.0E-37	Significant Effect
Error	3.244E+10	2.317E+09	14			
Total	3.297E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.1111	8.862	0.7439	Equal Variances
	Mod Levene Equality of Variance Test	0.1085	8.862	0.7467	Equal Variances
	Variance Ratio F Test	1.01	8.885	0.9894	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2923	3.878	0.6352	Normal Distribution
	D'Agostino Skewness Test	0.08892	2.576	0.9291	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1479	0.2471	0.4800	Normal Distribution
	Shapiro-Wilk W Normality Test	0.966	0.8408	0.7700	Normal Distribution

Cell Density Summary

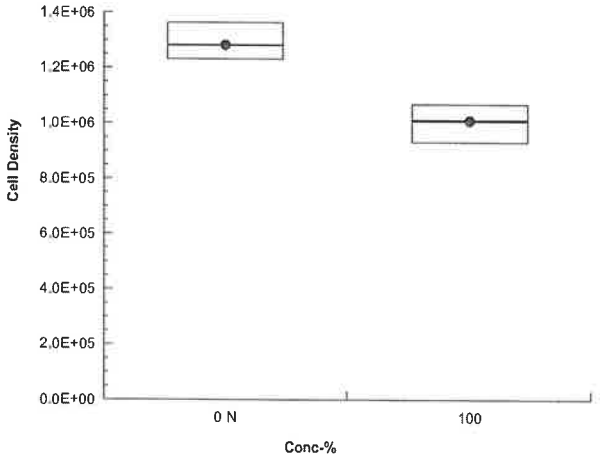
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.281E+6	1.241E+6	1.322E+6	1.283E+6	1.232E+6	1.365E+6	1.706E+4	3.77%	0.00%
100		8	1.009E+6	9.686E+5	1.049E+6	1.014E+6	9.320E+5	1.070E+6	1.697E+4	4.76%	21.28%

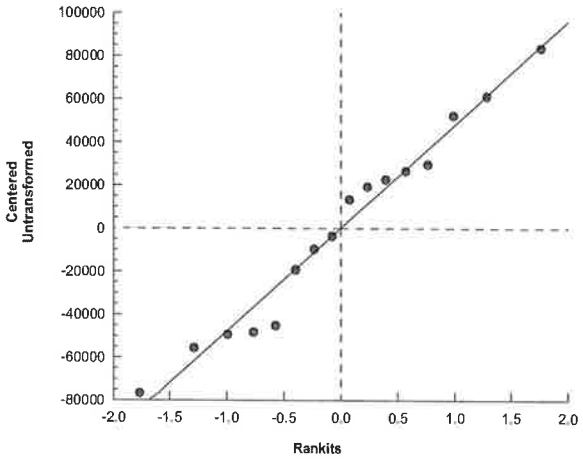
Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.308E+6	1.262E+6	1.233E+6	1.365E+6	1.236E+6	1.232E+6	1.311E+6	1.304E+6
100		9.990E+5	1.028E+6	1.070E+6	1.061E+6	1.022E+6	9.320E+5	1.005E+6	9.530E+5

Analysis ID:	14-9232-7443	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.5
Analyzed:	25 Mar-20 9:46	**Analysis:**	Parametric Bioequivalence-Two Sample	**Status Level:**	1

Graphics





CETIS Measurement Report

Report Date: 31 Mar-20 15:37 (p 1 of 2)
Test Code/ID: CSE0320.096sel / 18-5402-8980

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	07-4755-2795	**Test Type:**	Cell Growth	**Analyst:**			
Start Date:	17 Mar-20 14:03	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water		
Ending Date:	21 Mar-20 14:20	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable		
Test Length:	4d 0h	**Taxon:**	Chlorophyta	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	05-6278-9529	**Code:**	CSE0320.096sel	**Project:**	Boeing-SSFL NPDES		
Sample Date:	14 Mar-20 14:30	**Material:**	Sample Water	**Source:**	Bioassay Report		
Receipt Date:	16 Mar-20 11:16	**CAS (PC):**		**Station:**	Outfall018_20200314_Comp		
Sample Age:	72h (2.3 °C)	**Client:**	Eurofins Calscience				

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	53			53	53	0	0	0.0%	0
100		1	91			91	91	0	0	0.0%	0
Overall		2	72	-169.4	313.4	53	91	19	26.87	37.32%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	448	443.3	452.7	443	452	1.703	3.808	0.85%	0
100		5	757.2	742.3	772.1	747	773	5.352	11.97	1.58%	0
Overall		10	602.6	485.9	719.3	443	773	51.6	163.2	27.08%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	80			80	80	0	0	0.0%	0
100		1	176			176	176	0	0	0.0%	0
Overall		2	128	-481.9	737.9	80	176	48	67.88	53.03%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.734	8.186	7.8	8.2	0.08124	0.1817	2.28%	0
100		5	7.76	7.448	8.072	7.5	8	0.1122	0.251	3.24%	0
Overall		10	7.86	7.694	8.026	7.5	8.2	0.07333	0.2319	2.95%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
100		5	24.64	24.14	25.14	24	25	0.1806	0.4037	1.64%	0
Overall		10	24.64	24.37	24.91	24	25	0.1204	0.3806	1.55%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		53					
100				91					

Conductivity-µmhos

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		443					
100				773					
0	N	2		445					
100				767					
0	N	3		450					
100				751					
0	N	4		452					
100				747					
0	N	5		450					
100				748					

Hardness (CaCO3)-mg/L

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		80					
100				176					

pH-Units

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.1					
100				8					
0	N	2		7.8					
100				7.8					
0	N	3		8.2					
100				8					
0	N	4		7.8					
100				7.5					
0	N	5		7.9					
100				7.5					

Temperature-°C

Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24.9					
100				24.9					
0	N	3		25					
100				25					
0	N	4		24.8					
100				24.8					
0	N	5		24.5					
100				24.5					

Temp. deg. C .096 = 2.3

Chlorine (mg/L) = <0.1

Test America

CHAIN OF CUSTODY FORM

4/7/2020

NH3 (mg/L) = <0.1

Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020, Routine Outfall [001, 002, 011, 018], Outfall 018, Comp
Test America Contact: Christian Bondoc, 17461 Derian Ave Suite #100, Irvine CA 92614, Tel: 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller, 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	Field Manager: Mark Dominick, 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Dissolved Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se	R Cyanide (SM4500-CN-E / E335.2)	R Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	R Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	B Total Dissolved Metals: Mercury (E245.1)	C Total Dissolved Metals (E200.7): Al, As, Ba, Be, Co, Cr, Fe, Mn, Mo, Ni, Ag, Tl, V, Zn	Comments
Outfall 018	Outfall018_20200314_Comp_F	3/14/2020 1430	WM	1L Poly	1	None	200	No	X					X
			WM	borosilicate vials	1	None	320	No					X		Sample receving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	NaOH	220	No		X					
			WM	2.5 Gal Cube	1	None	225	No			X				Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
				1 L Glass Amber	1	None	230	No							
			WM	1 Gal Cube	6	None	235	No							*

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hahn	03/14/2020 1515	H&A		3-14-2020 1515
	3-16-2020 1110	H&A		03/16/2020; 1116

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: ___X___
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.

Data Requirements: (Check)
No Level IV: _____ All Level IV: ___X___

*1 gal chron tox delivered to ABC directly by H&A (M. Dominick)

Test America

CHAIN OF CUSTODY FORM



440-263076 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	**Project:** Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	**Project Manager:** Katherine Miller 520.289.8606, 520.904 6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	**Field Manager:** Mark Dominick 978 234.5033, 818 599.0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E16139)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)	[illegible]		Comments
									R	R	R	R	R	R	R	R	R	R	R	C		
Outfall 018	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		[illegible]
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_2 & NO_3
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall018_20200314_Comp_Extra	3/14/2020 1430	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

00 3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	ISS H&A	EC Fed Ex	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 1730	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

4.4/4.4
2.1/2.1

1.3/1.3

IR 89

4/7/2020

2019-2020 Rainy Season
Version 2

Test America

CHAIN OF CUSTODY FORM

Client Name/Address.
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager: Katherine Miller
520.289 8606, 520.904.6944 (cell)

Field Manager. Mark Dominick
978.234.5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	Total Dissolved Metals E200 0 Al Ag Mn Fe (C)						Comments
Outfall 018	Outfall018_20200314_Comp_F	3/14/2020 1430	WM	1L Poly	1	None	200	No	X					X						Filter and preserve [illegible] Outfall 001 analyze for Fe Outfall 002 analyze for Fe Outfall 011 analyze for As, Mn and Fe Outfall 018 analyze for Al
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2.5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												Only test if first or second rain events of the year. Deliver to ABC [illegible] CA *

CO 3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	H&A 1515	EC-IRV	3-14-20 15:15
[illegible]	3-14-20 1730	EC-IRV	[illegible] EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months

Data Requirements (Check)
No Level IV ____ All Level IV __X__

*1 gal chron tox delivered to ABC directly by H&A (M. Dominick)

2019-2020 Rainy Season
Version 2

4/7/2020

Test America

CHAIN OF CUSTODY FORM



440-263076 Chain of Custody

Client Name/Address:	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager Katherine Miller 520 289 8606, 520.904 6944 (cell)	
TestAmerica's services under the CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager Mark Dominick 978 234 5033, 818 599 0702 (cell)	
Sampler Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn, (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity/TDS (SM2540C/E160 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)			Comments
Outfall 018	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall018_20200314_Comp_Extra	3/14/2020 1430	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	ISS H&A	[signature] EC Fax	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-14-20 17:30	EC-IRV	[signature]	EC-IRV 3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

4.4/4.4
2.1/2.1
1.3/1.3
IR 89

00 3/16/20

4/7/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel. 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904 6944 (cell)

Field Manager Mark Dominick
978 234 5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	[illegible] (C)						Comments
Outfall 018	Outfall018_20200314_Comp_F	3/14/2020 1430	WM	1L Poly	1	None	200	No	X					X						[illegible]
			WM	borosilicate vials	1	None	320	No			—		X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			WM	1 Gal Cube	6	None	235	No												[illegible] *

CO 3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	H&A 1515	EC-IRV	3-14-20 15:15
[illegible]	3-14-20 1730	EC-IRV	[illegible] EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

*1 gal chron tox delivered to ABC directly by H&A (M. Dominick)

2019-2020 Rainy Season
Version 2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153984.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263076-1
Address: 880 Riverside Parkway,	Due Date Requested: 3/26/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall18_20200314_Comp (440-263076-1)	3/14/20	14:30 Pacific		Water			X	1	See QAS, Boeing_w/u to zero, ug/L, Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Teresa Ortiz	3.16.20 1700	EC-IRV		3/17/20 - 9:20	ETA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263076-1

Login Number: 263076
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263076-1

Login Number: 263076
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/17/20 01:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 1.0 corr 1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263076-1	Outfall018_20200314_Comp	66	74	64	64	79	75	68	82
440-263076-1 - RA	Outfall018_20200314_Comp		62						
MB 320-365527/1-A	Method Blank	73	81	63	67	74	74	66	81

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263076-1	Outfall018_20200314_Comp	74	72	78	61	68	64	55
440-263076-1 - RA	Outfall018_20200314_Comp							
MB 320-365527/1-A	Method Blank	74	71	78	60	64	63	50

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-365527/2-A	Lab Control Sample	68	75	63	64	74	73	64	79

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-365527/2-A	Lab Control Sample	71	69	75	63	64	68	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-1

13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes

440-263076 Field Sheet

Tracking # 1540-4107-2024

Job:

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:

Therm. ID: A4-7 Corr. Factor: (0/-) 0.4 °C

Ice ✓ Wet ~ Gel Other

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.0 °C Corrected: 1.4 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263076-2
Client Project/Site: Routine Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/16/2020 10:06:04 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/16/2020 10:06:04 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263076-1	Outfall018_20200314_Comp	Water	03/14/20 14:30	03/14/20 17:30	

Job ID: 440-263076-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263076-2

Comments
No additional comments.

Receipt
The samples were received on 3/14/2020 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.3º C, 2.1º C and 4.4º C.

RAD
Method 900.0: Gross Alpha/Beta Prep Batch 160-465288

The gross alpha detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass. Analytical results are reported with the MDC achieved.
Outfall018_20200314_Comp (440-263076-1), (440-263045-Q-1-E) and (440-263045-Q-1-J DU).

Method 900.0: Gross Alpha/Beta Prep Batch 160-465288
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200314_Comp (440-263076-1), (LCS 160-465288/2-A), (LCSB 160-465288/3-A), (MB 160-465288/1-A), (440-263045-Q-1-E), (440-263045-Q-1-J DU), (440-263045-Q-1-F MS), (440-263045-Q-1-H MSBT), (440-263045-Q-1-I MSBTD) and (440-263045-Q-1-G MSD)

Method 901.1: Gamma Prep Batch 160-464923
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Job ID: 440-263076-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Pb-211
Bi-214 Ra-226
Outfall018_20200314_Comp (440-263076-1), (LCS 160-464923/2-A), (MB 160-464923/1-A), (440-263043-M-1-D) and (440-263043-M-1-E DU)

Method 903.0: Radium-226 Prep Batch 160-464916
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200314_Comp (440-263076-1), (LCS 160-464916/1-A), (MB 160-464916/12-A), (440-263045-Q-1-A), (440-263045-L-1-A MS) and (440-263045-L-1-B MSD)

Method 904.0: Radium-228 Prep Batch 160-464919
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200314_Comp (440-263076-1), (LCS 160-464919/1-A), (MB 160-464919/12-A), (440-263045-Q-1-B), (440-263045-L-1-C MS) and (440-263045-L-1-D MSD)

Method 905: Strontium-90 Prep Batch 160-464947
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200314_Comp (440-263076-1), (LCS 160-464947/1-A), (MB 160-464947/10-A), (440-263045-Q-1-D), (440-263045-L-1-E MS) and (440-263045-L-1-F MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200314_Comp (440-263076-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method 906.0: LSC Tritium Prep Batch 160-466637

In an initial count, the subtraction background (BKG) was elevated, and several samples exhibited high negative results. The samples were re-aliquotted from the remaining distillate and recounted, exhibiting a normal BKG value. The MS and MSD were inadvertently “post spiked” during the realiquot, resulting in a spike value of 1100% of the normal amount (the original spike is distributed over the 100 mL aliquot, whereas the post spike only in the 10 mL portion measured). The MS and MSD recoveries are in limits in the re-aliquot, and they were within limits in the prior count. The laboratory does not believe this adversely affects the data.

Outfall018_20200314_Comp (440-263076-1), (LCS 160-466637/2-A), (MB 160-466637/1-A), (440-263045-Q-1-L), (440-263045-L-1-I MS) and (440-263045-L-1-J MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-466005
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Job ID: 440-263076-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall018_20200314_Comp (440-263076-1), (LCS 160-466005/2-A), (MB 160-466005/1-A), (440-263045-Q-1-K), (440-263045-L-1-G MS) and (440-263045-L-1-H MSD)

Method LSC_Dist_Susp: H-3 Prep Batch 160-466637:

The following sample was preserved: Outfall018_20200314_Comp (440-263076-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200314_Comp

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	2.52	U G	2.32	2.34	3.00	3.62	pCi/L	03/23/20 11:56	03/28/20 14:43	1
Gross Beta	**4.24**		1.01	1.10	4.00	1.14	pCi/L	03/23/20 11:56	03/28/20 14:43	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.18	U	10.7	10.7	20.0	18.5	pCi/L	03/19/20 09:11	03/19/20 11:44	1
Potassium-40	15.5	U	143	143		192	pCi/L	03/19/20 09:11	03/19/20 11:44	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.179	U	0.133	0.134	1.00	0.188	pCi/L	03/19/20 08:31	04/12/20 23:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:12*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.112	U	0.249	0.249	1.00	0.429	pCi/L	03/19/20 08:56	04/10/20 16:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:25*	*1*
Y Carrier	*79.6*		*40 - 110*	*03/19/20 08:56*	*04/10/20 16:25*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0114	U	0.292	0.292	3.00	0.520	pCi/L	03/19/20 12:18	03/30/20 11:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*76.8*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*
Y Carrier	*82.6*		*40 - 110*	*03/19/20 12:18*	*03/30/20 11:35*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-4.05	U	183	183	500	332	pCi/L	04/05/20 12:18	04/09/20 06:44	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.877**		0.256	0.261	1.00	0.148	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Client Sample ID: Outfall018_20200314_Comp
Lab Sample ID: 440-263076-1
Date Collected: 03/14/20 14:30
Matrix: Water
Date Received: 03/14/20 17:30

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	87.3		30 - 110	03/29/20 14:44	04/14/20 10:31	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Client Sample ID: Outfall018_20200314_Comp

Date Collected: 03/14/20 14:30
Date Received: 03/14/20 17:30

Lab Sample ID: 440-263076-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			156.23 g	1.0 g	465288	03/23/20 11:56	RJD	TAL SL
Total/NA	Analysis	900.0		1			466007	03/28/20 14:43	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	464923	03/19/20 09:11	EJQ	TAL SL
Total/NA	Analysis	901.1		1			464856	03/19/20 11:44	KLS	TAL SL
Total/NA	Prep	PrecSep-21			1000.15 mL	1.0 g	464916	03/19/20 08:31	RBR	TAL SL
Total/NA	Analysis	903.0		1			467460	04/12/20 23:12	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.15 mL	1.0 g	464919	03/19/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	467453	04/10/20 16:25	KLS	TAL SL
Total/NA	Prep	PrecSep-7			1000.64 mL	1.0 g	464947	03/19/20 12:18	RBR	TAL SL
Total/NA	Analysis	905		1			466121	03/30/20 11:35	AJD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.6 mL	1.0 g	466637	04/05/20 12:18	MLG	TAL SL
Total/NA	Analysis	906.0		1			467320	04/09/20 06:44	JS	TAL SL
Total/NA	Prep	ExtChrom			499.96 mL	1.0 mL	466005	03/29/20 14:44	CLP	TAL SL
Total/NA	Analysis	A-01-R		1			467788	04/14/20 10:31	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-465288/1-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465288

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.4757	U	0.672	0.674	3.00	1.14	pCi/L	03/23/20 11:56	03/28/20 14:39	1
Gross Beta	0.4257	U	0.488	0.490	4.00	0.790	pCi/L	03/23/20 11:56	03/28/20 14:39	1

Lab Sample ID: LCS 160-465288/2-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			49.6	56.94		8.37	3.00	2.76	pCi/L	115	75 - 125		

Lab Sample ID: LCSB 160-465288/3-A
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465288

Analyte			Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta			84.6	85.51		9.08	4.00	0.751	pCi/L	101	75 - 125		

Lab Sample ID: 440-263045-Q-1-F MS
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha	1.95	U G	92.5	76.59		12.5	3.00	3.54	pCi/L	81	60 - 140		

Lab Sample ID: 440-263045-Q-1-G MSD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.95	U G	92.4	70.83		11.8	3.00	3.95	pCi/L	75	60 - 140	0.24	1

Lab Sample ID: 440-263045-Q-1-H MSBT
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta	5.19		158	159.2		16.9	4.00	1.82	pCi/L	97	60 - 140		

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-263045-Q-1-I MSBTD
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	5.19		158	164.1		17.4	4.00	1.98	pCi/L	101	60 - 140	0.14	1

Lab Sample ID: 440-263045-Q-1-J DU
Matrix: Water
Analysis Batch: 466007

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 465288

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Gross Alpha	1.95	U G		4.519	G	2.89	3.00	3.88	pCi/L			0.47	1
Gross Beta	5.19			3.726		1.35	4.00	1.66	pCi/L			0.51	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-464923/1-A
Matrix: Water
Analysis Batch: 464857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464923

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-6.012	U	11.7	11.7	20.0	19.7	pCi/L	03/19/20 09:11	03/19/20 10:40	1
Potassium-40	-59.82	U	110	110		177	pCi/L	03/19/20 09:11	03/19/20 10:40	1

Lab Sample ID: LCS 160-464923/2-A
Matrix: Water
Analysis Batch: 464856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464923

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			136000	125800		14500		341	pCi/L	93	90 - 111		
Cesium-137			43800	43420		4350	20.0	103	pCi/L	99	90 - 111		
Cobalt-60			26500	25670		2540		60.2	pCi/L	97	89 - 110		

Lab Sample ID: 440-263043-M-1-E DU
Matrix: Water
Analysis Batch: 464854

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 464923

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Cesium-137	3.88	U		1.483	U	10.2	20.0	18.1	pCi/L			0.14	1
Potassium-40	-104	U		34.87	U	87.0		151	pCi/L			0.57	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-464916/12-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464916

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02504	U	0.127	0.127	1.00	0.269	pCi/L	03/19/20 08:31	04/12/20 23:12	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.3*		*40 - 110*	*03/19/20 08:31*	*04/12/20 23:12*	*1*

Lab Sample ID: LCS 160-464916/1-A
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464916

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.77		1.46	1.00	0.262	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.4*		*40 - 110*

Lab Sample ID: 440-263045-L-1-A MS
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.130	U	15.1	14.11		1.61	1.00	0.251	pCi/L	92	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Lab Sample ID: 440-263045-L-1-B MSD
Matrix: Water
Analysis Batch: 467460

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464916

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.130	U	15.1	13.74		1.59	1.00	0.292	pCi/L	90	75 - 138	0.11	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*84.6*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-464919/12-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464919

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5658		0.362	0.365	1.00	0.556	pCi/L	03/19/20 08:56	04/10/20 16:25	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	03/19/20 08:56	04/10/20 16:25	1
Y Carrier	86.0		40 - 110	03/19/20 08:56	04/10/20 16:25	1

Lab Sample ID: LCS 160-464919/1-A
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464919

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			11.9	9.552		1.18	1.00	0.433	pCi/L	80	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.4		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 440-263045-L-1-C MS
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.515	U	11.9	10.11		1.30	1.00	0.636	pCi/L	81	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	84.9		40 - 110
Y Carrier	83.7		40 - 110

Lab Sample ID: 440-263045-L-1-D MSD
Matrix: Water
Analysis Batch: 467453

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464919

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.515	U	11.9	10.52		1.37	1.00	0.710	pCi/L	84	45 - 150	0.15	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	77.4		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04215	U	0.247	0.247	3.00	0.434	pCi/L	03/19/20 12:18	03/30/20 11:36	1

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-464947/10-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464947

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	84.7		40 - 110	03/19/20 12:18	03/30/20 11:36	1
Y Carrier	92.0		40 - 110	03/19/20 12:18	03/30/20 11:36	1

Lab Sample ID: LCS 160-464947/1-A
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464947

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.89	9.212		1.02	3.00	0.426	pCi/L	117	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	88.5		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-263045-L-1-E MS
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.289	U	15.8	18.64		2.21	3.00	1.05	pCi/L	116	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	76.1		40 - 110
Y Carrier	80.7		40 - 110

Lab Sample ID: 440-263045-L-1-F MSD
Matrix: Water
Analysis Batch: 466121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 464947

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.289	U	15.8	21.87		2.55	3.00	1.12	pCi/L	137	19 - 150	0.68	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	64.4		40 - 110
Y Carrier	84.5		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-466637/1-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466637

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	23.42	U	188	188	500	336	pCi/L	04/05/20 12:18	04/08/20 23:54	1

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-466637/2-A
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466637

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2480	2398		412	500	326	pCi/L	97	75 - 114		

Lab Sample ID: 440-263045-L-1-I MS
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-23.0	U	27200	29350		2800	500	332	pCi/L	108	67 - 130		

Lab Sample ID: 440-263045-L-1-J MSD
Matrix: Water
Analysis Batch: 467320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466637

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-23.0	U	27100	29710		2830	500	327	pCi/L	109	67 - 130	0.06	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466005/1-A
Matrix: Water
Analysis Batch: 467773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466005

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.1153	U	0.154	0.154	1.00	0.307	pCi/L	03/29/20 14:44	04/14/20 10:31	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*91.7*		*30 - 110*	*03/29/20 14:44*	*04/14/20 10:31*	*1*

Lab Sample ID: LCS 160-466005/2-A
Matrix: Water
Analysis Batch: 467776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466005

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			25.5	26.65		3.02	1.00	0.289	pCi/L	105	75 - 125		
Uranium-238			26.0	26.38		2.99	1.00	0.186	pCi/L	101	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*84.1*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263045-L-1-G MS
Matrix: Water
Analysis Batch: 467785

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	0.867		25.5	24.03		2.73	1.00	0.301	pCi/L	91	65 - 146		
Uranium-238	0.681		26.1	25.17		2.83	1.00	0.264	pCi/L	94	68 - 143		

Tracer	*MS %Yield*	*MS Qualifier*	*Limits*
Uranium-232	*76.4*		*30 - 110*

Lab Sample ID: 440-263045-L-1-H MSD
Matrix: Water
Analysis Batch: 467787

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466005

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.867		25.5	26.32		2.96	1.00	0.274	pCi/L	100	65 - 146	0.40	1
Uranium-238	0.681		26.0	26.18		2.94	1.00	0.243	pCi/L	98	68 - 143	0.18	1

Tracer	*MSD %Yield*	*MSD Qualifier*	*Limits*
Uranium-232	*82.5*		*30 - 110*

Rad

Prep Batch: 464916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	PrecSep-21	
MB 160-464916/12-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-464916/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-263045-L-1-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-263045-L-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 464919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	PrecSep_0	
MB 160-464919/12-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-464919/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-263045-L-1-C MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-263045-L-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 464923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-464923/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-464923/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263043-M-1-E DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 464947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	PrecSep-7	
MB 160-464947/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-464947/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-263045-L-1-E MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-263045-L-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 465288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	Evaporation	
MB 160-465288/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-465288/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-465288/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-263045-Q-1-F MS	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-H MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-263045-Q-1-I MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-263045-Q-1-J DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 466005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	ExtChrom	
MB 160-466005/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466005/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-263045-L-1-G MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263045-L-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Rad

Prep Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263076-1	Outfall018_20200314_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-466637/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-466637/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-I MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263045-L-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263076-2
Project/Site: Routine Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

CHAIN OF CUSTODY FORM



440-263076 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	**Project:** Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218	**Project Manager:** Katherine Miller 520.289.8606, 520.904 6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	**Field Manager:** Mark Dominick 978 234.5033, 818 599.0702 (cell)
Sampler: Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED: Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E16138)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)	[illegible]		Comments
									R	R	R	R	R	R	R	R	R	R	R	C		
Outfall 018	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		[illegible]
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_2 & NO_3
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall018_20200314_Comp_Extra	3/14/2020 1430	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

00 3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	ISS H&A	EC Fed Ex	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 1730	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

4.4/4.4
2.1/2.1

1.3/1.3

IR 89

4/16/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address.	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager. Mark Dominick 978.234.5033, 818 599.0702 (cell)
Sampler Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	R Cyanide (SM4500-CN-E / E335 2)	R Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	R Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	R Total Dissolved Metals Mercury (E245 1)	C Tot Dissolved Metals Ba, Be, Co, Mn, Ag, Mo, Fe	Comments
Outfall 018	Outfall018_20200314_Comp_F	3/14/2020 1430	WM	1L Poly	1	None	200	No	X					X	Filter and preserve within 24 hrs of collection for analysis for Fe Outfall 001, analyze for Fe Outfall 011 analyze for As, Mn and Fe Outfall 018 analyze for Al
			WM	borosilicate vials	1	None	320	No					X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	NaOH	220	No		X					
			WM	2.5 Gal Cube	1	None	225	No			X				Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No							
			WM	1 Gal Cube	6	None	235	No							Only test if first or second rain events of the year. Deliver to ABC Labs in Fremont CA *

3/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020	H&A 1515	EC-IRV	3.14.20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 1730	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

*1 gal chron tox delivered to ABC directly by H&A (M. Dominick)

Test America

CHAIN OF CUSTODY FORM



440-263076 Chain of Custody

Client Name/Address:	Project	ANALYSIS REQUIRED
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp	
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager Katherine Miller 520 289 8606, 520.904 6944 (cell)	
TestAmerica's services under the CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Field Manager Mark Dominick 978 234 5033, 818 599 0702 (cell)	
Sampler Dan Smith		

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn, (E200 8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity/TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)			Comments
									R	R	R	R	R	R	R	R	R	R	C			
Outfall 018	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	HNO_3	90	No	X									X	X			
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall018_20200314_Comp_Extra	3/14/2020 1430	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

5/16/20

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hohn	03/14/2020	ISS H&A	EC Fed Ex	3-14-20 15:15
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3-14-20 17:30	EC-IRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

4.4/4.4
2.1/2.1

1.3/1.3

IR 89

4/16/2020

2019-2020 Rainy Season
Version 2

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904 6944 (cell)
Sampler: Dan Smith	Field Manager Mark Dominick 978 234 5033, 818.599.0702 (cell)

									R	R	R	R	R	C							
									ANALYSIS REQUIRED												
Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200 7) Zn, (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	Total Dissolved Metals Mercury (E245 1)								Comments
Outfall 018	Outfall018_20200314_Comp_F	3/14/2020 1430	WM	1L Poly	1	None	200	No	X					X							
			WM	borosilicate vials	1	None	320	No					X								Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200314_Comp	3/14/2020 1430	WM	500 mL Poly	1	NaOH	220	No		X											
			WM	2 5 Gal Cube	1	None	225	No			X										Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No													
			WM	1 Gal Cube	6	None	235	No													*

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
Rachel Hahn	03/14/2020 1515	H&A		3.14.20 1515
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
	3.14.20 1730	EC-TRV	EC-IRV	3/14/20 1730

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV: __X__

3/16/20

*1 gal chron tox delivered to ABC directly by H&A (M. Dominick)

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4/16/2020

2019-2020 Rainy Season
Version 2

Eurofins Calscience Irvine
17461 Dorian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154036.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263076-1
Address: 13715 Rider Trail North,	Due Date Requested: 3/26/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall18_20200314_Comp (440-263076-1)	3/14/20	14:30 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	A. Renney	3/17/2020 1700	EC-IRL	FE		
2	FE			Michael Cunningham	3/18/2020 09:50	ETA STL
3						

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience Irvine

Initiated by: MK Date: 3/18/2020 Time: 09:50 Shipper: FE Package Quantity: 3

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids.
If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 2257	192688461	0.5	
2.	1540 4107 2263		0.4	
3.	1540 4107 2274		-1.3	
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC904495
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes: Sample 440-263076-1 was received unpreserved with a pH=7

pH Adjustment (if needed)

Initial pH and pH strip lot#: pH=7 HC904495

Final pH and pH strip lot#: pH<2 HC904495

Date/Time of Preservation: 3/18/2020 16:05

Preservative and lot#: HNO3 000024482

Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 REV 21, REVISED 12/11/2018

Page 1 of 1

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263076-2

Login Number: 263076
List Number: 1
Creator: Skinner, Alma D

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263076-2

Login Number: 263076
List Number: 3
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/18/20 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample received unpreserved with a pH=7. Sample preserved with HNO3.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263045-L-1-A MS	Matrix Spike	84.9
440-263045-L-1-B MSD	Matrix Spike Duplicate	84.6
440-263076-1	Outfall018_20200314_Comp	91.2
LCS 160-464916/1-A	Lab Control Sample	98.4
MB 160-464916/12-A	Method Blank	94.3

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263045-L-1-C MS	Matrix Spike	84.9	83.7
440-263045-L-1-D MSD	Matrix Spike Duplicate	84.6	77.4
440-263076-1	Outfall018_20200314_Comp	91.2	79.6
LCS 160-464919/1-A	Lab Control Sample	98.4	84.5
MB 160-464919/12-A	Method Blank	94.3	86.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263045-L-1-E MS	Matrix Spike	76.1	80.7
440-263045-L-1-F MSD	Matrix Spike Duplicate	64.4	84.5
440-263076-1	Outfall018_20200314_Comp	76.8	82.6
LCS 160-464947/1-A	Lab Control Sample	88.5	90.8
MB 160-464947/10-A	Method Blank	84.7	92.0

Tracer/Carrier Legend

Sr Carrier = Sr Carrier
Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263045-L-1-G MS	Matrix Spike	76.4
440-263045-L-1-H MSD	Matrix Spike Duplicate	82.5
440-263076-1	Outfall018_20200314_Comp	87.3
LCS 160-466005/2-A	Lab Control Sample	84.1
MB 160-466005/1-A	Method Blank	91.7

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263076-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-263076 Field Sheet

Tracking # 1540-4107-2024

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: A4-7 Corr. Factor: (0/-) 0.4 °C

Ice ✓ Wet ~ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.0 °C Corrected: 1.4 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263673-1
Client Project/Site: Routine Outfall 018 Grab

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/1/2020 4:02:34 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/1/2020 4:02:34 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-263673-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263673-1	Outfall018_20200325_Grab	Water	03/25/20 13:30	03/26/20 17:17	
440-263673-3	TB_20200325	Water	03/25/20 13:30	03/26/20 17:17	

Job ID: 440-263673-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263673-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2020 5:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.9º C and 2.1º C.

GC/MS VOA
Method 624.1: The following volatile sample was received and analyzed with significant headspace in the sample container(s): TB_20200325 (440-263673-3). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-602598.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-603236 and analytical batch 440-603282. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. Method 1664A.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200325_Grab
Lab Sample ID: 440-263673-1
Date Collected: 03/25/20 13:30
Matrix: Water
Date Received: 03/26/20 17:17

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 15:11	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 15:11	1
Trichloroethene	ND		0.50	0.25	ug/L			03/27/20 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*60 - 140*		*03/27/20 15:11*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 140*		*03/27/20 15:11*	*1*
Toluene-d8 (Surr)	*102*		*60 - 140*		*03/27/20 15:11*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		04/01/20 09:05	04/01/20 11:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**380**		1.0	1.0	umhos/cm			03/31/20 11:47	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			03/26/20 18:55	1

Client Sample ID: TB_20200325
Lab Sample ID: 440-263673-3
Date Collected: 03/25/20 13:30
Matrix: Water
Date Received: 03/26/20 17:17

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 15:39	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 15:39	1
Trichloroethene	ND		0.50	0.25	ug/L			03/27/20 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*60 - 140*		*03/27/20 15:39*	*1*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*03/27/20 15:39*	*1*
Toluene-d8 (Surr)	*103*		*60 - 140*		*03/27/20 15:39*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-263673-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
1664A	HEM and SGT-HEM (SPE)	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-263673-1

Client Sample ID: Outfall018_20200325_Grab

Lab Sample ID: 440-263673-1

Date Collected: 03/25/20 13:30
Matrix: Water
Date Received: 03/26/20 17:17

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602664	03/27/20 15:11	MML	TAL IRV
Total/NA	Analysis	120.1		1			603108	03/31/20 11:47	XL	TAL IRV
Total/NA	Prep	1664A			960 mL	1000 mL	603236	04/01/20 09:05	JC1	TAL IRV
Total/NA	Analysis	1664A		1			603282	04/01/20 11:26	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	602598	03/26/20 18:55	HZ	TAL IRV

Client Sample ID: TB_20200325

Lab Sample ID: 440-263673-3

Date Collected: 03/25/20 13:30
Matrix: Water
Date Received: 03/26/20 17:17

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	602664	03/27/20 15:39	MML	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602664/6
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/27/20 10:37	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/27/20 10:37	1
Trichloroethene	ND		0.50	0.25	ug/L			03/27/20 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*60 - 140*		*03/27/20 10:37*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 140*		*03/27/20 10:37*	*1*
Toluene-d8 (Surr)	*101*		*60 - 140*		*03/27/20 10:37*	*1*

Lab Sample ID: LCS 440-602664/1002
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			25.0	22.9		ug/L		91	19 - 212		
1,2-Dichloroethane			25.0	26.8		ug/L		107	72 - 137		
Trichloroethene			25.0	27.0		ug/L		108	75 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*60 - 140*
Dibromofluoromethane (Surr)	*110*		*60 - 140*
Toluene-d8 (Surr)	*96*		*60 - 140*

Lab Sample ID: 440-263672-A-1 MS
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	ND		10.0	8.75		ug/L		88	10 - 234		
1,2-Dichloroethane	ND		10.0	9.82		ug/L		98	49 - 155		
Trichloroethene	0.69		10.0	10.7		ug/L		100	70 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*60 - 140*
Dibromofluoromethane (Surr)	*108*		*60 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Lab Sample ID: 440-263672-A-1 MSD
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		10.0	9.14		ug/L		91	10 - 234	4	32
1,2-Dichloroethane	ND		10.0	10.5		ug/L		105	49 - 155	7	49
Trichloroethene	0.69		10.0	11.0		ug/L		103	70 - 157	3	48

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-263672-A-1 MSD
Matrix: Water
Analysis Batch: 602664

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*83*		*60 - 140*
Dibromofluoromethane (Surr)	*111*		*60 - 140*
Toluene-d8 (Surr)	*103*		*60 - 140*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-603108/3
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/31/20 11:47	1

Lab Sample ID: LCS 440-603108/4
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	946	920		umhos/cm		97	90 - 110

Lab Sample ID: 440-263672-D-1 DU
Matrix: Water
Analysis Batch: 603108

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	390		394		umhos/cm		0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-603236/1-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603236

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/01/20 09:05	04/01/20 11:26	1

Lab Sample ID: LCS 440-603236/2-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603236

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	34.7		mg/L		87	78 - 114

Lab Sample ID: LCSD 440-603236/3-A
Matrix: Water
Analysis Batch: 603282

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	34.1		mg/L		85	78 - 114	2	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-263673-1

GC/MS VOA

Analysis Batch: 602664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263673-1	Outfall018_20200325_Grab	Total/NA	Water	624.1	
440-263673-3	TB_20200325	Total/NA	Water	624.1	
MB 440-602664/6	Method Blank	Total/NA	Water	624.1	
LCS 440-602664/1002	Lab Control Sample	Total/NA	Water	624.1	
440-263672-A-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-263672-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 602598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263673-1	Outfall018_20200325_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 603108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263673-1	Outfall018_20200325_Grab	Total/NA	Water	120.1	
MB 440-603108/3	Method Blank	Total/NA	Water	120.1	
LCS 440-603108/4	Lab Control Sample	Total/NA	Water	120.1	
440-263672-D-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 603236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263673-1	Outfall018_20200325_Grab	Total/NA	Water	1664A	
MB 440-603236/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-603236/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-603236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 603282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263673-1	Outfall018_20200325_Grab	Total/NA	Water	1664A	603236
MB 440-603236/1-A	Method Blank	Total/NA	Water	1664A	603236
LCS 440-603236/2-A	Lab Control Sample	Total/NA	Water	1664A	603236
LCSD 440-603236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	603236

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Grab

Job ID: 440-263673-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263673-1
Project/Site: Routine Outfall 018 Grab

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Test America

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Grab	
Test America Contact: Christian Bondoc, 17461 Derian Ave Suite #100, Irvine CA 92614, Tel. 949-260-3218		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	
Sampler. Dan Smith	Field Manager: Mark Dominick 978.234.5033, 818.599 0702 (cell)	

Field Readings	Meter serial #
Field Readings: (Include units) ~~VLSCAN RH~~ EDD B, PGLX	
Time of Readings: 1325	
DO 9.5 mg/L	
pH 7.39 pH unit	
Temp 57.7 °C/°F	
Field readings QC	
Checked by: R. Hahn	
Date/Time: 3/25/2020 B35	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Oil & Grease (E1664A-HEM)	R VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	R Settleable Solids (E160.5 (SM2540F))	R Conductivity (SM2510B / E120.1)	Comments
Outfall 018	Outfall018_20200325_Grab	3/25/2020 1330	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
	Outfall018_20200325_Grab_Extra	3/25/2020 1330	WM	1 L Glass Amber	2	HCl	15	No	H				Hold
			WM	40 mL VOA	3	HCl	30	No		H			Hold
			~~WM~~	~~500 mL Poly~~	~~1~~	~~None~~	~~75~~	~~No~~				H	~~Hold~~ RH
Trip Blanks	TB-20200325	3/25/2020 1330	WQ	40 mL VOA	3	HCl	30	No		X			

440-263673 Chain of Custody

3/26/20 LJ

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
	3-26-2020/1525	H.A		3/26/20 3:25pm
	3/26/20 5:17 PM	DCS		
			Ec-iPu	3/26/20 1717

Turn-around time: (Check)
24 Hour:_____ 72 Hour._____ 10 Day:__X__
48 Hour._____ 5 Day:_____ Normal._____

Sample Integrity (Check)
Intact._____ On Ice._____

Store samples for 6 months.

Data Requirements (Check)
No Level IV._____ All Level IV:__X__

1.9/1.9 1.89
2.1/2.1

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263673-1

Login Number: 263673
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-263671-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

3 - Reason Code Reference

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-263671-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL018_20200326_COMP	440-263671-1	N/A	Water	3/26/20 2:00 PM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-263671-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento.
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (954 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for all isomers except 2,3,7,8-TCDD, 2,3,7,8-TCDF, 1,2,3,4,7,8-HxCDF and 1,2,3,6,7,8-HxCDF, and for all totals except TCDD and TCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The reviewer compared concentrations comprising the isomer to those in the sample totals. Total HxCDD and PeCDD were comprised of peaks qualified as nondetects due to blank contamination and were therefore qualified as nondetects (U). The remaining sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 954 ml sample volume was available for extraction.

Isomers, total PeCDD and total HxCDD previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 2,3,7,8-TCDD, 1,2,3,4,7,8-HxCDD and 1,2,3,6,7,8-HxCDD reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Total TCDD consisted of the single isomer EMPC peak qualified in the sample and was therefore also qualified as an estimated nondetect (UJ). Total HxCDF consisted of a blank contaminant and an EMPC and was therefore qualified as an estimated nondetect (UJ). The remaining totals included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402636711

Analysis Method E1613B

Sample Name OUTFALL018_20200326_COMP **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/26/2020 2:00:00 PM **Validation Level:** 9

Lab Sample Name: 440-263671-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.0000054	0.00010	0.00000083	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000020	0.00010	0.00000070	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000024	0.000052	0.00000034	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000043	0.000052	0.00000041	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000021	0.000052	0.00000047	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000015	0.000052	0.00000070	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000022	0.000052	0.00000046	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000013	0.000052	0.00000063	ug/L	J,DXq	UJ	*III
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000020	0.000052	0.00000048	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000028	0.000052	0.00000043	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000020	0.000052	0.00000043	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000017	0.000052	0.00000045	ug/L	J,DXqMB	U	B
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000015	0.000052	0.00000053	ug/L	J,DXqMB	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000011	0.000052	0.00000043	ug/L	J,DXqMB	U	B
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000094	0.000052	0.00000045	ug/L	J,DXqMB	U	B
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000032	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	0.0000011	0.000010	0.00000041	ug/L	J,DXq	UJ	*III
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000051	0.000052	0.00000034	ug/L	J,DXqMB	J	B, *III, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000083	0.000052	0.00000041	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000068	0.000052	0.00000043	ug/L	J,DXqMB	UJ	B, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000062	0.000052	0.00000043	ug/L	J,DXqMB	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000026	0.000052	0.00000045	ug/L	J,DXqMB	J	B, *III, DNQ

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000015	0.000052	0.00000053	ug/L	J,DXqMB	U	B
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000032	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.0000011	0.000010	0.00000041	ug/L	J,DXq	UJ	*III

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263671-1
Client Project/Site: Routine Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/7/2020 4:51:36 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 4:51:36 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263671-1	Outfall018_20200326_Comp	Water	03/26/20 14:00	03/26/20 17:17	
440-263671-3	Outfall018_20200326_Comp_F	Water	03/26/20 14:00	03/26/20 17:17	

Job ID: 440-263671-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263671-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2020 5:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.8º C, 1.3º C and 2.8º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 608.3: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602622 and analytical batch 440-602694. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-602622/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin
Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall018_20200326_Comp (440-263671-1), (CCV 320-369099/2), (LCS 320-368628/2-A) and (MB 320-368628/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall018_20200326_Comp_F (440-263671-3). This sample was filtered and preserved upon receipt to the laboratory.

03/27/20
2.5mL of HNO3
HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for 440-602844 contained Magnesium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

Method 200.7 Rev 4.4: The method blank for preparation batch 440-602732 and 440-602745 and analytical batch 440-602973 contained Magnesium above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries of Aluminum and Arsenic for preparation batch 440-602732 and 440-602745 and analytical batch 440-602973 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected. The associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 440-263671-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Methods 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602622. Method 8081-8082

Methods 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-602721. LCS was performed in duplicate to provide precision of data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Sample Outfall018_20200326_Comp (440-263671-1) was received in a wide-mouth amber glass bottle.

preparation batch 320-368628
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200326_Comp

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-1

Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.5	0.11	ug/L		03/27/20 11:42	03/29/20 18:22	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.2	ug/L		03/27/20 11:42	03/29/20 18:22	1
N-Nitrosodimethylamine	ND		5.4	0.33	ug/L		03/27/20 11:42	03/29/20 18:22	1
Pentachlorophenol	ND		5.4	1.1	ug/L		03/27/20 11:42	03/29/20 18:22	1
2,4-Dinitrotoluene	ND		5.4	2.2	ug/L		03/27/20 11:42	03/29/20 18:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*85*		*60 - 120*	*03/27/20 11:42*	*03/29/20 18:22*	*1*
2-Fluorobiphenyl	*81*		*51 - 120*	*03/27/20 11:42*	*03/29/20 18:22*	*1*
2-Fluorophenol	*73*		*43 - 120*	*03/27/20 11:42*	*03/29/20 18:22*	*1*
Nitrobenzene-d5	*82*		*53 - 150*	*03/27/20 11:42*	*03/29/20 18:22*	*1*
Phenol-d5	*74*		*45 - 150*	*03/27/20 11:42*	*03/29/20 18:22*	*1*
Terphenyl-d14	*95*		*12 - 142*	*03/27/20 11:42*	*03/29/20 18:22*	*1*

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.11	0.021	ug/L		03/27/20 05:43	03/27/20 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*64*		*10 - 104*	*03/27/20 05:43*	*03/27/20 13:28*	*1*
DCB Decachlorobiphenyl (Surr)	*82*		*18 - 134*	*03/27/20 05:43*	*03/27/20 13:28*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.7**		0.50	0.25	mg/L			03/26/20 21:27	1
Nitrate as N	**0.23**		0.11	0.055	mg/L			03/26/20 21:27	1
Nitrite as N	ND		0.15	0.025	mg/L			03/26/20 21:27	1
Sulfate	**94**		2.5	1.3	mg/L			03/26/20 21:44	5

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/27/20 12:00	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.23**		0.15	0.055	mg/L			04/02/20 14:38	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	**0.0000011**	**J,DX q**	0.000010	0.00000041	ug/L		03/30/20 08:37	03/31/20 19:07	1
2,3,7,8-TCDF	ND		0.000010	0.00000032	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,7,8-PeCDD	**0.0000015**	**J,DX q MB**	0.000052	0.00000053	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,7,8-PeCDF	**0.0000017**	**J,DX q MB**	0.000052	0.00000045	ug/L		03/30/20 08:37	03/31/20 19:07	1
2,3,4,7,8-PeCDF	**0.00000094**	**J,DX q MB**	0.000052	0.00000045	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,4,7,8-HxCDD	**0.0000022**	**J,DX q MB**	0.000052	0.00000046	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,6,7,8-HxCDD	**0.0000020**	**J,DX MB**	0.000052	0.00000048	ug/L		03/30/20 08:37	03/31/20 19:07	1

Client Sample ID: Outfall018_20200326_Comp

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-1

Matrix: Water

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8,9-HxCDD	0.0000020	J,DX MB	0.000052	0.00000043	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,4,7,8-HxCDF	0.0000015	J,DX q	0.000052	0.00000070	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,6,7,8-HxCDF	0.0000013	J,DX q	0.000052	0.00000063	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,7,8,9-HxCDF	0.0000028	J,DX MB	0.000052	0.00000043	ug/L		03/30/20 08:37	03/31/20 19:07	1
2,3,4,6,7,8-HxCDF	0.0000011	J,DX q MB	0.000052	0.00000043	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,4,6,7,8-HpCDD	0.0000043	J,DX MB	0.000052	0.00000041	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,4,6,7,8-HpCDF	0.0000024	J,DX MB	0.000052	0.00000034	ug/L		03/30/20 08:37	03/31/20 19:07	1
1,2,3,4,7,8,9-HpCDF	0.0000021	J,DX MB	0.000052	0.00000047	ug/L		03/30/20 08:37	03/31/20 19:07	1
OCDD	0.000020	J,DX MB	0.00010	0.00000070	ug/L		03/30/20 08:37	03/31/20 19:07	1
OCDF	0.0000054	J,DX MB	0.00010	0.00000083	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total TCDD	0.0000011	J,DX q	0.000010	0.00000041	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total TCDF	ND		0.000010	0.00000032	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total PeCDD	0.0000015	J,DX q MB	0.000052	0.00000053	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total PeCDF	0.0000026	J,DX q MB	0.000052	0.00000045	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total HxCDD	0.0000062	J,DX q MB	0.000052	0.00000043	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total HxCDF	0.0000068	J,DX q MB	0.000052	0.00000043	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total HpCDD	0.0000083	J,DX MB	0.000052	0.00000041	ug/L		03/30/20 08:37	03/31/20 19:07	1
Total HpCDF	0.0000051	J,DX q MB	0.000052	0.00000034	ug/L		03/30/20 08:37	03/31/20 19:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*76*		*25 - 164*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-2,3,7,8-TCDF	*72*		*24 - 169*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,7,8-PeCDD	*65*		*25 - 181*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,7,8-PeCDF	*68*		*24 - 185*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-2,3,4,7,8-PeCDF	*71*		*21 - 178*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,4,7,8-HxCDD	*79*		*32 - 141*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,6,7,8-HxCDD	*76*		*28 - 130*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,4,7,8-HxCDF	*79*		*26 - 152*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,6,7,8-HxCDF	*77*		*26 - 123*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,7,8,9-HxCDF	*75*		*29 - 147*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-2,3,4,6,7,8-HxCDF	*75*		*28 - 136*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*85*		*23 - 140*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*87*		*28 - 143*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*89*		*26 - 138*	*03/30/20 08:37*	*03/31/20 19:07*	*1*
13C-OCDD	*66*		*17 - 157*	*03/30/20 08:37*	*03/31/20 19:07*	*1*

Client Sample ID: Outfall018_20200326_Comp

Lab Sample ID: 440-263671-1

Date Collected: 03/26/20 14:00

Matrix: Water

Date Received: 03/26/20 17:17

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*79*		*35 - 197*	*03/30/20 08:37*	*03/31/20 19:07*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**330**		100	50	ug/L		03/27/20 08:30	03/27/20 19:08	1
Zinc	ND		20	12	ug/L		03/27/20 08:30	03/27/20 19:08	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 11:33	03/27/20 16:20	1
Copper	**2.2**		2.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:20	1
Lead	ND		1.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:20	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:20	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:50	03/30/20 19:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.55**		0.10	0.040	NTU			03/26/20 19:01	1
Total Dissolved Solids	**230**		10	5.0	mg/L			03/30/20 10:08	1
Total Suspended Solids	**1.1**		1.0	0.50	mg/L			03/27/20 18:00	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/02/20 12:47	04/03/20 12:14	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/07/20 12:55	1
Methylene Blue Active Substances	**0.074**	**J,DX**	0.10	0.050	mg/L			03/27/20 14:23	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/27/20 13:01	1

Client Sample ID: Outfall018_20200326_Comp_F

Lab Sample ID: 440-263671-3

Date Collected: 03/26/20 14:00

Matrix: Water

Date Received: 03/26/20 17:17

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**160**		100	50	ug/L		03/27/20 13:57	03/27/20 17:48	1
Zinc	ND		20	12	ug/L		03/27/20 13:57	03/27/20 17:48	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 14:01	03/27/20 15:00	1
Copper	**2.0**		2.0	0.50	ug/L		03/27/20 14:01	03/27/20 15:00	1
Lead	ND		1.0	0.50	ug/L		03/27/20 14:01	03/27/20 15:00	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 14:01	03/27/20 15:00	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:46	03/30/20 20:27	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-1

Method	Method Description	Protocol	Laboratory
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-1

Client Sample ID: Outfall018_20200326_Comp

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			920 mL	2.0 mL	602721	03/27/20 11:42	ACT	TAL IRV
Total/NA	Analysis	625.1		1			602857	03/29/20 18:22	HN	TAL IRV
Total/NA	Prep	608			940 mL	2 mL	602622	03/27/20 05:43	L1H	TAL IRV
Total/NA	Analysis	608.3		1			602694	03/27/20 13:28	D1D	TAL IRV
Total/NA	Analysis	300.0		1			602461	03/26/20 21:27	NTN	TAL IRV
Total/NA	Analysis	300.0		1			602462	03/26/20 21:27	MN	TAL IRV
Total/NA	Analysis	300.0		5			602462	03/26/20 21:44	MN	TAL IRV
Total/NA	Analysis	314.0		1			602682	03/27/20 12:00	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			603485	04/02/20 14:38	NN	TAL IRV
Total/NA	Prep	1613B			953.8 mL	20 uL	368628	03/30/20 08:37	RDR	TAL SAC
Total/NA	Analysis	1613B		1			369099	03/31/20 19:07	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	602562	03/27/20 08:30	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			602844	03/27/20 19:08	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	602717	03/27/20 11:33	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			602781	03/27/20 16:20	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	602978	03/30/20 13:50	MEM	TAL IRV
Total/NA	Analysis	245.1		1			603125	03/30/20 19:29	MEM	TAL IRV
Total/NA	Analysis	180.1		1			602599	03/26/20 19:01	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	602929	03/30/20 10:08	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	602742	03/27/20 18:00	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	603465	04/02/20 12:47	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			603643	04/03/20 12:14	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	604043	04/07/20 12:55	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	602751	03/27/20 14:23	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	602744	03/27/20 13:01	MMP	TAL IRV

Client Sample ID: Outfall018_20200326_Comp_F

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	602732	03/27/20 12:31	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602745	03/27/20 13:57	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			602844	03/27/20 17:48	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	602732	03/27/20 12:31	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	602747	03/27/20 14:01	M1G	TAL IRV
Dissolved	Analysis	200.8		1			602760	03/27/20 15:00	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	602726	03/27/20 12:23	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	602974	03/30/20 13:46	MEM	TAL IRV
Dissolved	Analysis	245.1		1			603021	03/30/20 20:27	MEM	TAL IRV

Laboratory References:

TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-602721/1-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		03/27/20 11:42	03/29/20 13:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		03/27/20 11:42	03/29/20 13:07	1
Pentachlorophenol	ND		5.0	1.0	ug/L		03/27/20 11:42	03/29/20 13:07	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		03/27/20 11:42	03/29/20 13:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*86*		*60 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2-Fluorobiphenyl	*86*		*51 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
2-Fluorophenol	*83*		*43 - 120*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Nitrobenzene-d5	*88*		*53 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Phenol-d5	*79*		*45 - 150*	*03/27/20 11:42*	*03/29/20 13:07*	*1*
Terphenyl-d14	*100*		*12 - 142*	*03/27/20 11:42*	*03/29/20 13:07*	*1*

Lab Sample ID: LCS 440-602721/2-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	15.0	14.9		ug/L		99	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	14.5		ug/L		97	29 - 137
N-Nitrosodimethylamine	15.0	13.5		ug/L		90	60 - 140
Pentachlorophenol	30.0	27.1		ug/L		90	38 - 152

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*95*		*60 - 120*
2-Fluorobiphenyl	*89*		*51 - 120*
2-Fluorophenol	*84*		*43 - 120*
Nitrobenzene-d5	*92*		*53 - 150*
Phenol-d5	*87*		*45 - 150*
Terphenyl-d14	*103*		*12 - 142*

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	15.0	14.8		ug/L		99	52 - 129	1	35
Bis(2-ethylhexyl) phthalate	15.0	14.3		ug/L		95	29 - 137	2	35
N-Nitrosodimethylamine	15.0	12.9		ug/L		86	60 - 140	5	35
Pentachlorophenol	30.0	29.7		ug/L		99	38 - 152	9	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*93*		*60 - 120*
2-Fluorobiphenyl	*87*		*51 - 120*
2-Fluorophenol	*83*		*43 - 120*
Nitrobenzene-d5	*90*		*53 - 150*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-602721/3-A
Matrix: Water
Analysis Batch: 602857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602721

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5	*86*		*45 - 150*
Terphenyl-d14	*96*		*12 - 142*

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-602622/1-A
Matrix: Water
Analysis Batch: 602694

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.10	0.020	ug/L		03/27/20 05:43	03/27/20 12:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*68*		*10 - 104*	*03/27/20 05:43*	*03/27/20 12:37*	*1*
DCB Decachlorobiphenyl (Surr)	*86*		*18 - 134*	*03/27/20 05:43*	*03/27/20 12:37*	*1*

Lab Sample ID: LCS 440-602622/2-A
Matrix: Water
Analysis Batch: 602694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
alpha-BHC			0.400	0.290		ug/L		72	37 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*78*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*91*		*18 - 134*

Lab Sample ID: LCSD 440-602622/3-A
Matrix: Water
Analysis Batch: 602694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602622

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
alpha-BHC			0.400	0.309		ug/L		77	37 - 140	6	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*83*		*10 - 104*
DCB Decachlorobiphenyl (Surr)	*93*		*18 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-602461/6
Matrix: Water
Analysis Batch: 602461

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/26/20 10:08	1
Nitrite as N	ND		0.15	0.025	mg/L			03/26/20 10:08	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-602461/5
Matrix: Water
Analysis Batch: 602461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.22		mg/L		108	90 - 110
Nitrite as N	1.52	1.54		mg/L		101	90 - 110

Lab Sample ID: 440-263653-A-1 MS
Matrix: Water
Analysis Batch: 602461

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	4.0		1.13	5.41	LM	mg/L		121	80 - 120
Nitrite as N	1.9		1.52	3.32		mg/L		93	80 - 120

Lab Sample ID: 440-263653-A-1 MSD
Matrix: Water
Analysis Batch: 602461

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	4.0		1.13	5.45	LM	mg/L		124	80 - 120	1	20
Nitrite as N	1.9		1.52	3.34		mg/L		95	80 - 120	1	20

Lab Sample ID: MB 440-602462/6
Matrix: Water
Analysis Batch: 602462

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/26/20 10:08	1
Sulfate	ND		0.50	0.25	mg/L			03/26/20 10:08	1

Lab Sample ID: LCS 440-602462/5
Matrix: Water
Analysis Batch: 602462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.93		mg/L		99	90 - 110
Sulfate	5.00	4.95		mg/L		99	90 - 110

Lab Sample ID: 440-263615-D-2 MS
Matrix: Water
Analysis Batch: 602462

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4100		5000	9200		mg/L		102	80 - 120
Sulfate	3600		5000	8760		mg/L		103	80 - 120

Lab Sample ID: 440-263615-D-2 MSD
Matrix: Water
Analysis Batch: 602462

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4100		5000	9180		mg/L		102	80 - 120	0	20
Sulfate	3600		5000	8780		mg/L		103	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-602682/6
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/27/20 11:03	1

Lab Sample ID: LCS 440-602682/5
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	25.0		ug/L		100	85 - 115

Lab Sample ID: MRL 440-602682/4
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	1.10	J,DX	ug/L		110	75 - 125

Lab Sample ID: MRL 440-602682/8
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.91	J,DX	ug/L		98	75 - 125

Lab Sample ID: 440-263671-1 MS
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	24.7		ug/L		99	80 - 120

Lab Sample ID: 440-263671-1 MSD
Matrix: Water
Analysis Batch: 602682

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	25.3		ug/L		101	80 - 120	3	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-368628/1-A
Matrix: Water
Analysis Batch: 369099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 368628

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000047	ug/L		03/30/20 08:37	03/31/20 20:38	1
2,3,7,8-TCDF	ND		0.000010	0.00000027	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,7,8-PeCDD	0.00000161	J,DX q	0.000050	0.00000048	ug/L		03/30/20 08:37	03/31/20 20:38	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-368628/1-A
Matrix: Water
Analysis Batch: 369099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 368628

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8-PeCDF	0.00000197	J,DX	0.000050	0.00000042	ug/L		03/30/20 08:37	03/31/20 20:38	1
2,3,4,7,8-PeCDF	0.00000138	J,DX	0.000050	0.00000040	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,4,7,8-HxCDD	0.00000321	J,DX q	0.000050	0.00000053	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,6,7,8-HxCDD	0.00000207	J,DX q	0.000050	0.00000054	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,7,8,9-HxCDD	0.00000219	J,DX q	0.000050	0.00000049	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000075	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000068	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,7,8,9-HxCDF	0.00000222	J,DX q	0.000050	0.00000047	ug/L		03/30/20 08:37	03/31/20 20:38	1
2,3,4,6,7,8-HxCDF	0.00000218	J,DX q	0.000050	0.00000045	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,4,6,7,8-HpCDD	0.00000361	J,DX	0.000050	0.00000055	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,4,6,7,8-HpCDF	0.00000332	J,DX	0.000050	0.00000044	ug/L		03/30/20 08:37	03/31/20 20:38	1
1,2,3,4,7,8,9-HpCDF	0.00000262	J,DX	0.000050	0.00000061	ug/L		03/30/20 08:37	03/31/20 20:38	1
OCDD	0.0000145	J,DX	0.00010	0.00000095	ug/L		03/30/20 08:37	03/31/20 20:38	1
OCDF	0.00000902	J,DX	0.00010	0.00000094	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total TCDD	ND		0.000010	0.00000047	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total TCDF	ND		0.000010	0.00000027	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total PeCDD	0.00000161	J,DX q	0.000050	0.00000048	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total PeCDF	0.00000335	J,DX	0.000050	0.00000040	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total HxCDD	0.00000747	J,DX q	0.000050	0.00000049	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total HxCDF	0.00000440	J,DX q	0.000050	0.00000045	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total HpCDD	0.00000361	J,DX	0.000050	0.00000055	ug/L		03/30/20 08:37	03/31/20 20:38	1
Total HpCDF	0.00000594	J,DX	0.000050	0.00000044	ug/L		03/30/20 08:37	03/31/20 20:38	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*73*		*25 - 164*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*24 - 185*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-2,3,4,7,8-PeCDF	*68*		*21 - 178*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-1,2,3,4,7,8-HxCDD	*72*		*32 - 141*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-1,2,3,6,7,8-HxCDD	*70*		*28 - 130*	*03/30/20 08:37*	*03/31/20 20:38*	*1*
13C-1,2,3,4,7,8-HxCDF	*72*		*26 - 152*	*03/30/20 08:37*	*03/31/20 20:38*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-368628/1-A
Matrix: Water
Analysis Batch: 369099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 368628

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,6,7,8-HxCDF	70		26 - 123	03/30/20 08:37	03/31/20 20:38	1
13C-1,2,3,7,8,9-HxCDF	69		29 - 147	03/30/20 08:37	03/31/20 20:38	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	03/30/20 08:37	03/31/20 20:38	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140	03/30/20 08:37	03/31/20 20:38	1
13C-1,2,3,4,6,7,8-HpCDF	78		28 - 143	03/30/20 08:37	03/31/20 20:38	1
13C-1,2,3,4,7,8,9-HpCDF	78		26 - 138	03/30/20 08:37	03/31/20 20:38	1
13C-OCDD	53		17 - 157	03/30/20 08:37	03/31/20 20:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	82		35 - 197	03/30/20 08:37	03/31/20 20:38	1

Lab Sample ID: LCS 320-368628/2-A
Matrix: Water
Analysis Batch: 369099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 368628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000196		ug/L		98	67 - 158
2,3,7,8-TCDF	0.000200	0.000202		ug/L		101	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00106	MB	ug/L		106	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00107	MB	ug/L		107	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000973	MB	ug/L		97	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00102	MB	ug/L		102	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00102	MB	ug/L		102	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000994		ug/L		99	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00107		ug/L		107	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00109	MB	ug/L		109	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00101	MB	ug/L		101	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00104	MB	ug/L		104	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000986	MB	ug/L		99	78 - 138
OCDD	0.00200	0.00197	MB	ug/L		99	78 - 144
OCDF	0.00200	0.00220	MB	ug/L		110	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	67		22 - 152
13C-1,2,3,7,8-PeCDD	57		21 - 227
13C-1,2,3,7,8-PeCDF	59		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-1,2,3,4,7,8-HxCDD	66		21 - 193
13C-1,2,3,6,7,8-HxCDD	70		25 - 163
13C-1,2,3,4,7,8-HxCDF	68		19 - 202
13C-1,2,3,6,7,8-HxCDF	67		21 - 159
13C-1,2,3,7,8,9-HxCDF	68		17 - 205
13C-2,3,4,6,7,8-HxCDF	68		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	73		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	75		21 - 158

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-368628/2-A
Matrix: Water
Analysis Batch: 369099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 368628

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,7,8,9-HpCDF	*78*		*20 - 186*
13C-OCDD	*55*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*80*		*31 - 191*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-602562/1-A
Matrix: Water
Analysis Batch: 602844

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/27/20 08:30	03/27/20 17:54	1
Zinc	ND		20	12	ug/L		03/27/20 08:30	03/27/20 17:54	1

Lab Sample ID: LCS 440-602562/2-A
Matrix: Water
Analysis Batch: 602844

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	480		ug/L		96	85 - 115
Zinc	500	496		ug/L		99	85 - 115

Lab Sample ID: 440-263600-A-6-B MS
Matrix: Water
Analysis Batch: 602844

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 602562

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	54	J,DX	500	592		ug/L		108	70 - 130
Zinc	57		500	558		ug/L		100	70 - 130

Lab Sample ID: 440-263600-A-6-C MSD
Matrix: Water
Analysis Batch: 602844

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 602562

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	54	J,DX	500	574		ug/L		104	70 - 130	3	20
Zinc	57		500	541		ug/L		97	70 - 130	3	20

Lab Sample ID: MB 440-602732/1-B
Matrix: Water
Analysis Batch: 602973

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602745

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	50	ug/L		03/27/20 13:57	03/30/20 12:51	1
Zinc	ND		20	12	ug/L		03/27/20 13:57	03/30/20 12:51	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-602732/2-B
Matrix: Water
Analysis Batch: 602973

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602745

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			500	480		ug/L		96	85 - 115		
Zinc			500	485		ug/L		97	85 - 115		

Lab Sample ID: 440-263680-E-1-C MS ^10
Matrix: Water
Analysis Batch: 602973

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 602745

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum	ND		500	680	J,DX LM	ug/L		136	70 - 130		
Zinc	780		500	1310		ug/L		106	70 - 130		

Lab Sample ID: 440-263680-E-1-D MSD ^10
Matrix: Water
Analysis Batch: 602973

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 602745

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		500	671	J,DX LM	ug/L		134	70 - 130	1	20
Zinc	780		500	1300		ug/L		105	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-602717/1-A
Matrix: Water
Analysis Batch: 602781

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602717

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 11:33	03/27/20 16:15	1
Copper	ND		2.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:15	1
Lead	ND		1.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:15	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 11:33	03/27/20 16:15	1

Lab Sample ID: LCS 440-602717/2-A
Matrix: Water
Analysis Batch: 602781

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602717

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium			80.0	75.6		ug/L		94	85 - 115		
Copper			80.0	74.0		ug/L		92	85 - 115		
Lead			80.0	73.2		ug/L		92	85 - 115		
Selenium			80.0	69.2		ug/L		86	85 - 115		

Lab Sample ID: 440-263671-1 MS
Matrix: Water
Analysis Batch: 602781

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total Recoverable
Prep Batch: 602717

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cadmium	ND		80.0	76.7		ug/L		96	70 - 130		
Copper	2.2		80.0	79.9		ug/L		97	70 - 130		
Lead	ND		80.0	75.2		ug/L		94	70 - 130		
Selenium	ND		80.0	78.1		ug/L		98	70 - 130		

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: 440-263671-1 MSD
Matrix: Water
Analysis Batch: 602781

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total Recoverable
Prep Batch: 602717

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	77.7		ug/L		97	70 - 130	1	20
Copper	2.2		80.0	80.9		ug/L		98	70 - 130	1	20
Lead	ND		80.0	76.5		ug/L		96	70 - 130	2	20
Selenium	ND		80.0	77.8		ug/L		97	70 - 130	0	20

Lab Sample ID: MB 440-602732/1-C
Matrix: Water
Analysis Batch: 602760

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602747

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/20 14:01	03/27/20 14:55	1
Copper	ND		2.0	0.50	ug/L		03/27/20 14:01	03/27/20 14:55	1
Lead	ND		1.0	0.50	ug/L		03/27/20 14:01	03/27/20 14:55	1
Selenium	ND		2.0	0.50	ug/L		03/27/20 14:01	03/27/20 14:55	1

Lab Sample ID: LCS 440-602732/2-C
Matrix: Water
Analysis Batch: 602760

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602747

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	76.2		ug/L		95	85 - 115
Copper	80.0	76.6		ug/L		96	85 - 115
Lead	80.0	74.3		ug/L		93	85 - 115
Selenium	80.0	74.7		ug/L		93	85 - 115

Lab Sample ID: 440-263671-3 MS
Matrix: Water
Analysis Batch: 602760

Client Sample ID: Outfall018_20200326_Comp_F
Prep Type: Dissolved
Prep Batch: 602747

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	75.1		ug/L		94	70 - 130
Copper	2.0		80.0	78.3		ug/L		95	70 - 130
Lead	ND		80.0	73.4		ug/L		92	70 - 130
Selenium	ND		80.0	74.6		ug/L		93	70 - 130

Lab Sample ID: 440-263671-3 MSD
Matrix: Water
Analysis Batch: 602760

Client Sample ID: Outfall018_20200326_Comp_F
Prep Type: Dissolved
Prep Batch: 602747

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	73.4		ug/L		92	70 - 130	2	20
Copper	2.0		80.0	80.9		ug/L		99	70 - 130	3	20
Lead	ND		80.0	72.3		ug/L		90	70 - 130	2	20
Selenium	ND		80.0	73.7		ug/L		92	70 - 130	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-602978/1-A
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602978

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:50	03/30/20 19:14	1

Lab Sample ID: LCS 440-602978/2-A
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602978

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.81		ug/L		95	85 - 115

Lab Sample ID: 320-59844-B-1-C MS
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 602978

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.72		ug/L		93	75 - 125

Lab Sample ID: 320-59844-B-1-D MSD
Matrix: Water
Analysis Batch: 603125

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 602978

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.65		ug/L		91	75 - 125	2	20

Lab Sample ID: MB 440-602726/1-B
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/20 13:46	03/30/20 20:23	1

Lab Sample ID: LCS 440-602726/2-B
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.93		ug/L		98	85 - 115

Lab Sample ID: 440-263671-3 MS
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Outfall018_20200326_Comp_F
Prep Type: Dissolved
Prep Batch: 602974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.93		ug/L		98	75 - 125

Lab Sample ID: 440-263671-3 MSD
Matrix: Water
Analysis Batch: 603021

Client Sample ID: Outfall018_20200326_Comp_F
Prep Type: Dissolved
Prep Batch: 602974

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.14		ug/L		104	75 - 125	5	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-602599/5
Matrix: Water
Analysis Batch: 602599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/26/20 19:01	1

Lab Sample ID: 440-263680-B-1 DU
Matrix: Water
Analysis Batch: 602599

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Turbidity	1.2			1.28		NTU				8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-602929/1
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/30/20 10:08	1

Lab Sample ID: LCS 440-602929/2
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	1000		mg/L		100	90 - 110		

Lab Sample ID: 590-12964-B-1 DU
Matrix: Water
Analysis Batch: 602929

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1400			1380		mg/L				3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-602742/1
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/27/20 18:00	1

Lab Sample ID: LCS 440-602742/2
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	921		mg/L		92	85 - 115		

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 440-263646-B-1 DU
Matrix: Water
Analysis Batch: 602742

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	220		235		mg/L		7	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-603465/1-A
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603465

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/02/20 12:47	04/03/20 12:13	1

Lab Sample ID: LCS 440-603465/2-A
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

Lab Sample ID: 440-263721-G-1-H MS
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	98.3		ug/L		98	75 - 125

Lab Sample ID: 440-263721-G-1-I MSD
Matrix: Water
Analysis Batch: 603643

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 603465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	106		ug/L		106	75 - 125	8	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-604043/10
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			04/07/20 12:29	1

Lab Sample ID: LCS 440-604043/11
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	4.940		mg/L		99	90 - 110

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: MRL 440-604043/9
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			0.200	0.1640	J,DX	mg/L		82	50 - 150		

Lab Sample ID: 440-263721-F-1 MS
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	ND		5.00	4.950		mg/L		99	90 - 110		

Lab Sample ID: 440-263721-F-1 MSD
Matrix: Water
Analysis Batch: 604043

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND		5.00	4.740		mg/L		95	90 - 110	4	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-602751/4
Matrix: Water
Analysis Batch: 602751

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/27/20 14:22	1

Lab Sample ID: LCS 440-602751/5
Matrix: Water
Analysis Batch: 602751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances			0.250	0.241		mg/L		96	90 - 110		

Lab Sample ID: MRL 440-602751/3
Matrix: Water
Analysis Batch: 602751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances			0.100	0.117		mg/L		117	50 - 150		

Lab Sample ID: 440-263671-1 MS
Matrix: Water
Analysis Batch: 602751

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Blue Active Substances	0.074	J,DX	0.250	0.304		mg/L		92	50 - 125		

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: 440-263671-1 MSD
Matrix: Water
Analysis Batch: 602751

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.074	J,DX	0.250	0.346		mg/L		109	50 - 125	13	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-602744/3
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			03/27/20 13:01	1

Lab Sample ID: LCS 440-602744/7
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	196		mg/L		99	85 - 115

Lab Sample ID: LCSD 440-602744/8
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	189		mg/L		95	85 - 115	3	20

Lab Sample ID: LCSD 440-602744/9
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	188		mg/L		95	85 - 115	4	20

Lab Sample ID: 440-263671-1 DU
Matrix: Water
Analysis Batch: 602744

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	ND		ND		mg/L		NC	20

GC/MS Semi VOA

Prep Batch: 602721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	625	
MB 440-602721/1-A	Method Blank	Total/NA	Water	625	
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 602857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	625.1	602721
MB 440-602721/1-A	Method Blank	Total/NA	Water	625.1	602721
LCS 440-602721/2-A	Lab Control Sample	Total/NA	Water	625.1	602721
LCSD 440-602721/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	602721

GC Semi VOA

Prep Batch: 602622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	608	
MB 440-602622/1-A	Method Blank	Total/NA	Water	608	
LCS 440-602622/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-602622/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 602694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	608.3	602622
MB 440-602622/1-A	Method Blank	Total/NA	Water	608.3	602622
LCS 440-602622/2-A	Lab Control Sample	Total/NA	Water	608.3	602622
LCSD 440-602622/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	602622

HPLC/IC

Analysis Batch: 602461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	300.0	
MB 440-602461/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602461/5	Lab Control Sample	Total/NA	Water	300.0	
440-263653-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-263653-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 602462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	300.0	
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	300.0	
MB 440-602462/6	Method Blank	Total/NA	Water	300.0	
LCS 440-602462/5	Lab Control Sample	Total/NA	Water	300.0	
440-263615-D-2 MS	Matrix Spike	Total/NA	Water	300.0	
440-263615-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 602682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	314.0	
MB 440-602682/6	Method Blank	Total/NA	Water	314.0	
LCS 440-602682/5	Lab Control Sample	Total/NA	Water	314.0	

HPLC/IC (Continued)

Analysis Batch: 602682 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 440-602682/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-602682/8	Lab Control Sample	Total/NA	Water	314.0	
440-263671-1 MS	Outfall018_20200326_Comp	Total/NA	Water	314.0	
440-263671-1 MSD	Outfall018_20200326_Comp	Total/NA	Water	314.0	

Analysis Batch: 603485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 368628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	1613B	
MB 320-368628/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-368628/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 369099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	1613B	368628
MB 320-368628/1-A	Method Blank	Total/NA	Water	1613B	368628
LCS 320-368628/2-A	Lab Control Sample	Total/NA	Water	1613B	368628

Metals

Prep Batch: 602562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total Recoverable	Water	200.2	
MB 440-602562/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602562/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263600-A-6-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-263600-A-6-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 602717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total Recoverable	Water	200.2	
MB 440-602717/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-602717/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-263671-1 MS	Outfall018_20200326_Comp	Total Recoverable	Water	200.2	
440-263671-1 MSD	Outfall018_20200326_Comp	Total Recoverable	Water	200.2	

Filtration Batch: 602726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	
MB 440-602726/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602726/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 602732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 602732 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602732/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-602732/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-602732/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-602732/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	FILTRATION	
440-263680-E-1-C MS ^10	Matrix Spike	Dissolved	Water	FILTRATION	
440-263680-E-1-D MSD ^10	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 602745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	200.2	602732
MB 440-602732/1-B	Method Blank	Dissolved	Water	200.2	602732
LCS 440-602732/2-B	Lab Control Sample	Dissolved	Water	200.2	602732
440-263680-E-1-C MS ^10	Matrix Spike	Dissolved	Water	200.2	602732
440-263680-E-1-D MSD ^10	Matrix Spike Duplicate	Dissolved	Water	200.2	602732

Prep Batch: 602747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	200.2	602732
MB 440-602732/1-C	Method Blank	Dissolved	Water	200.2	602732
LCS 440-602732/2-C	Lab Control Sample	Dissolved	Water	200.2	602732
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	200.2	602732
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	200.2	602732

Analysis Batch: 602760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	200.8	602747
MB 440-602732/1-C	Method Blank	Dissolved	Water	200.8	602747
LCS 440-602732/2-C	Lab Control Sample	Dissolved	Water	200.8	602747
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	200.8	602747
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	200.8	602747

Analysis Batch: 602781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total Recoverable	Water	200.8	602717
MB 440-602717/1-A	Method Blank	Total Recoverable	Water	200.8	602717
LCS 440-602717/2-A	Lab Control Sample	Total Recoverable	Water	200.8	602717
440-263671-1 MS	Outfall018_20200326_Comp	Total Recoverable	Water	200.8	602717
440-263671-1 MSD	Outfall018_20200326_Comp	Total Recoverable	Water	200.8	602717

Analysis Batch: 602844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total Recoverable	Water	200.7 Rev 4.4	602562
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	200.7 Rev 4.4	602745
MB 440-602562/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	602562
LCS 440-602562/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	602562
440-263600-A-6-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	602562
440-263600-A-6-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	602562

Metals

Analysis Batch: 602973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-602732/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	602745
LCS 440-602732/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	602745
440-263680-E-1-C MS ^10	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	602745
440-263680-E-1-D MSD ^10	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	602745

Prep Batch: 602974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602726
MB 440-602726/1-B	Method Blank	Dissolved	Water	245.1	602726
LCS 440-602726/2-B	Lab Control Sample	Dissolved	Water	245.1	602726
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602726
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602726

Prep Batch: 602978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	245.1	
MB 440-602978/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-602978/2-A	Lab Control Sample	Total/NA	Water	245.1	
320-59844-B-1-C MS	Matrix Spike	Total/NA	Water	245.1	
320-59844-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 603021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-3	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602974
MB 440-602726/1-B	Method Blank	Dissolved	Water	245.1	602974
LCS 440-602726/2-B	Lab Control Sample	Dissolved	Water	245.1	602974
440-263671-3 MS	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602974
440-263671-3 MSD	Outfall018_20200326_Comp_F	Dissolved	Water	245.1	602974

Analysis Batch: 603125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	245.1	602978
MB 440-602978/1-A	Method Blank	Total/NA	Water	245.1	602978
LCS 440-602978/2-A	Lab Control Sample	Total/NA	Water	245.1	602978
320-59844-B-1-C MS	Matrix Spike	Total/NA	Water	245.1	602978
320-59844-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	602978

General Chemistry

Analysis Batch: 602599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	180.1	
MB 440-602599/5	Method Blank	Total/NA	Water	180.1	
440-263680-B-1 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 602742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM 2540D	
MB 440-602742/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-602742/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263646-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

General Chemistry

Analysis Batch: 602744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM5210B	
USB 440-602744/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-602744/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-602744/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-602744/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-263671-1 DU	Outfall018_20200326_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 602751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM 5540C	
MB 440-602751/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-602751/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-602751/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-263671-1 MS	Outfall018_20200326_Comp	Total/NA	Water	SM 5540C	
440-263671-1 MSD	Outfall018_20200326_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 602929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM 2540C	
MB 440-602929/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-602929/2	Lab Control Sample	Total/NA	Water	SM 2540C	
590-12964-B-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 603465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	Distill/CN	
MB 440-603465/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-603465/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-263721-G-1-H MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-263721-G-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 603643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM 4500 CN E	603465
MB 440-603465/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	603465
LCS 440-603465/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	603465
440-263721-G-1-H MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	603465
440-263721-G-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	603465

Analysis Batch: 604043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-604043/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-604043/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-604043/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-263721-F-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-263721-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263671-1
Project/Site: Routine Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
NO3NO2 Calc		Water	Nitrate Nitrite as N

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Test America

CHAIN OF CUSTODY FORM

440-263671 Chain of Custody

RH

3/26/20 LD

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler. Dan Smith

Project.
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904 6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818 599 0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	TCDD (and all congeners) (E1613B) (R)	BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc)) (R)	Surfactants (MBAS) (SM5540C/E425 1) (R)	Cl-, SO_4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) (R)	Turbidity, TDS (SM2540C/E180 1) (R)	TSS (160 2 (SM2540D)) (R)	Ammonia-N (350 2) (R)	alpha-BHC (E608) (R)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625) (R)	Total Recoverable Metals Mercury (E245 1) (R)	[illegible] (C)		Comments
Outfall 018	Outfall018_20200326_Comp	3/26/2020 1400	WM	500 mL Poly	1	HNO_3	90	No	X										X	X		[illegible] RH
			WM	1 L Glass Amber	2	None	110	No		X												
			WM	1L Poly	1	None	115	No			X											
			WM	500 mL Poly	2	None	120	No				X										
			WM	500 mL Poly	2	None	130	No					X									48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X						
			WM	1 L Glass Amber	2	None	170	No									X					
			WM	1 L Glass Amber	2	None	180	No										X				
			WM	1L Poly	1	None	185	No							X							
	Outfall018_20200326_Comp_Extra	3/26/2020 1400	WM	1 L Glass Amber	2	None	110	No		H												Hold
			WM	500 mL Poly	2	None	120	No				H										Hold
			WM	500 mL Poly	2	None	130	No					H									Hold
			WM	1 L Glass Amber	2	None	170	No									H					Hold
			WM	1 L Glass Amber	2	None	180	No										H				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-26-2020 / 1525	17:A	[signature]	3/26/20 3:25PM
[signature]	3/26/20 5:17 PM	DCS	[signature] EC-IRV	3/26/20 1717

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements. (Check)
No Level IV: ____ All Level IV: __X__

1.3/1.3 IR89
0.8/0.8
2.8/2.8

2019-2020 Rainy Season
Version 2

4/7/2020

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	**Project** Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact. Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	**Project Manager.** Katherine Miller 520.289.8606, 520.904.6944 (cell)
Sampler: Dan Smith	**Field Manager:** Mark Dominick 978 234 5033, 818 599.0702 (cell)

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R Total Dissolved Metals, (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	R Cyanide (SM4500-CN-E / E335 2)	R Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 226 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	R Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	R Total Dissolved Metals Mercury (E245 1)	C [illegible]	Comments
Outfall 018	Outfall018_20200326_Comp_F	3/26/2020 1400	WM	1L Poly	1	None	200	No	X					X [illegible] RH
			WM	borosilicate vials	1	None	320	No					X	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200326_Comp	3/26/2020 1400	WM	500 mL Poly	1	NaOH	220	No		X				
			WM	2 5 Gal Cube	1	None	225	No			X			Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No						
			~~WM~~	~~1 Gal Cube~~	~~0~~	~~None~~	~~235~~	~~No~~						[illegible] RH

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-26-2020/1525	H,A	[signature]	3/26/20 3:25PM
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3/26/20 5:17 PM	DCS	[signature] EC-IRV	3/26/20 1757

Turn-around time (Check)
24 Hour _____ 72 Hour _____ 10 Day __X__
48 Hour _____ 5 Day _____ Normal _____

Sample integrity (Check)
Intact _____ On Ice _____
Store samples for 6 months
Data Requirements (Check)
No Level IV _____ All Level IV __X__

1.3/1.3
0.8/0.8
2.8/2.8

12.50

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154474.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263671-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/7/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Cs/Fil_Geo_0 K-40 and Cesium-137	A01R_U/ExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall018_20200326_Comp (440-263671-1)	3/26/20	14:00 Pacific		Water			X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Teresa Ortiz	03.27.20 1600	ECIRV	FED EX		
2	FED EX				3/29/2020 0825	ETA SFL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks

Ver: 01/16/2019

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
St. Louis

CONDITION UPON RECEIPT FORM

Client: ETA Irvine

Initiated by: LAM Date: 3/28/2020 Time: 0825 Shipper: FedEx Package Quantity: 1

**Sample must be received at < 6°. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids.
If samples are from West Virginia, temperature of EVERY SAMPLE that is temperature critical must be recorded on the COC.

	Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1.	1540 4107 4998	192588461	-1.0	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable).

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y (N) N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #:
4.	(Y) N	Sample received with Chain of Custody?	11.	(Y) N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, Oil & Grease, Rn-222 and soils.

Notes:
Cubitainer was received unpreserved; HNO_3 (6mL) added in lab

pH Adjustment (if needed)

Initial pH and pH strip lot#: HC904495
Final pH and pH strip lot#: HC904495

Date/Time of Preservation: 3/30/2020 11:30
Preservative and lot#: HNO_3 / 244827
Amount of Preservative: 6mL

Sample Labels Applied By:

Labels 2nd Reviewed By:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154470.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-263671-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/7/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	1613B/1613B_Sox_Sep_P Standard List w/ Totals (Hold)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Outfall018_20200326_Comp (440-263671-1)	3/26/20	14:00 Pacific		Water			X		2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.
Outfall018_20200326_Comp_Extra (440-263671-2)	3/26/20	14:00 Pacific		Water				X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Teresa Ortiz	03.27.20 1700	ECI RV		3/28/20 - 925	GTA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263671-1

Login Number: 263671
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263671-1

Login Number: 263671
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/28/20 11:08 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-263671-1	Outfall018_20200326_Comp	76	72	65	68	71	79	76	79
MB 320-368628/1-A	Method Blank	73	71	60	62	68	72	70	72

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-263671-1	Outfall018_20200326_Comp	77	75	75	85	87	89	66
MB 320-368628/1-A	Method Blank	70	69	71	71	78	78	53

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-368628/2-A	Lab Control Sample	69	67	57	59	64	66	70	68

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-368628/2-A	Lab Control Sample	67	68	68	73	75	78	55

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-1

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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Sacramento
Sample Receiving Notes


440-263671 Field Sheet

Tracking # : 1540-4107-4976

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: IR/Skin Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 1.6 °C Corrected: 1.6 °C

From: Temp Blank ☐ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: JG Date: 3/28/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/28/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W4-A

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263671-2
Client Project/Site: Routine Outfall 018 Comp

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
4/22/2020 12:19:21 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/22/2020 12:19:21 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263671-1	Outfall018_20200326_Comp	Water	03/26/20 14:00	03/26/20 17:17	

Job ID: 440-263671-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-263671-2

Comments
No additional comments.

Receipt
The samples were received on 3/26/2020 5:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.8º C, 1.3º C and 2.8º C.

RAD
Method 900.0: Gross Alpha-Beta Prep Batch 160-466162
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200326_Comp (440-263671-1), (LCS 160-466162/2-A), (LCSB 160-466162/3-A), (MB 160-466162/1-A), (180-104003-A-1-A), (180-104003-A-1-D DU), (180-104003-A-1-B MS) and (180-104003-A-1-C MSBT)

Method 901.1: Gamma Prep Batch 160-466110
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Outfall018_20200326_Comp (440-263671-1), (LCS 160-466110/2-A), (MB 160-466110/1-A) and (440-263671-R-1-B DU)

Methods 903.0, 9315: Ra-226 Prep Batch 160-466129
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Job ID: 440-263671-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200326_Comp (440-263671-1), (LCS 160-466129/1-A), (MB 160-466129/23-A), (680-182049-O-1-A) and (680-182049-P-1-A DU)

Methods 904.0, 9320: Ra-228 Prep Batch 160-466130
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200326_Comp (440-263671-1), (LCS 160-466130/1-A), (MB 160-466130/23-A), (680-182049-O-1-B) and (680-182049-P-1-B DU)

Method 905: Strontium-90 Prep Batch 160-466458
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200326_Comp (440-263671-1), (LCS 160-466458/1-A), (LCSD 160-466458/2-A) and (MB 160-466458/6-A)

Method 906.0: LSC Tritium Prep Batch 160-467441

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall018_20200326_Comp (440-263671-1), (LCS 160-467441/2-A), (MB 160-467441/1-A), (440-263409-I-1-A), (440-263409-E-1-D MS) and (440-263409-E-1-E MSD)

Methods A-01-R, U-02-RC: Isotopic Uranium Prep Batch 160-466471
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
Outfall018_20200326_Comp (440-263671-1), (LCS 160-466471/2-A), (MB 160-466471/1-A), (480-167793-A-21-A) and (480-167793-A-21-B DU)

Method Evaporation: Gross Alpha/Beta preparation batch 160-466162

The following samples had additional volume added to reach target mass and efficiency Outfall018_20200326_Comp (440-263671-1). The total sample volume is reflected in the initial amount field.

Method PrecSep-7: Strontium 90 Prep Batch 160-466458:

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall018_20200326_Comp (440-263671-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Outfall018_20200326_Comp

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-1

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.190	U	1.23	1.23	3.00	2.44	pCi/L	03/31/20 09:21	04/09/20 05:52	1
Gross Beta	**1.79**		0.657	0.681	4.00	0.886	pCi/L	03/31/20 09:21	04/09/20 05:52	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.79	U	5.70	5.70	20.0	7.42	pCi/L	03/30/20 14:15	03/31/20 15:01	1
Potassium-40	6.71	U	80.4	80.4		151	pCi/L	03/30/20 14:15	03/31/20 15:01	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0757	U	0.136	0.136	1.00	0.242	pCi/L	03/30/20 18:01	04/21/20 08:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.3*		*40 - 110*	*03/30/20 18:01*	*04/21/20 08:01*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.427	U	0.278	0.280	1.00	0.430	pCi/L	03/30/20 18:21	04/20/20 17:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.3*		*40 - 110*	*03/30/20 18:21*	*04/20/20 17:44*	*1*
Y Carrier	*83.7*		*40 - 110*	*03/30/20 18:21*	*04/20/20 17:44*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	**0.376**		0.188	0.191	3.00	0.277	pCi/L	04/01/20 10:19	04/17/20 12:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*85.7*		*40 - 110*	*04/01/20 10:19*	*04/17/20 12:09*	*1*
Y Carrier	*92.0*		*40 - 110*	*04/01/20 10:19*	*04/17/20 12:09*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	81.1	U	167	167	500	288	pCi/L	04/12/20 10:05	04/15/20 04:51	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	**0.164**		0.1186	0.1190	1.00	0.133	pCi/L	04/01/20 15:06	04/03/20 14:56	1

Client Sample ID: Outfall018_20200326_Comp
Lab Sample ID: 440-263671-1
Date Collected: 03/26/20 14:00
Matrix: Water
Date Received: 03/26/20 17:17

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	91.1		30 - 110	04/01/20 15:06	04/03/20 14:56	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
Evaporation	Preparation, Evaporation	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-2

Client Sample ID: Outfall018_20200326_Comp

Date Collected: 03/26/20 14:00
Date Received: 03/26/20 17:17

Lab Sample ID: 440-263671-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.60 mL	1.0 g	466162	03/31/20 09:21	RJD	TAL SL
Total/NA	Analysis	900.0		1			467299	04/09/20 05:52	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	466110	03/30/20 14:15	MLG	TAL SL
Total/NA	Analysis	901.1		1			466138	03/31/20 15:01	KLS	TAL SL
Total/NA	Prep	PrecSep-21			999.69 mL	1.0 g	466129	03/30/20 18:01	MNH	TAL SL
Total/NA	Analysis	903.0		1			468420	04/21/20 08:01	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			999.69 mL	1.0 g	466130	03/30/20 18:21	MNH	TAL SL
Total/NA	Analysis	904.0		1			468134	04/20/20 17:44	KLS	TAL SL
Total/NA	Prep	PrecSep-7			1000.69 mL	1.0 g	466458	04/01/20 10:19	RBR	TAL SL
Total/NA	Analysis	905		1			468030	04/17/20 12:09	KRR	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.1 mL	1.0 g	467441	04/12/20 10:05	MMO	TAL SL
Total/NA	Analysis	906.0		1			467877	04/15/20 04:51	JS	TAL SL
Total/NA	Prep	ExtChrom			500.23 mL	1.0 mL	466471	04/01/20 15:06	MNH	TAL SL
Total/NA	Analysis	A-01-R		1			466822	04/03/20 14:56	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-466162/1-A
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466162

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.1756	U	0.830	0.831	3.00	1.51	pCi/L	03/31/20 09:21	04/09/20 05:50	1
Gross Beta	-0.06726	U	0.478	0.478	4.00	0.870	pCi/L	03/31/20 09:21	04/09/20 05:50	1

Lab Sample ID: LCS 160-466162/2-A
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466162

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	49.6	39.91		6.26	3.00	1.89	pCi/L	81	75 - 125

Lab Sample ID: LCSB 160-466162/3-A
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466162

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	84.5	75.18		8.05	4.00	0.801	pCi/L	89	75 - 125

Lab Sample ID: 180-104003-A-1-B MS
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466162

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	0.306	U	50.0	40.59		7.03	3.00	2.81	pCi/L	81	60 - 140

Lab Sample ID: 180-104003-A-1-C MSBT
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466162

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	3.33		85.3	93.96		9.95	4.00	0.875	pCi/L	106	60 - 140

Lab Sample ID: 180-104003-A-1-D DU
Matrix: Water
Analysis Batch: 467299

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 466162

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	0.306	U	0.4801	U	1.38	3.00	2.56	pCi/L	0.07	1
Gross Beta	3.33		3.023		0.853	4.00	0.976	pCi/L	0.17	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-466110/1-A
Matrix: Water
Analysis Batch: 466139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466110

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.2476	U	13.6	13.6	20.0	17.0	pCi/L	03/30/20 14:15	03/31/20 13:52	1
Potassium-40	46.74	U	103	103		178	pCi/L	03/30/20 14:15	03/31/20 13:52	1

Lab Sample ID: LCS 160-466110/2-A
Matrix: Water
Analysis Batch: 466138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466110

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	133200		15400		408	pCi/L	98	90 - 111
Cesium-137	43800	43240		4340	20.0	125	pCi/L	99	90 - 111
Cobalt-60	26400	25660		2540		63.8	pCi/L	97	89 - 110

Lab Sample ID: 440-263671-1 DU
Matrix: Water
Analysis Batch: 466137

Client Sample ID: Outfall018_20200326_Comp
Prep Type: Total/NA
Prep Batch: 466110

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	2.79	U	2.109	U	9.47	20.0	11.9	pCi/L	0.04	1
Potassium-40	6.71	U	19.98	U	146		197	pCi/L	0.06	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-466129/23-A
Matrix: Water
Analysis Batch: 468420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466129

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03090	U	0.129	0.129	1.00	0.250	pCi/L	03/30/20 18:01	04/21/20 10:27	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*40 - 110*	*03/30/20 18:01*	*04/21/20 10:27*	*1*

Lab Sample ID: LCS 160-466129/1-A
Matrix: Water
Analysis Batch: 468420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466129

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	11.22		1.42	1.00	0.362	pCi/L	99	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.4*		*40 - 110*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 680-182049-P-1-A DU
Matrix: Water
Analysis Batch: 468420

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 466129

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.131	U		0.2043	U	0.208	1.00	0.325	pCi/L			0.17	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*79.2*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-466130/23-A
Matrix: Water
Analysis Batch: 468147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466130

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1791	U	0.212	0.212	1.00	0.349	pCi/L	03/30/20 18:21	04/20/20 17:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*40 - 110*	*03/30/20 18:21*	*04/20/20 17:50*	*1*
Y Carrier	*87.5*		*40 - 110*	*03/30/20 18:21*	*04/20/20 17:50*	*1*

Lab Sample ID: LCS 160-466130/1-A
Matrix: Water
Analysis Batch: 468134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466130

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.91	9.868		1.18	1.00	0.540	pCi/L	111	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.4*		*40 - 110*
Y Carrier	*85.2*		*40 - 110*

Lab Sample ID: 680-182049-P-1-B DU
Matrix: Water
Analysis Batch: 468134

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 466130

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.315	U		0.5949		0.367	1.00	0.563	pCi/L			0.39	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*79.2*		*40 - 110*
Y Carrier	*86.0*		*40 - 110*

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-466458/6-A
Matrix: Water
Analysis Batch: 468030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466458

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.1032	U	0.153	0.154	3.00	0.290	pCi/L	04/01/20 10:19	04/17/20 12:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*88.9*		*40 - 110*	*04/01/20 10:19*	*04/17/20 12:09*	*1*
Y Carrier	*94.6*		*40 - 110*	*04/01/20 10:19*	*04/17/20 12:09*	*1*

Lab Sample ID: LCS 160-466458/1-A
Matrix: Water
Analysis Batch: 468030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466458

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			7.88	7.647		0.802	3.00	0.271	pCi/L	97	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*91.5*		*40 - 110*
Y Carrier	*92.0*		*40 - 110*

Lab Sample ID: LCSD 160-466458/2-A
Matrix: Water
Analysis Batch: 468030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 466458

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90			7.88	7.852		0.835	3.00	0.308	pCi/L	100	75 - 125	0.13	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Sr Carrier	*88.9*		*40 - 110*
Y Carrier	*86.4*		*40 - 110*

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-467441/1-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467441

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	232.9	U	182	183	500	282	pCi/L	04/12/20 10:05	04/15/20 02:12	1

Lab Sample ID: LCS 160-467441/2-A
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467441

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2470	2679		430	500	289	pCi/L	108	75 - 114		

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-263409-E-1-D MS
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	40.1	U	2470	2782		444	500	295	pCi/L	111	67 - 130		

Lab Sample ID: 440-263409-E-1-E MSD
Matrix: Water
Analysis Batch: 467877

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467441

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	40.1	U	2480	2877		454	500	299	pCi/L	115	67 - 130	0.11	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-466471/1-A
Matrix: Water
Analysis Batch: 466828

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466471

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.1021		0.08259	0.08285	1.00	0.0863	pCi/L	04/01/20 15:06	04/03/20 14:56	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*95.6*		*30 - 110*	*04/01/20 15:06*	*04/03/20 14:56*	*1*

Lab Sample ID: LCS 160-466471/2-A
Matrix: Water
Analysis Batch: 466827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466471

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			12.7	12.87		1.33	1.00	0.0933	pCi/L	101	75 - 125		
Uranium-238			13.0	12.96		1.34	1.00	0.0639	pCi/L	100	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*72.6*		*30 - 110*

Lab Sample ID: 480-167793-A-21-B DU
Matrix: Water
Analysis Batch: 466823

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 466471

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Total Uranium	0.913			0.9912		0.238	1.00	0.118	pCi/L			0.17	1

Tracer	*DU %Yield*	*DU Qualifier*	*Limits*
Uranium-232	*69.5*		*30 - 110*

Rad

Prep Batch: 466110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-466110/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-466110/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-263671-1 DU	Outfall018_20200326_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 466129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	PrecSep-21	
MB 160-466129/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-466129/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
680-182049-P-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 466130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	PrecSep_0	
MB 160-466130/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-466130/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
680-182049-P-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 466162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	Evaporation	
MB 160-466162/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-466162/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-466162/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
180-104003-A-1-B MS	Matrix Spike	Total/NA	Water	Evaporation	
180-104003-A-1-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
180-104003-A-1-D DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 466458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	PrecSep-7	
MB 160-466458/6-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-466458/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-466458/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 466471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	ExtChrom	
MB 160-466471/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-466471/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
480-167793-A-21-B DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 467441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-263671-1	Outfall018_20200326_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-467441/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-467441/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-263409-E-1-D MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-263409-E-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263671-2
Project/Site: Routine Outfall 018 Comp

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Test America

CHAIN OF CUSTODY FORM

440-263671 Chain of Custody

3/26/20 LD

Client Name/Address:	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2020 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Project Manager: Katherine Miller 520.289.8606, 520.904 6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818 599 0702 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc	
Sampler: Dan Smith	

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED R: Total Recoverable Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	R: TCDD (and all congeners) (E1613B)	R: BOD5 (20 degrees C) (E405 1(SM5210B_BODCalc))	R: Surfactants (MBAS) (SM5540C/E425 1)	R: Cl, SO_4, Nitrate-N, Nitrite-N, NO3+NO2:N, Perchlorate (E300)	R: Turbidity, TDS (SM2540C/E180 1)	R: TSS (160 2 (SM2540D))	R: Ammonia-N (350 2)	R: alpha-BHC (E608)	R: 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	R: Total Recoverable Metals Mercury (E245 1)	C	Comments
Outfall 018	Outfall018_20200326_Comp	3/26/2020 1400	WM	500 mL Poly	1	HNO_3	90	No	X										X	X	[redacted] RH
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	130	No					X								48 hours Holding Time NO_3 & NO_2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	170	No									X				
			WM	1 L Glass Amber	2	None	180	No										X			
			WM	1L Poly	1	None	185	No							X						
	Outfall018_20200326_Comp_Extra	3/26/2020 1400	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	130	No					H								Hold
			WM	1 L Glass Amber	2	None	170	No									H				Hold
			WM	1 L Glass Amber	2	None	180	No										H			Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-26-2020/1525	17:A	[signature]	3/26/20 3:25pm
Relinquished By	Date/Time	Company	Received By	Date/Time
Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3/26/20 5:17 PM	DCS	[signature] EC-IRV	3/26/20 1717

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements. (Check)
No Level IV ____ All Level IV __X__

1.3/1.3 IRV
0.8/0.8
2.9/2.8

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact. Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel. 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc

Sampler: Dan Smith

Project
Boeing-SSFL NPDES
Permit 2020
Routine Outfall [001, 002, 011, 018]
Outfall 018
Comp

Project Manager. Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978 234 5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals. (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (R)	Cyanide (SM4500-CN-E / E335 2) (R)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1) (R)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) (R)	Total Dissolved Metals Mercury (E245 1) (R)	[illegible] (C)						Comments
Outfall 018	Outfall018_20200326_Comp_F	3/26/2020 /1400	WM	1L Poly	1	None	200	No	X					X						[illegible] RH
			WM	borosilicate vials	1	None	320	No					X							Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall018_20200326_Comp	3/26/2020 /1400	WM	500 mL Poly	1	NaOH	220	No		X										
			WM	2 5 Gal Cube	1	None	225	No			X									Unfiltered and unpreserved analysis Separate RAD onto another workorder Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No												
			~~WM~~	~~1 Gal Cube~~	~~0~~	~~None~~	~~235~~	~~No~~												~~Only [illegible] first or second [illegible] of the year. Deliver to ABC Labs in Ventura CA~~ RH

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-26-2020 /1525	H&A	[signature]	3/26/20 3:25 PM
[signature]	3/26/20 5:17 PM	DCS	[signature] EC-IRV	3/26/20 1777

Turn-around time (Check)
24 Hour ____ 72 Hour ____ 10 Day __X__
48 Hour ____ 5 Day ____ Normal ____

Sample integrity (Check)
Intact ____ On Ice ____
Store samples for 6 months
Data Requirements (Check)
No Level IV ____ All Level IV __X__

1.3/1.3
0.8/0.8
2.8/2.8
IR EO

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263671-2

Login Number: 263671
List Number: 1
Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263671-2

Login Number: 263671
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/30/20 11:16 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	The cubitainer was received unpreserved; preserved by laboratory to proper pH.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 018 Comp

Job ID: 440-263671-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
440-263671-1	Outfall018_20200326_Comp	93.3
680-182049-P-1-A DU	Duplicate	79.2
LCS 160-466129/1-A	Lab Control Sample	84.4
MB 160-466129/23-A	Method Blank	95.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
440-263671-1	Outfall018_20200326_Comp	93.3	83.7
680-182049-P-1-B DU	Duplicate	79.2	86.0
LCS 160-466130/1-A	Lab Control Sample	84.4	85.2
MB 160-466130/23-A	Method Blank	95.1	87.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr Carrier (40-110)	Y Carrier (40-110)
440-263671-1	Outfall018_20200326_Comp	85.7	92.0
LCS 160-466458/1-A	Lab Control Sample	91.5	92.0
LCSD 160-466458/2-A	Lab Control Sample Dup	88.9	86.4
MB 160-466458/6-A	Method Blank	88.9	94.6

Tracer/Carrier Legend

Sr Carrier = Sr Carrier

Y Carrier = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	ranium-23 (30-110)
440-263671-1	Outfall018_20200326_Comp	91.1
480-167793-A-21-B DU	Duplicate	69.5
LCS 160-466471/2-A	Lab Control Sample	72.6
MB 160-466471/1-A	Method Blank	95.6

Tracer/Carrier Legend

Uranium-232 = Uranium-232

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-262953-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

16 April 2020

MEC^X, Inc.
12269 East Vassar Drive
Aurora, Colorado 80014
www.mecx.net

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TABLES

1 – Sample Identification

2 – Data Qualifier Reference

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I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003D.01 002

Sample Delivery Group: 440-262953-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: II

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
ARROYO SIMI_20200313_GRAB	440-262953-1	N/A	Water	3/13/20 10:30 AM	E1613B

II. SAMPLE MANAGEMENT

According to the case narrative, Login Sample Receipt Checklists and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-262953-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine. No evidence of tampering was noted. The Login Sample Receipt Checklist indicated a custody seal was present (but with no number) upon receipt at TA-Sacramento. The client sample ID on the transfer COC was incorrect but was corrected for reporting purposes. (The client sample ID included the initials of the sampler where part of the sample ID was crossed out.)
- The case narrative indicated the site sample was received in wide-mouth amber glass bottles, and slightly less sample volume (956.2 milliliters) was available for extraction.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. EPA METHOD 1613B — DIOXIN/FURANS

E. Wessling of MEC[X] reviewed the SDG on April 16, 2020.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans* (DVP-19, Rev. 0), *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were not evaluated during a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated during a Stage II validation.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit (RL) for isomers 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, OCDD and OCDF, and for totals HxCDD, HxCDF and HpCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The method blank results were insufficient to qualify the detects for OCDD, OCDF and 1,2,3,4,6,7,8-HpCDD. The reviewer compared concentrations comprising the isomer to those in the sample totals. Sample totals were qualified as estimated (J), as only a portion of the total was determined to be method blank contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.

III.5. FIELD QC SAMPLES

MEC[X] evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were not evaluated during a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated during a Stage II validation. With the exception of estimated maximum possible concentrations (EMPCs), detected compounds met the ion abundance ratio, retention time window and signal-to-noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not required, as 2,3,7,8-TCDF was not detected in the initial analysis of the sample.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated during a Stage II validation. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

As noted in the case narrative, RLs and EDLs were slightly elevated due to somewhat limited sample volume. Rather than approximately 1000 milliliters (ml), a 956 ml sample volume was available for extraction.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Isomers 1,2,3,4,7,8,9-HpCDF and 1,2,3,4,7,8-HxCDF reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The totals for HpCDF, HxCDD and HxCDF included one or more EMPC peaks and were therefore qualified as estimated (J).

Validated Sample Result Forms: 4402629531

Analysis Method E1613B

Sample Name ARROYO SIMI_20200313_GRAB **Matrix Type:** W **Result Type:** TRG

Sample Date: 3/13/2020 10:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-262953-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.00012	0.00010	0.0000012	ug/L	MB		
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00050	0.00010	0.0000016	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000040	0.000052	0.0000016	ug/L	J,DX	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000067	0.000052	0.00000069	ug/L	MB		
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000027	0.000052	0.0000017	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000020	0.000052	0.00000069	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000036	0.000052	0.0000013	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000023	0.000052	0.00000075	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000035	0.000052	0.0000015	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000019	0.000052	0.00000073	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000039	0.000052	0.0000013	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000052	0.00000093	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.0000012	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000017	0.000052	0.00000072	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000052	0.00000099	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000023	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000099	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000083	0.000052	0.0000016	ug/L	q	J	*III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.00012	0.000052	0.00000069	ug/L	MB		
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000028	0.000052	0.00000069	ug/L	J,DXqMB	J	B, *III, DNQ
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000018	0.000052	0.0000013	ug/L	J,DXqMB	J	B, *III, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000052	0.00000093	ug/L	U	U	

Analysis Method	*E1613B*							
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000052	0.0000012	ug/L	U	**U**
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000023	ug/L	U	**U**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000099	ug/L	U	**U**

ANALYTICAL REPORT

Eurofins Calscience Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-262953-1
Client Project/Site: Annual Arroyo Semi-Frontier Park

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/7/2020 3:24:03 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 3:24:03 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-262953-1	Arroyo Simi_20200313_Grab	Water	03/13/20 10:30	03/13/20 15:30	

Job ID: 440-262953-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-262953-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.6º C, 0.7º C, 1.0º C and 1.1º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for 440-601798 contained Magnesium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep
Method 1613B: Elevated reporting limits are provided for the following sample due to insufficient sample provided for 1613B_Sox_Sep_P preparation/analysis: Samples Arroyo Simi_20200313_Grab (440-262953-1) were received in wide-mouth amber glass bottles.

preparation batch 320-365527
Method: 1613B_Sox_Sep_P / 1613B
Matrix: Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method PCB-LL- Lancaster Labs: This method was subcontracted to Eurofins Lancaster Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Weck- 525.2: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Arroyo Simi_20200313_Grab

Date Collected: 03/13/20 10:30
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262953-1

Matrix: Water

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.083	ug/L		03/16/20 06:00	03/16/20 19:21	1
Dieldrin	ND		0.0052	0.0021	ug/L		03/16/20 06:00	03/16/20 19:21	1
Toxaphene	ND		0.52	0.25	ug/L		03/16/20 06:00	03/16/20 19:21	1
4,4'-DDD	ND		0.0052	0.0041	ug/L		03/16/20 06:00	03/16/20 19:21	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		03/16/20 06:00	03/16/20 19:21	1
4,4'-DDT	ND		0.010	0.0041	ug/L		03/16/20 06:00	03/16/20 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*50*		*10 - 104*	*03/16/20 06:00*	*03/16/20 19:21*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000099	ug/L		03/18/20 08:33	03/21/20 15:32	1
2,3,7,8-TCDF	ND		0.000010	0.00000023	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,7,8-PeCDD	ND		0.000052	0.0000012	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,7,8-PeCDF	ND		0.000052	0.00000093	ug/L		03/18/20 08:33	03/21/20 15:32	1
2,3,4,7,8-PeCDF	ND		0.000052	0.00000099	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,4,7,8-HxCDD	**0.0000036**	**J,DX MB**	0.000052	0.0000013	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,6,7,8-HxCDD	**0.0000035**	**J,DX**	0.000052	0.0000015	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,7,8,9-HxCDD	**0.0000039**	**J,DX**	0.000052	0.0000013	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,4,7,8-HxCDF	**0.0000020**	**J,DX q**	0.000052	0.00000069	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,6,7,8-HxCDF	**0.0000023**	**J,DX**	0.000052	0.00000075	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,7,8,9-HxCDF	**0.0000019**	**J,DX MB**	0.000052	0.00000073	ug/L		03/18/20 08:33	03/21/20 15:32	1
2,3,4,6,7,8-HxCDF	**0.0000017**	**J,DX**	0.000052	0.00000072	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,4,6,7,8-HpCDD	**0.000067**	**MB**	0.000052	0.00000069	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,4,6,7,8-HpCDF	**0.000040**	**J,DX**	0.000052	0.0000016	ug/L		03/18/20 08:33	03/21/20 15:32	1
1,2,3,4,7,8,9-HpCDF	**0.0000027**	**J,DX q**	0.000052	0.0000017	ug/L		03/18/20 08:33	03/21/20 15:32	1
OCDD	**0.00050**	**MB**	0.00010	0.0000016	ug/L		03/18/20 08:33	03/21/20 15:32	1
OCDF	**0.00012**	**MB**	0.00010	0.0000012	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total TCDD	ND		0.000010	0.00000099	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total TCDF	ND		0.000010	0.00000023	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total PeCDD	ND		0.000052	0.0000012	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total PeCDF	ND		0.000052	0.00000093	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total HxCDD	**0.000018**	**J,DX q MB**	0.000052	0.0000013	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total HxCDF	**0.000028**	**J,DX q MB**	0.000052	0.00000069	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total HpCDD	**0.00012**	**MB**	0.000052	0.00000069	ug/L		03/18/20 08:33	03/21/20 15:32	1
Total HpCDF	**0.000083**	**q**	0.000052	0.0000016	ug/L		03/18/20 08:33	03/21/20 15:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*44*		*25 - 164*	*03/18/20 08:33*	*03/21/20 15:32*	*1*

Client Sample ID: Arroyo Simi_20200313_Grab
Lab Sample ID: 440-262953-1
Date Collected: 03/13/20 10:30
Matrix: Water
Date Received: 03/13/20 15:30

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	50		24 - 169	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,7,8-PeCDD	39		25 - 181	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,7,8-PeCDF	41		24 - 185	03/18/20 08:33	03/21/20 15:32	1
13C-2,3,4,7,8-PeCDF	46		21 - 178	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,4,7,8-HxCDD	46		32 - 141	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,6,7,8-HxCDD	41		28 - 130	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,6,7,8-HxCDF	45		26 - 123	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,7,8,9-HxCDF	46		29 - 147	03/18/20 08:33	03/21/20 15:32	1
13C-2,3,4,6,7,8-HxCDF	48		28 - 136	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,4,6,7,8-HpCDD	41		23 - 140	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,4,6,7,8-HpCDF	40		28 - 143	03/18/20 08:33	03/21/20 15:32	1
13C-1,2,3,4,7,8,9-HpCDF	44		26 - 138	03/18/20 08:33	03/21/20 15:32	1
13C-OCDD	37		17 - 157	03/18/20 08:33	03/21/20 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	72		35 - 197	03/18/20 08:33	03/21/20 15:32	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	87		0.33	0.17	mg/L			03/15/20 17:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	17		2.0	1.0	mg/L			03/19/20 16:45	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

Method	Method Description	Protocol	Laboratory
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
Subcontract	PCB-LL- Lancaster Labs	None	ELLE
Subcontract	9221F- E. Coli	None	Enthalpy
Subcontract	Weck- 525.2	None	Weck Lab
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

ELLE = Eurofins Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300
Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

Client Sample ID: Arroyo Simi_20200313_Grab

Date Collected: 03/13/20 10:30
Date Received: 03/13/20 15:30

Lab Sample ID: 440-262953-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			965 mL	2 mL	600622	03/16/20 06:00	L1H	TAL IRV
Total/NA	Analysis	608.3		1			600741	03/16/20 19:21	D1D	TAL IRV
Total/NA	Prep	1613B			956.2 mL	20 uL	365527	03/18/20 08:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			366401	03/21/20 15:32	AS	TAL SAC
Total Recoverable	Analysis	SM 2340B		1			600047	03/15/20 17:49	P1R	TAL IRV
Total/NA	Analysis	SM 2540D		1	500 mL	1000 mL	601515	03/19/20 16:45	KL	TAL IRV

Laboratory References:

ELLE = Eurofins Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300
Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868
TAL IRV = Eurofins Calscience Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-600622/1-A
Matrix: Water
Analysis Batch: 600741

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		03/16/20 06:00	03/16/20 16:50	1
Dieldrin	ND		0.0050	0.0020	ug/L		03/16/20 06:00	03/16/20 16:50	1
Toxaphene	ND		0.50	0.24	ug/L		03/16/20 06:00	03/16/20 16:50	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		03/16/20 06:00	03/16/20 16:50	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		03/16/20 06:00	03/16/20 16:50	1
4,4'-DDT	ND		0.010	0.0040	ug/L		03/16/20 06:00	03/16/20 16:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*10 - 104*	*03/16/20 06:00*	*03/16/20 16:50*	*1*

Lab Sample ID: LCS 440-600622/2-A
Matrix: Water
Analysis Batch: 600741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	0.400	0.335		ug/L		84	36 - 146
4,4'-DDD	0.400	0.350		ug/L		87	31 - 141
4,4'-DDE	0.400	0.334		ug/L		83	30 - 145
4,4'-DDT	0.400	0.355		ug/L		89	25 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*75*		*10 - 104*

Lab Sample ID: 440-262952-B-4-A MS
Matrix: Water
Analysis Batch: 600741

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 600622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	ND		0.379	0.267		ug/L		70	36 - 146
4,4'-DDD	ND		0.379	0.249		ug/L		66	31 - 141
4,4'-DDE	ND		0.379	0.250		ug/L		66	30 - 145
4,4'-DDT	ND		0.379	0.252		ug/L		66	25 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*79*		*10 - 104*

Lab Sample ID: 440-262952-B-4-B MSD
Matrix: Water
Analysis Batch: 600741

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 600622

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dieldrin	ND		0.377	0.279		ug/L		74	36 - 146	4	49
4,4'-DDD	ND		0.377	0.257		ug/L		68	31 - 141	3	39
4,4'-DDE	ND		0.377	0.255		ug/L		68	30 - 145	2	35
4,4'-DDT	ND		0.377	0.256		ug/L		68	25 - 160	1	42

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-262952-B-4-B MSD
Matrix: Water
Analysis Batch: 600741

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 600622

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	*72*		*10 - 104*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-365527/1-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 365527

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,7,8-TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8-PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,7,8-PeCDF	ND		0.000050	0.00000068	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDD	0.00000318	J,DX	0.000050	0.0000010	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000012	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.00000070	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.00000073	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,7,8,9-HxCDF	0.00000180	J,DX	0.000050	0.00000076	ug/L		03/18/20 08:33	03/21/20 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDD	0.00000587	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000014	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDD	0.0000202	J,DX	0.00010	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1
OCDF	0.00000627	J,DX	0.00010	0.0000011	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDD	ND		0.000010	0.00000083	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total TCDF	ND		0.000010	0.00000024	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDD	ND		0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total PeCDF	ND		0.000050	0.00000066	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDD	0.00000318	J,DX	0.000050	0.00000099	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HxCDF	0.00000180	J,DX	0.000050	0.00000069	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDD	0.0000101	J,DX	0.000050	0.00000034	ug/L		03/18/20 08:33	03/21/20 08:20	1
Total HpCDF	ND		0.000050	0.0000013	ug/L		03/18/20 08:33	03/21/20 08:20	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,7,8-TCDF	81		24 - 169	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDD	63		25 - 181	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDD	74		32 - 141	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,6,7,8-HxCDF	74		26 - 123	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/18/20 08:33	03/21/20 08:20	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	03/18/20 08:33	03/21/20 08:20	1
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/18/20 08:33	03/21/20 08:20	1
13C-OCDD	50		17 - 157	03/18/20 08:33	03/21/20 08:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/18/20 08:33	03/21/20 08:20	1

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000234		ug/L		117	67 - 158
2,3,7,8-TCDF	0.000200	0.000262		ug/L		131	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00111		ug/L		111	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00123		ug/L		123	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00114		ug/L		114	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00112		ug/L		112	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00102		ug/L		102	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00110		ug/L		110	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00119		ug/L		119	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00120	MB	ug/L		120	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00117		ug/L		117	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000997	MB	ug/L		100	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00108		ug/L		108	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00102		ug/L		102	78 - 138
OCDD	0.00200	0.00201	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00231	MB	ug/L		115	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	75		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	74		13 - 328
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	79		19 - 202

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-365527/2-A
Matrix: Water
Analysis Batch: 366401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 365527

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,6,7,8-HxCDF	*71*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*69*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*75*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*63*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*68*		*20 - 186*
13C-OCDD	*52*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*81*		*31 - 191*

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-601515/1
Matrix: Water
Analysis Batch: 601515

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/19/20 16:45	1

Lab Sample ID: LCS 440-601515/2
Matrix: Water
Analysis Batch: 601515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			1000	1020		mg/L		102	85 - 115		

Lab Sample ID: 440-263249-A-1 DU
Matrix: Water
Analysis Batch: 601515

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	20			21.3		mg/L				6	10

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

GC Semi VOA

Prep Batch: 600622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total/NA	Water	608	
MB 440-600622/1-A	Method Blank	Total/NA	Water	608	
LCS 440-600622/2-A	Lab Control Sample	Total/NA	Water	608	
440-262952-B-4-A MS	Matrix Spike	Total/NA	Water	608	
440-262952-B-4-B MSD	Matrix Spike Duplicate	Total/NA	Water	608	

Analysis Batch: 600741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total/NA	Water	608.3	600622
MB 440-600622/1-A	Method Blank	Total/NA	Water	608.3	600622
LCS 440-600622/2-A	Lab Control Sample	Total/NA	Water	608.3	600622
440-262952-B-4-A MS	Matrix Spike	Total/NA	Water	608.3	600622
440-262952-B-4-B MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	600622

Specialty Organics

Prep Batch: 365527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total/NA	Water	1613B	
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 366401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total/NA	Water	1613B	365527
MB 320-365527/1-A	Method Blank	Total/NA	Water	1613B	365527
LCS 320-365527/2-A	Lab Control Sample	Total/NA	Water	1613B	365527

Metals

Analysis Batch: 600047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 601515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-262953-1	Arroyo Simi_20200313_Grab	Total/NA	Water	SM 2540D	
MB 440-601515/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-601515/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-263249-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262953-1
Project/Site: Annual Arroyo Semi-Frontier Park

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 0C13077

Project: [none]

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 3/23/2020
Received Date: 3/13/2020
Turnaround Time: 1 workday
Phones: (949) 261-1022
Fax: (949) 260-3297
P.O. #:
Billing Code:

Dear TestAmerica, Irvine,

Enclosed are the results of analyses for samples received 3/13/20 with the Chain-of-Custody document. The samples were received in good condition, at 9.7 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Arroyo Simi 20200313-Grab
0C13077-01 (Water)

Sampled: 03/13/20 10:30 by Dan Smith

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M **Batch ID:** W0C0811 **Instr:** GCMS13 **Prepared:** 03/13/20 15:36 **Analyst:** EFC							
Chlorpyrifos	ND	6.9	10	ng/l	1	03/19/20	
Diazinon	ND	5.2	10	ng/l	1	03/19/20	
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*88%*		*76-128*	*Conc: 440*		*03/19/20*	
Triphenyl phosphate	*208%*		*40-163*	*Conc: 1040*		*03/19/20*	*S-GC*

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Quality Control Results

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Blank (W0C0811-BLK1)					**Prepared: 03/13/20**	**Analyzed: 03/18/20**					
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*442*			*ng/l*	*500*		*88*	*76-128*			
Triphenyl phosphate	*746*			*ng/l*	*500*		*149*	*40-163*			
LCS (W0C0811-BS1)					**Prepared: 03/13/20**	**Analyzed: 03/18/20**					
Chlorpyrifos	69.0	6.9	10	ng/l	50.0		138	37-169			
Diazinon	65.3	5.2	10	ng/l	50.0		131	43-152			
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*461*			*ng/l*	*500*		*92*	*76-128*			
Triphenyl phosphate	*628*			*ng/l*	*500*		*126*	*40-163*			
Matrix Spike (W0C0811-MS1)	**Source: 0C13077-01**				**Prepared: 03/13/20**	**Analyzed: 03/18/20**					
Chlorpyrifos	82.1	6.9	10	ng/l	50.0	*ND*	164	37-168			
Diazinon	81.5	5.2	10	ng/l	50.0	*ND*	163	36-153			MS-05
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*449*			*ng/l*	*500*		*90*	*76-128*			
Triphenyl phosphate	*1010*			*ng/l*	*500*		*202*	*40-163*			*S-GC*
Matrix Spike Dup (W0C0811-MSD1)	**Source: 0C13077-01**				**Prepared: 03/13/20**	**Analyzed: 03/18/20**					
Chlorpyrifos	80.0	6.9	10	ng/l	50.0	*ND*	160	37-168	3	30	
Diazinon	79.8	5.2	10	ng/l	50.0	*ND*	160	36-153	2	30	MS-05
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*441*			*ng/l*	*500*		*88*	*76-128*			
Triphenyl phosphate	*1060*			*ng/l*	*500*		*211*	*40-163*			*S-GC*

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Notes and Definitions

Item	Definition
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect . The data was accepted based on valid recovery of the remaining surrogate.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina M. Giancola
Project Manager

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

TestAmerica North Canton
4101 Shuffel Street NW
North Canton OH 44720

Report Date: March 23, 2020 17:18

Project: Annual Arroyo Semi-Frontier Park

Account #: 41440
Group Number: 2092674
SDG: SSF17
PO Number: 440-171028-1
State of Sample Origin: CA

Electronic Copy To TestAmerica Irvine Attn: Christian Bondoc

Respectfully Submitted,

Kay Hower

(717) 556-7364

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
Arroyo_Simi_20200313_Grab (440-262953-1) Grab	03/13/2020 10:30	1282330

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: Arroyo_Simi_20200313_Grab (440-262953-1) Grab Water
Annual Arroyo Semi-Frontier Park

Project Name: Annual Arroyo Semi-Frontier Park

Submittal Date/Time: 03/17/2020 10:29
Collection Date/Time: 03/13/2020 10:30
SDG#: SSF17-01

TestAmerica North Canton
ELLE Sample #: WW 1282330
ELLE Group #: 2092674
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
PCBs		**EPA 608.3 Dec. 2016**	ug/l	ug/l	ug/l	
14188	PCB-1016	12674-11-2	N.D. D1	0.100	0.500	1
14188	PCB-1221	11104-28-2	N.D. D1	0.100	0.500	1
14188	PCB-1232	11141-16-5	N.D. D1	0.100	0.500	1
14188	PCB-1242	53469-21-9	N.D. D1	0.100	0.500	1
14188	PCB-1248	12672-29-6	N.D. D1	0.100	0.500	1
14188	PCB-1254	11097-69-1	N.D. D1	0.100	0.500	1
14188	PCB-1260	11096-82-5	N.D. D1	0.100	0.500	1
14188	Total PCBs	1336-36-3	N.D.	0.0740	0.500	1

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14188	PCB (608.3) 250 ml	EPA 608.3 Dec. 2016	1	200790028A	03/23/2020 11:38	Covenant Mutuku	1
11960	Method 608 PCB Water Ext.	EPA 608.3 Dec. 2016	1	200790028A	03/20/2020 09:00	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: TestAmerica North Canton
Reported: 03/23/2020 17:18

Group Number: 2092674

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 200790028A	Sample number(s): 1282330		
PCB-1016	N.D.	0.0740	0.500
PCB-1221	N.D.	0.0740	0.500
PCB-1232	N.D.	0.0740	0.500
PCB-1242	N.D.	0.0740	0.500
PCB-1248	N.D.	0.0740	0.500
PCB-1254	N.D.	0.0740	0.500
PCB-1260	N.D.	0.0740	0.500
Total PCBs	N.D.	0.0740	0.500

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 200790028A	Sample number(s): 1282330								
PCB-1016	5.01	3.87			77		50-140		
PCB-1260	5.01	4.88			97		10-140		

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PCB (608.3) 250 ml
Batch number: 200790028A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
1282330	59	66	58	65
Blank	44	55	43	55
LCS	52	68	51	67
Limits:	18-115	10-127	18-115	10-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

4/1440 / 2092624 / 1282330

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153950.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Env LLC		Accreditations Required (See note): State Program - California		Job #: 440-262953-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 3/25/2020			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Annual Arroyo Semi-Frontier Park	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (PCB-LL- Lancaster Labs)/ PCB-LL- Lancaster Labs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyo Simi RH_20200313_Grab (440-262953-1)	3/13/20	10:30 Pacific		Water			X	1	Level IV Package needed

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Terese Orlan	3.16.20 1700	ECIRU			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 3/17/20 1029	Company ELLE

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2

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Sample Administration Receipt Documentation Log

Doc Log ID: 279208

Group Number(s): 2092674

Client: Calscience

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Date:	03/17/2020
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	0
Samples Chilled:	Yes	Air Quality Samples Present:	No
Paperwork Enclosed:	Yes		
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Tamara Lugardo

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.2	DT	Wet	Y	Loose	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

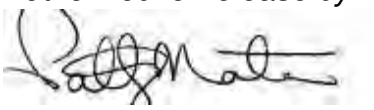
Lab Job Number: 425969
Report Level: II
Report Date: 03/24/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - Boeing SSFL-NPDES

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614		Lab Job #: Project No: Location: Date Received:	425969 BOEING SSFL NPDES Boeing SSFL-NPDES 03/13/20

Sample ID	Lab ID	Collected	Matrix
ARROYO SIMI_20200313_GRAB (440-262953-1)	425969-001	03/13/20 10:30	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine	Lab Job Number: 425969
17461 Derian Ave, Ste 100	Project No: BOEING SSFL NPDES
Irvine, CA 92614	Location: Boeing SSFL-NPDES
Christian Bondoc	Date Received: 03/13/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/13/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

425969

Test America

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2015
Annual Arroyo Simi-Frontier Park
Dry Weather

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 1020

pH 7.95 pH unit
Temp 11.38 °C/°F
Velocity 0.3 ft/sec

Field readings QC
Checked by: RH
Date/Time: 03/13/2020

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	E. coli (SM9221)	Hardness as $CaCO_3$, Recoverable (SM2340B)	TCDD (and all congeners) (E1613B)	TSS (Method 160.2 (SM2540D))	Chlorpyrifos, Diazinon (E525.2) Weck Labs in Hacienda Heights, CA	Pesticides: Chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, Dieldrin, Toxaphene + PCBs only (E608)			Comments
Arroyo Simi	RH Arroyo Simi###_2020 03/13 _Grab	03/13/2020 1030	WS	125 mL Sterile Poly	3	$Na_2S_2O_3$	10	No	X								Deliver to lab ASAP 8 hr hold time, Need 1x, 5x, 10x dilutions
			WS	250 mL Poly	1	HNO_3	100	No		X							
			WS	1L Glass Amber	2	None	110	No			X						
			WS	1L Poly	1	None	185	No				X					
			WS	1L Glass Amber	2	HCl	275	No					X				Extract within 24-Hours of sampling at Weck Labs
			WS	1L Glass Amber	2	None	285	No						X			
	RH Arroyo Simi###_20200313 _Extra	03/13/2020 1030	WS	1L Glass Amber	2	None	110	No			H						Hold
			WS	1L Glass Amber	2	HCl	275	No					H				Hold
			WS	1L Glass Amber	2	None	285	No						H			Hold

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn RH	3/13/20 1211	H&A BK	Jose Angulo	3/13/20 DCS
Jose Angulo	3/13/20 2:53	DCS		3/13/20 1953

Turn-around time: (Check)
24 Hour: _____ 72 Hour: _____ 10 Day: X
48 Hour: _____ 5 Day: _____ Normal: _____

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: X

2019-2020 Rainy Season
Version 2

4/7/2020 20f 7

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Calscience Irvine Project: Boeing-SSFL NPDES

Date Received: 3/13/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 1.1 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 1.1 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____ ☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 3/13/20

ENTHALPY ANALYTICAL

Analysis Results for 425969

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 425969
Project No: BOEING SSFL NPDES
Location: Boeing SSFL-NPDES
Date Received: 03/13/20

Sample ID: ARROYO SIMI_20200313_GRAB (440-262953-1) **Lab ID:** 425969-001 **Collected:** 03/13/20 10:30
Matrix: Water

425969-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**4,900**		MPN/100ml	1.8	1	243386	03/13/20 15:30	03/16/20 14:10	CCO

Results for any subcontracted analyses are not included in this section.

Test America

CHAIN OF CUSTODY FORM

440-262953 Chain of Custody

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2015
Annual Arroyo Simi-Frontier Park
Dry Weather

Project Manager: Katherine Miller
520.289.8606, 520.904 6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818 599.0702 (cell)

Field Readings: (Include units)
Time of Readings: 1020
pH 7.45 pH unit
Temp 11.35 °C/°F
Velocity 0.3 ft/sec

Meter serial #

Field readings QC
Checked by: RH
Date/Time: 03/13/2020

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	E. coli (SM9221)	Hardness as $CaCO_3$, Recoverable (SM2340B)	TCDD (and all congeners) (E1613B)	TSS (Method 160.2 (SM2540D))	Chlorpyrifos, Diazinon (E525.2) Weck Labs in Hacienda Heights CA	Pesticides Chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, Dieldrin, Toxaphene + PCBs only (E608)			Comments
Arroyo Simi ### RH	RH Arroyo Simi###_2020 0313 _Grab	03/13/2020 1630	WS	125 mL Sterile Poly	3	$Na_2S_2O_3$	10	No	X								Deliver to lab ASAP & by 1800 hours. Call lab for delivery in-
			WS	250 mL Poly	1	HNO_3	100	No		X							
			WS	1L Glass Amber	2	None	110	No			X						
			WS	1L Poly	1	None	185	No				X					
			WS	1L Glass Amber	2	HCl	275	No					X				Extract within 24 Hours of Sampling at Weck Labs
			WS	1L Glass Amber	2	None	285	No						X			
	RH Arroyo Simi###_20200313 _Extra	03/13/2020 1630	WS	1L Glass Amber	2	None	110	No			H						Hold
			WS	1L Glass Amber	2	HCl	275	No					H				Hold
			WS	1L Glass Amber	2	None	285	No						H			Hold

3/13/20 VS

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
Rachel Hohn RH	H&A 1211	H&A RH	Jose Angulo 3/13/20 DCS	
Jose Angulo	3/13/20 / 2:53	DCS		3/13/20 1453
Jose Angulo	3/13/20 3:30	DCS	EC-IRV	3/13/20 1530

Turn-around time: (Check)
24 Hour ____ 72 Hour. ____ 10 Day X
48 Hour ____ 5 Day: ____ Normal ____

Sample Integrity: (Check)
Intact: ____ On Ice: ____
Store samples for 6 months.
Data Requirements' (Check)
No Level IV. ____ All Level IV: X

0.4/0.6 0.5/0.7 0.9/1.1
0.8/1.0 IR93

4/7/2020
2019-2020 Rainy Season
Version 2

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-153953.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-262953-1
Address: 880 Riverside Parkway,	Due Date Requested: 3/25/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Annual Arroyo Semi-Frontier Park	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyo Simi RH_20200313_Grab (440-262953-1)	3/13/20	10:30 Pacific		Water			X	2	See QAS, Boeing_w/u to zero; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Calscience.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Teresa Ahn	Date/Time: 3/16/20 1700	Company: EC IRV	Received by: [signature]	Date/Time: 3/17/20 920	Company: EAbSc
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: Seals	Cooler Temperature(s) °C and Other Remarks: 1.8°C/2.2°C, 0.9°C/1.3°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262953-1

Login Number: 262953
List Number: 1
Creator: Bonta, Lucia F

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-262953-1

Login Number: 262953
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/17/20 01:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	obs 1.8 corr 2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

Job ID: 440-262953-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-262953-1	Arroyo Simi_20200313_Grab	44	50	39	41	46	46	41	50
MB 320-365527/1-A	Method Blank	73	81	63	67	74	74	66	81

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-262953-1	Arroyo Simi_20200313_Grab	45	46	48	41	40	44	37
MB 320-365527/1-A	Method Blank	74	71	78	60	64	63	50

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-365527/2-A	Lab Control Sample	68	75	63	64	74	73	64	79

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-365527/2-A	Lab Control Sample	71	69	75	63	64	68	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-262953-1
Project/Site: Annual Arroyo Semi-Frontier Park

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

440-262953 Field Sheet

Job: _____

Tracking #: 1540 4107 1999

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: 262973

Therm. ID: AH7 Corr. Factor: (+/-) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Sol

Cooler ID: —

Temp Observed: 1.8 °C Corrected: 2.2 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Samples received within holding time?	☒	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☒

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

eurofins | Environment Testing TestAmerica

Sacramento
Sample Receiving Notes

Place Fed Ex Shipping Label Here

Tracking #: 1540 9107 1841

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AU7 Corr. Factor: (+) / -) 0.4 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: —

Temp Observed: 0.9 °C Corrected: 1.3 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Samples received within holding time?	☑	☐	☐

Initials: SO Date: 3/17/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Non-conformance	Yes	No	NA
NCM Filed?	☐	☐	☑

Initials: JG Date: 3/17/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W12-C

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263494-1
Client Project/Site: Boeing SSFL NPDES - Arroyo Simi

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
3/27/2020 12:26:16 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
3/27/2020 12:26:16 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Arroyo Simi

Job ID: 440-263494-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263494-1	ArroyoSimi_20200320	Water	03/20/20 08:15	03/20/20 12:28	

Case Narrative

Client: Haley & Aldrich, Inc.
Job ID: 440-263494-1
Project/Site: Boeing SSFL NPDES - Arroyo Simi

Job ID: 440-263494-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-263494-1

Comments
No additional comments.

Receipt
The sample was received on 3/20/2020 12:28 PM; the sample arrived in good condition, properly preserved and, where required, on ice.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Arroyo Simi

Job ID: 440-263494-1

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Job ID: 440-263494-1
Project/Site: Boeing SSFL NPDES - Arroyo Simi

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263494-1
Project/Site: Boeing SSFL NPDES - Arroyo Simi

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

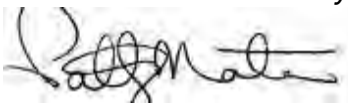
Lab Job Number: 426275
Report Level: II
Report Date: 03/27/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - BOEING SSFL NPDES, 3/20/20

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614	Lab Job #: Project No: Location: Date Received:	426275 BOEING SSFL NPDES BOEING SSFL NPDES, 3/20/20 03/20/20

Sample ID	Lab ID	Collected	Matrix
ARROYO SIMI_20200320 (440-263494-1)	426275-001	03/20/20 08:15	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614 Christian Bondoc	Lab Job Number: 426275 Project No: BOEING SSFL NPDES Location: BOEING SSFL NPDES, 3/20/20 Date Received: 03/20/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/20/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

426275

Page 1 of 1

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	E. coli (SM9221)										Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200320	3/20/2020/0815	$Na_2S_2O_3$	10	X										Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	3-20-20/1055	Elie	3.20.20 1055
Elie DCS	12:28 3.20.20	[signature] EA	12:28 3/20/2020

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal __X__

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____
NPDES Level IV ____

6.1 /0.9

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America

Project: Boeing -SSFL NPDES

Date Received: 3/20/2020

Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)

Sample Temp (°C) (No Cooler) : _____

Sample Temp (°C), One from each cooler: #1: 6.1 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptonce ronge is < 10°C but not frozen). It is acceptoble for samples collected the some day as sample receipt to hove o higher temperature os long os there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.9 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 03/20/2020

ENTHALPY ANALYTICAL

Analysis Results for 426275

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 426275
Project No: BOEING SSFL NPDES
Location: BOEING SSFL NPDES, 3/20/20
Date Received: 03/20/20

Sample ID: ARROYO SIMI_20200320 (440-263494-1) **Lab ID:** 426275-001 **Collected:** 03/20/20 08:15
Matrix: Water

426275-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**260**		MPN/100ml	18	10	243597	03/20/20 13:04	03/23/20 12:15	CCO

Results for any subcontracted analyses are not included in this section.

TA-01

SM 9221 B, E, F, Coliform MTF

Prep Analyst Initials: LH Prep Date/Time: 3/20/20 1304 QC Batch ID: 243597 Batch Page 1 of 1

Client: Test America Client Sample ID: Enthalpy Sample ID: 426275-001

**For batches that are more than one page, the equipment ID, time/temp, and analyst records below can be recorded with "See Page ###" to reference the first page of the batch

Total Coliform Presumptive

24 hrs (±2)

Incu ID: M1 Date/Time/Temp In: 3/20/20 1311 35.1

Analyst: LH Read Date/Time/Temp: 3/21/20 1418 34.9

Transfer to Confirmations Below, Date/Time: N/A

48 hrs (±3)

Incu ID: D Date/Time/Temp In: 3/21/20 1400 34.7

Analyst: CO Read Date/Time/Temp: 3/22/20 LH 1330 35.0C

Transfer to Confirmations Below, Date/Time: 3/22/20 1330

CO 3/22/20

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10	+	+	+	+	+	+	+	+	+	+
10	+	+	+	+	+	+	+	+	+	+
1	+	+	+	+	+	+	+	+	+	+
1	+	+	+	+	+	+	+	+	+	+
10^{-1}	+	~	+	+	+	~	+	~	+	~
10^{-1}	+	+	+	+	+	+	+	+	+	+
10^{-2}	+	~	+	~	+	~	+	+	+	~
10^{-2}	+	+	+	+	+	+	+	+	+	+
10^{-3}	~	~	~	~	~	~	~	~	+	~
10^{-3}	+	~	+	~	+	~	+	+	+	~
10^{-4}										
10^{-4}										
10^{-5}										
10^{-5}										
10^{-6}										
10^{-6}										

QC	Negative	Positive
Presumptive 24	–	+
Presumptive 48	–	+
T.C. Confirm 24		
T.C. Confirm 48		
Fecal Coliform		
E. Coli	–	+

Total Coliform Confirmation, SM 9221 B

Tubes from 24hr Presumptive Transfer

24 hrs (±2) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

48 hrs (±3) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Tubes from 48hr Presumptive Transfer

24 hrs (±2) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

48 hrs (±3) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
1										
10^{-1}										
10^{-1}										
10^{-2}										
10^{-2}										
10^{-3}										
10^{-3}										
10^{-4}										
10^{-4}										
10^{-5}										
10^{-5}										
10^{-6}										
10^{-6}										

LH 3/20/20

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
1										
10^{-1}										
10^{-1}										
10^{-2}										
10^{-2}										
10^{-3}										
10^{-3}										
10^{-4}										
10^{-4}										
10^{-5}										
10^{-5}										
10^{-6}										
10^{-6}										

Of Positive Tubes | MPN | Circle One: /100mL, /g, /swab, /10g

Fecal Coliform Confirmation, SM 9221 E

Tubes from 24hr Presumptive Transfer, Read at 24hrs (±2)

Waterbath Date/Time/Temp In:

Waterbath Date/Time/Temp Out:

Analyst: Waterbath ID:

Tubes from 48hr Presumptive Transfer, Read at 24hrs (±2)

Waterbath Date/Time/Temp In: 3/22

Waterbath Date/Time/Temp Out:

Analyst: Waterbath ID: 4

CO 3/22/20

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
1										
10^{-1}										
10^{-1}										
10^{-2}										
10^{-2}										
10^{-3}										
10^{-3}										
10^{-4}										
10^{-4}										
10^{-5}										
10^{-5}										
10^{-6}										
10^{-6}										

Of Positive Tubes | MPN | Circle One: /100mL, /g, /swab, /10g

E. Coli Confirmation, SM 9221 F

Presumptive 24hr transferred at 24 hrs (±2)

Waterbath Date/Time/Temp In:

Waterbath Date/Time/Temp Out:

Analyst: Waterbath ID:

Presumptive 48hr transferred at 24 hrs (±2)

Waterbath Date/Time/Temp In: 3/22/20 1400 44.5°C

Waterbath Date/Time/Temp Out: 3/23/20 1215 44.5°C

Analyst: CO Waterbath ID: 4

Volume (mL)	Tube 1 Fluoresce	Tube 2 Fluoresce	Tube 3 Fluoresce	Tube 4 Fluoresce	Tube 5 Fluoresce
10					
10					
1					
1	+	+	+	+	+
10^{-1}					
10^{-1}	+	+	+	+	–
10^{-2}					
10^{-2}	–	+	–	–	+
10^{-3}					
10^{-3}		–	–	+	–
10^{-4}					
10^{-4}					
10^{-5}					
10^{-5}					
10^{-6}					
10^{-6}					

Of Positive Tubes: 3, 4, 2, 1 | MPN: 260 | Circle One: /100mL, /g, /swab, /10g

Media Prep Dates:			
2x LTB/LSB	3/11/20	EC	
1x LTB/LSB	3/11/20	EC-Mug	3/11/20
BGB		Buffer/Sterile Water	

Data Entered By Initials: Date: 3/24/20

Data Validated By Initials: Date:

Prep/Work Comments:

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM 426275

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200320	3/20/2020 1015	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
Mark Dominick	3-20-20/1055	Elie	3.20.20 1055
Relinquished By	Date/Time:	Received By	Date/Time:
Elie DCS	12 3.20.20	EA	12:28 3/20/2020
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

6.1 /0.9

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Boeing -SSFL NPDES

Date Received: 3/20/2020 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 6.1 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptonce ronge is < 10°C but not frozen). It is acceptoble for samples collected the some day as sample receipt to hove o higher temperature os long os there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.9 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 03/20/2020

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263731-1
Client Project/Site: Boeing NPDES Outfalls- Arroyo Simi

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/7/2020 3:15:35 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/7/2020 3:15:35 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES Outfalls- Arroyo Simi

Job ID: 440-263731-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263731-1	ArroyoSimi_20200327	Water	03/27/20 07:30	03/27/20 13:37	

Case Narrative

Client: Haley & Aldrich, Inc.
Job ID: 440-263731-1
Project/Site: Boeing NPDES Outfalls- Arroyo Simi

Job ID: 440-263731-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-263731-1

Comments
No additional comments.

Receipt
The sample was received on 3/27/2020 1:37 PM; the sample arrived in good condition, properly preserved and, where required, on ice.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES Outfalls- Arroyo Simi

Job ID: 440-263731-1

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Client: Haley & Aldrich, Inc.
Job ID: 440-263731-1
Project/Site: Boeing NPDES Outfalls- Arroyo Simi

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263731-1
Project/Site: Boeing NPDES Outfalls- Arroyo Simi

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

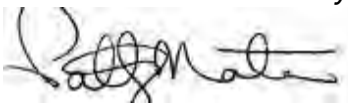
Lab Job Number: 426520
Report Level: II
Report Date: 04/07/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - BOEING SSFL NPDES 3/27/20

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614	Lab Job #: Project No: Location: Date Received:	426520 BOEING SSFL NPDES BOEING SSFL NPDES 3/27/20 03/27/20

Sample ID	Lab ID	Collected	Matrix
ARROYO SIMI_20200327 (440-263731-1)	426520-001	03/27/20 07:30	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614 Christian Bondoc	Lab Job Number: 426520 Project No: BOEING SSFL NPDES Location: BOEING SSFL NPDES 3/27/20 Date Received: 03/27/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/27/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM

4126520.

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200327	3/27/2020/0730	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	3-27-2020/1120	[signature] EC-INV	3-27-20 1120
Relinquished By	Date/Time:	Received By	Date/Time:
Relinquished By	Date/Time:	Received By	Date/Time:
[signature] EC-INV	3-27-20 1:37	[signature]	3/27/20 1337

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____
NPDES Level IV ____

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: _____

Date Received: 03/27/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 0.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.2 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

_____

_____

_____

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 03/27/20

ENTHALPY ANALYTICAL

Analysis Results for 426520

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 426520
Project No: BOEING SSFL NPDES
Location: BOEING SSFL NPDES 3/27/20
Date Received: 03/27/20

Sample ID: ARROYO SIMI_20200327 (440-263731-1) **Lab ID:** 426520-001 **Matrix:** Water **Collected:** 03/27/20 07:30

426520-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**110**		MPN/100ml	1.8	1	243856	03/27/20 13:50	03/30/20 10:55	CCO

Results for any subcontracted analyses are not included in this section.

TA-01

SM 9221 B, E, F, Coliform MTF

Prep Analyst Initials: CO Prep Date/Time: 3/27/20 1350 QC Batch ID: 243856 Batch Page 1 of 1

Client: Test America Irvine Client Sample ID: Arroyo Simi Enthalpy Sample ID: 426520-001

**For batches that are more than one page, the equipment ID, time/temp, and analyst records below can be recorded with "See Page ###" to reference the first page of the batch

Total Coliform, Presumptive

	24 hrs (±2)		48 hrs (±3)	
Incu ID:	MB	Date/Time/Temp In: 3/27/20. 1400 34.8°C	Incu ID: M1	Date/Time/Temp In: 3/28/20 1331 34.5
Analyst:	M	Read Date/Time/Temp: 3/28/20 1327 34.7	Analyst: ff	Read Date/Time/Temp: 3/29/20 1210 34.7
		Transfer to Confirmations Below, Date/Time: n/a		Transfer to Confirmations Below, Date/Time: 3/29/20 1236

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas	48 hrs Tube 1 growth	48 hrs Tube 1 gas	48 hrs Tube 2 growth	48 hrs Tube 2 gas	48 hrs Tube 3 growth	48 hrs Tube 3 gas	48 hrs Tube 4 growth	48 hrs Tube 4 gas	48 hrs Tube 5 growth	48 hrs Tube 5 gas
10 10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
1 10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10^{-1}	+	+	+	−	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+
10^{-2}	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	−	+	+	+	+
10^{-3}	+	−	−	−	+	−	−	−	−	−	+	−	+	−	+	−	−	−	−	−
10^{-4}																				
10^{-5}																				
10^{-6}																				

QC	Negative	Positive
Presumptive 24	−	+
Presumptive 48	−	+
T.C. Confirm 24		
T.C. Confirm 48		
Fecal Coliform		
E. Coli	−	+

Total Coliform, Confirmation, SM 9221B

Tubes from 24hr Presumptive Transfer

	24 hrs (±2)	48 hrs (±3)
Incu. ID:	Date/Time/Temp In:	Incu. ID: Date/Time/Temp In:
Analyst:	Read Date/Time/Temp:	Analyst: Read Date/Time/Temp:

Tubes from 48hr Presumptive Transfer

	24 hrs (±2)	48 hrs (±3)
Incu. ID:	Date/Time/Temp In:	Incu. ID: Date/Time/Temp In:
Analyst:	Read Date/Time/Temp:	Analyst: Read Date/Time/Temp:

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas	48 hrs Tube 1 growth	48 hrs Tube 1 gas	48 hrs Tube 2 growth	48 hrs Tube 2 gas	48 hrs Tube 3 growth	48 hrs Tube 3 gas	48 hrs Tube 4 growth	48 hrs Tube 4 gas	48 hrs Tube 5 growth	48 hrs Tube 5 gas
10 10																				
1 10																				
10^{-1}																				
10^{-2}																				
10^{-3}																				
10^{-4}																				
10^{-5}																				
10^{-6}																				

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

Fecal Coliform, Confirmation, SM 9221E

Tubes from 24hr Presumptive Transfer, Read at 24hrs (±2)

Waterbath Date/Time/Temp In:
Waterbath Date/Time/Temp Out:
Analyst: Waterbath ID:

Tubes from 48hr Presumptive Transfer, Read at 24hrs (±2)

Waterbath Date/Time/Temp In:
Waterbath Date/Time/Temp Out:
Analyst: Waterbath ID:

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas	48 hrs Tube 1 growth	48 hrs Tube 1 gas	48 hrs Tube 2 growth	48 hrs Tube 2 gas	48 hrs Tube 3 growth	48 hrs Tube 3 gas	48 hrs Tube 4 growth	48 hrs Tube 4 gas	48 hrs Tube 5 growth	48 hrs Tube 5 gas
10 10																				
1 10																				
10^{-1}																				
10^{-2}																				
10^{-3}																				
10^{-4}																				
10^{-5}																				
10^{-6}																				

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

(E. Coli) Completed with SM 9221F

Presumptive 24hr transfer read at 24 hrs (±2)

Waterbath Date/Time/Temp In:
Waterbath Date/Time/Temp Out:
Analyst: Waterbath ID:

Presumptive 48hr transfer read at 24 hrs (±2)

Waterbath Date/Time/Temp In: 3/29/20 1242 44.6
Waterbath Date/Time/Temp Out: 3/30/20 1055 44.5°C
Analyst: CO Waterbath ID: 4

Volume (mL)	Tube 1 Fluoresce	Tube 2 Fluoresce	Tube 3 Fluoresce	Tube 4 Fluoresce	Tube 5 Fluoresce	48 hrs Tube 1 Fluoresce	48 hrs Tube 2 Fluoresce	48 hrs Tube 3 Fluoresce	48 hrs Tube 4 Fluoresce	48 hrs Tube 5 Fluoresce
10 10						+	+	+	+	+
1 10						−	+	+	−	+
10^{-1}						+	−	−	−	−
10^{-2}						−	−		−	−
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

# Of Positive Tubes	MPN	Circle One
5	110	/100mL, /g, /swab, /10g
3		
1		
0		
0		

Media Prep Dates:			
2x LTB/LSB	3/11/20.	EC	N/A.
1x LTB/LSB	3/17/20	EC-Mug	
BGB	N/A.	Buffer/Sterile Water	3/17/20.

Data Entered By	Data Validated By
Initials: [illegible]	Initials: n/a
Date: 4/1/20	Date:

Prep/Work Comments:

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200327	3/27/2020/0730	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	3-27-2020/1120	[signature] EC-IRV	3-27-20 1120
Relinquished By	Date/Time:	Received By	Date/Time:
Relinquished By	Date/Time:	Received By	Date/Time:
[signature] EC-IRV	3-27-20 1:37	[signature]	3/27/20 1337

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice. _____

Data Requirements: (check)
No Level IV ____ All Level IV ____
NPDES Level IV ____

440-263731 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263731-1

Login Number: 263731
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-263998-1
Client Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/20/2020 1:18:29 PM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/20/2020 1:18:29 PM

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Sample Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263998-1
Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-263998-1	ArroyoSimi_20200403	Water	04/03/20 07:10	04/03/20 12:17	

Case Narrative

Client: Haley & Aldrich, Inc.
Job ID: 440-263998-1
Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi

Job ID: 440-263998-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-263998-1

Comments
No additional comments.

Receipt
The sample was received on 4/3/2020 12:17 PM; the sample arrived in good condition, properly preserved and, where required, on ice.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263998-1
Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Definitions/Glossary

Client: Haley & Aldrich, Inc. Job ID: 440-263998-1
Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-263998-1
Project/Site: Boeing SSFL NPDES Outfalls- Arroyo Simi

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

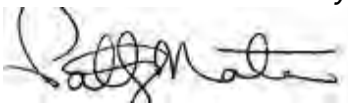
Lab Job Number: 426748
Report Level: II
Report Date: 04/14/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - BOEING SSFL NPDES, 4/3/20

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614	Lab Job #: Project No: Location: Date Received:	426748 BOEING SSFL NPDES BOEING SSFL NPDES, 4/3/20 04/03/20

Sample ID	Lab ID	Collected	Matrix
ARROYOSIMI_20200403 (440-263998-1)	426748-001	04/03/20 07:10	Water

Case Narrative

Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614 Christian Bondoc	Lab Job Number: 426748 Project No: BOEING SSFL NPDES Location: BOEING SSFL NPDES, 4/3/20 Date Received: 04/03/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 04/03/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):
No analytical problems were encountered.

426478

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200403	4/3/2020/0710	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	4-3-2020/1135	William Rivera	4/3/20 1135
William Rivera	4/3/20 1318	Elizabeth Ramirez	4/3/20 1318
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: ✓ 5.7/1.0

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

Eurofins Calscience Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record

eurofins | Calscience

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154733.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		Job #: 440-263998-1
Address: 931 W. Barkley Ave, ,	Due Date Requested: 4/15/2020			
City: Orange	TAT Requested (days):			
State, Zip: CA, 92868				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (9221F- E. Coli) 9221F- E. Coli	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
ArroyoSimi_20200403 (440-263998-1)	4/3/20	07:10 Pacific		Water			X	3	Run and report 1x, 10x, and 100x dilutions

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Test America Project: Boeing-SSFL NPDES

Date Received: 4/3/2020 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 5.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 1.0 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 04/03/2020

ENTHALPY ANALYTICAL

Analysis Results for 426748

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 426748
Project No: BOEING SSFL NPDES
Location: BOEING SSFL NPDES, 4/3/20
Date Received: 04/03/20

Sample ID: ARROYOSIMI_20200403 (440-263998-1) **Lab ID:** 426748-001 **Collected:** 04/03/20 07:10
Matrix: Water

426748-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**49**		MPN/100ml	1.8	1	244152	04/03/20 14:30	04/06/20 10:45	CCO

1 of 1

Results for any subcontracted analyses are not included in this section.

TA-01

SM 9221 B, E, F, Coliform MTF

Prep Analyst Initials: Co Prep Date/Time: 4/3/20 1430 QC Batch ID: 244152 Batch Page 1 of 2

Client: TA Irvine Client Sample ID: Enthalpy Sample ID: ~~426478-001~~ 748-001 (Co 4/7/20)

**For batches that are more than one page, the equipment ID, time/temp, and analyst records below can be recorded with "See Page ###" to reference the first page of the batch

Total Coliform Presumptive

	24 hrs (±2)	48 hrs (±3)
Incu ID:	D	D
Date/Time/Temp In:	4/3/20 1447 35.1°C	4/4/20 1355 34.8
Analyst:	CW	FR
Read Date/Time/Temp:	4/4/20 1352 34.8	4/5/20 1201 34.9
Transfer to Confirmations Below, Date/Time:	n/a	4/5/20 1212

Volume (mL)	Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		24 hrs (±2)										48 hrs (±3)									
	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10 10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
1 10	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10^{-1}	+	−	+	−	+	−	+	−	+	−	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10^{-2}	+	−	+	−	+	−	+	−	+	−	+	−	+	+	+	+	+	−	+	−	+	−	+	+	+	+	+	−	+	−
10^{-3}	−	−	−	−	+	−	−	−	−	−	−	−	−	−	+	−	−	−	+	−										
10^{-4}																														
10^{-5}																														
10^{-6}																														

QC	Negative	Positive
Presumptive 24	−	+
Presumptive 48	−	+
T.C. Confirm 24		
T.C. Confirm 48		
Fecal Coliform		
E. Coli	−	+

Total Coliform Confirmation, SM 9221B

	Tubes From 24hr Presumptive Transfer: 24 hrs (±2)										Tubes From 48hr Presumptive Transfer: 24 hrs (±2)																					
	Incu. ID:	Date/Time/Temp In:									Incu. ID:	Date/Time/Temp In:									Incu. ID:	Date/Time/Temp In:								
	Analyst:	Read Date/Time/Temp:									Analyst:	Read Date/Time/Temp:									Analyst:	Read Date/Time/Temp:								
	Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5	
Volume (mL)	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas
10 10																	4/5/20													
1 10																														
10^{-1}																														
10^{-2}																														
10^{-3}																														
10^{-4}																														
10^{-5}																														
10^{-6}																														

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

Fecal Coliform Confirmation, SM 9221E

	Tubes from 24hr Presumptive Transfer, Read at 24hrs (±2)										Tubes from 48hr Presumptive Transfer, Read at 24hrs (±2)																					
	Waterbath Date/Time/Temp In:										Waterbath Date/Time/Temp In:																					
	Waterbath Date/Time/Temp Out:										Waterbath Date/Time/Temp Out:																					
	Analyst:				Waterbath ID:						Analyst:				Waterbath ID:																	
	Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5	
Volume (mL)	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas	growth	gas
10 10																														
1 10																														
10^{-1}																														
10^{-2}																														
10^{-3}																														
10^{-4}																														
10^{-5}																														
10^{-6}																														

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

E. Coli, completed Phase SM 9221F

	Presumptive 24hr transfer read at 24hrs (±2)										Presumptive 48hr transfer read at 24 hrs (±2)																					
	Waterbath Date/Time/Temp In:										Waterbath Date/Time/Temp In: 4/5/20 1216 44.4																					
	Waterbath Date/Time/Temp Out:										Waterbath Date/Time/Temp Out: 4/6/20 1045 44.5°C																					
	Analyst:				Waterbath ID:						Analyst: CW				Waterbath ID: 4																	
	Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5		Tube 1		Tube 2		Tube 3		Tube 4		Tube 5	
Volume (mL)	Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce		Fluoresce	
10 10											+		+		+		+		+											
1 10											+		+		−		−		−											
10^{-1}											−		−																	
10^{-2}													−		−		−		−											
10^{-3}															−															
10^{-4}																														
10^{-5}																														
10^{-6}																														

# Of Positive Tubes	MPN	Circle One
3	49	/100mL, /g, /swab, /10g
2		
0		
0		

Media Prep Dates:			
2x LTB/LSB	3/11/20,	EC	MA 3/24/20
1x LTB/LSB	3/27/20,	EC-Mug	
BGB	MA.	Buffer/Sterile Water	MA

Data Entered By	Data Validated By
Initials: Co	Initials: Co
Date: 4/7/20	Date: 4/7/20

Prep/Work Comments:

Co 4/5/20

Test America Version 7/19/2010 — CHAIN OF CUSTODY FORM

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200403	4/3/2020 0710	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
Mark Dominick	4-3-2020/1135	William Rivera	4/3/20 1135
William Rivera	4/3/20 1318	Elizabeth Ramirez	4/3/20 13:18

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: ✓ 5.7/1.0

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

440-263998 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-263998-1

Login Number: 263998
List Number: 1
Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

Laboratory Job ID: 440-264781-1
Client Project/Site: Boeing NPDES SSFL Outfalls - Arroyo Simi

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller



Authorized for release by:
4/17/2020 10:21:03 AM

Christian Bondoc, Project Manager I
(949)260-3218
christian.bondoc@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.



Christian Bondoc
Project Manager I
4/17/2020 10:21:03 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-264781-1
Project/Site: Boeing NPDES SSFL Outfalls - Arroyo Simi

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264781-1	ArroyoSimi_20200413	Water	04/13/20 07:35	04/13/20 11:07	

Job ID: 440-264781-1

Laboratory: Eurofins Irvine

Narrative

Job Narrative
440-264781-1

Comments
No additional comments.

Receipt
The sample was received on 4/13/2020 11:07 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.7º C.

Subcontract non-Sister
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 9221F- E. Coli: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Job ID: 440-264781-1
Project/Site: Boeing NPDES SSFL Outfalls - Arroyo Simi

Method	Method Description	Protocol	Laboratory
Subcontract	9221F- E. Coli	None	Enthalpy

Protocol References:

None = None

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc. Job ID: 440-264781-1
Project/Site: Boeing NPDES SSFL Outfalls - Arroyo Simi

Laboratory: Eurofins Irvine

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

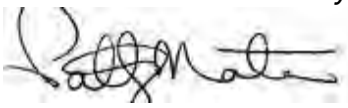
Lab Job Number: 427114
Report Level: II
Report Date: 04/17/2020

Analytical Report *prepared for:*

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Project: BOEING SSFL NPDES - Boeing SSFL NPDES, 4/13/20

Authorized for release by:



Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

ENTHALPY ANALYTICAL

Sample Summary

Christian Bondoc Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614	Lab Job #: Project No: Location: Date Received:	427114 BOEING SSFL NPDES Boeing SSFL NPDES, 4/13/20 04/13/20

Sample ID	Lab ID	Collected	Matrix
ARROYOSIMI_20200413 (440-264781-1)	427114-001	04/13/20 07:35	Water

ENTHALPY ANALYTICAL

Case Narrative

Eurofins TestAmerica Irvine 17461 Derian Ave, Ste 100 Irvine, CA 92614 Christian Bondoc	Lab Job Number: 427114 Project No: BOEING SSFL NPDES Location: Boeing SSFL NPDES, 4/13/20 Date Received: 04/13/20

This data package contains sample and QC results for one water sample, requested for the above referenced project on 04/14/20. The sample was received cold and intact.

Coliform - 9221 Tests (SM 9221F):

No analytical problems were encountered.

Test America Version 7/19/2010 CHAIN OF CUSTODY FORM

427114

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200413	4/13/2020/0735	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	4-13-2020/0950	Ramy	4/13/20/0950
Ramy	4-13-2020/1107 am	[signature]	4/13/20 1107
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV ____ All Level IV ____

NPDES Level IV ____

0.c / 5.7

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: HALEY & ALDRICH Project: _____

Date Received: 04/13/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 5.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

_____

_____

_____

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 04/13/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group, Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/sacal

ENTHALPY ANALYTICAL

Analysis Results for 427114

Christian Bondoc
Eurofins TestAmerica Irvine
17461 Derian Ave, Ste 100
Irvine, CA 92614

Lab Job #: 427114
Project No: BOEING SSFL NPDES
Location: Boeing SSFL NPDES, 4/13/20
Date Received: 04/13/20

Sample ID: ARROYOSIMI_20200413 (440-264781-1) **Lab ID:** 427114-001 **Collected:** 04/13/20 07:35
Matrix: Water

427114-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SM 9221F									
Coliform, E. Coli	**1,400**		MPN/100ml	180	100	244509	04/13/20 12:07	04/16/20 13:56	LXH

Results for any subcontracted analyses are not included in this section.

SM 9221 B, E, F, Coliform MTF

TA-01

Prep Analyst Initials: CD Prep Date/Time: 4/13/20 1207 QC Batch ID: 244509 Batch Page 1 of 1

Client: Test America Irvine Client Sample ID: Enthalpy Sample ID: 427114-001

**For batches that are more than one page, the equipment ID, time/temp, and analyst records below can be recorded with "See Page ###" to reference the first page of the batch

Total Coliform, Presumptive

	24 hrs (±2)	48 hrs (±3)
Incu ID:	D	D
Date/Time/Temp In:	4/13/20 1221 34.9°C	4/14/20 1400 35.1
Analyst:	LH	H
Read Date/Time/Temp:	4/14/20 1401 35.1	4/15/20 1114 35.1
Transfer to Confirmations Below, Date/Time:		4/15/20 1125

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10	+	+	+	+	+	+	+	+	+	+
10	+	+	+	+	+	+	+	+	+	+
1	+	+	+	+	+	+	+	+	+	+
10^{-1}	+	+	+	+	+	+	+	+	+	+
10^{-2}	+	+	+	+	+	+	+	+	+	+
10^{-3}	+	−	+	−	+	−	+	+	+	−
10^{-4}										
10^{-5}										
10^{-6}										

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10	+	+	+	+	+	+	+	+	+	+
10	+	+	+	+	+	+	+	+	+	+
1	+	+	+	+	+	+	+	+	+	+
10^{-1}	+	+	+	+	+	+	+	+	+	+
10^{-2}	+	+	+	+	+	+	+	+	+	+
10^{-3}	+	−	+	−	+	−	+	+	+	−
10^{-4}										
10^{-5}										
10^{-6}										

QC	Negative	Positive
Presumptive 24	−	+
Presumptive 48	−	+
T.C. Confirm 24		
T.C. Confirm 48		
Fecal Coliform		
E. Coli	−	+

Total Coliform, Confirmation, SM 9221 B

Tubes From 24hr Presumptive Transfer: 24 hrs (±2) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Tubes From 24hr Presumptive Transfer: 48 hrs (±3) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Tubes From 48hr Presumptive Transfer: 24 hrs (±2) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Tubes From 48hr Presumptive Transfer: 48 hrs (±3) Incu. ID: Date/Time/Temp In: Analyst: Read Date/Time/Temp:

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
10^{-1}										
10^{-2}										
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
10^{-1}										
10^{-2}										
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
10^{-1}										
10^{-2}										
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

4/13/20

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

Fecal Coliform, Confirmation, SM 9221 E

Tubes From 24hr Presumptive Transfer, Read at 24 hrs (±2): Waterbath Date/Time/Temp In: Waterbath Date/Time/Temp Out: Analyst: Waterbath ID:

Tubes From 48hr Presumptive Transfer, Read at 24 hrs (±2): Waterbath Date/Time/Temp In: Waterbath Date/Time/Temp Out: Analyst: Waterbath ID:

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
10^{-1}										
10^{-2}										
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

Volume (mL)	Tube 1 growth	Tube 1 gas	Tube 2 growth	Tube 2 gas	Tube 3 growth	Tube 3 gas	Tube 4 growth	Tube 4 gas	Tube 5 growth	Tube 5 gas
10										
10										
1										
10^{-1}										
10^{-2}										
10^{-3}										
10^{-4}										
10^{-5}										
10^{-6}										

CD 4/13/20

# Of Positive Tubes	MPN	Circle One
		/100mL, /g, /swab, /10g

Coli Completed Phase, SM 9221 F

Presumptive 24hr transfer read at 24 hrs (±2): Waterbath Date/Time/Temp In: Waterbath Date/Time/Temp Out: Analyst: Waterbath ID:

Presumptive 48hr transfer read at 24 hrs (±2): Waterbath Date/Time/Temp In: 4/15/20 1129 44.4°C Waterbath Date/Time/Temp Out: 4/16/20 0830 44.4 Analyst: LH Waterbath ID: 4

Volume (mL)	Tube 1 Fluoresce	Tube 2 Fluoresce	Tube 3 Fluoresce	Tube 4 Fluoresce	Tube 5 Fluoresce
10					
10					
1					
10^{-1}					
10^{-2}					
10^{-3}					
10^{-4}					
10^{-5}					
10^{-6}					

Volume (mL)	Tube 1 Fluoresce	Tube 2 Fluoresce	Tube 3 Fluoresce	Tube 4 Fluoresce	Tube 5 Fluoresce
10	+	+	+	+	+
10	+	+	+	+	+
1	−	−	+	+	−
10^{-1}					
10^{-2}					
10^{-3}					
10^{-4}					
10^{-5}					
10^{-6}					

4/16/20

# Of Positive Tubes	MPN	Circle One
5 5 3 2 0	14	/100mL, /g, /swab, /10g
1400		

Media Prep Dates			
2x LTB/LSB	3/11/20	EC	n/a
1x LTB/LSB	3/29/20.	EC-Mug	3/29/20
BGB	n/a	Buffer/Sterile Water	3/17/20

Data Entered By Initials: Date: 4/16/20

Data Validated By Initials: Date:

Prep/Work Comments: Qualifier: I

See NCD

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

427114

Client Name/Address:	Project:
Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc	Boeing-SSFL NPDES Arroyo Simi
Project Manager: Katherine Miller Sampler: Dan Smith	Phone Number: (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)

Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED: E. coli (SM9221)	Comments
Arroyo Simi	W	125mL Sterile Poly	3	ArroyoSimi_20200413	4/13/2020/0735	$Na_2S_2O_3$	10	X	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	4-13-2020/0950	Ramy	4/13/20/0950
Ramy	4-13-2020/1107 am	[signature]	4/13/20 1107
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal ___X___

Sample Integrity: (check)
Intact _____ On Ice: _____

Data Requirements: (check)
No Level IV____ All Level IV ____

NPDES Level IV ____

0.c / 5.7

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: HALEY & ALDRICH Project: _____

Date Received: 04/13/20 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 5.7 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✓		
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

_____

_____

_____

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 04/13/20

Enthalpy Analytical, a subsidiary of Montrose Environmental Group, Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/sacal

15280 NW 79th Court, Suite 107 Miami Lakes, Florida 33016
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733
Email: info@sourcemolecular.com

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Human Fecal Quantification ID Test Results Report

Detection and quantification of the fecal associated Human gene biomarker by quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: March 24, 2020
Report Generated: March 31, 2020

SM #	Sample ID	Analysis Requested	Marker Quantified (copies/100 ml)	Sample Type
SM20C24001	Outfall001_20200323_Grab	Human_HF183	3.22E+03	Water

Reported Results Authorized By: Anda Quintero, Quality Manager

Results reported herein apply only to the sample matrices as received.
Results reported herein relate to the genetic material extracted from the sample matrix processed and included in the analysis.

Revision 1.4
Effective Date 12/12/19

15280 NW 79th Court, Suite 107 Miami Lakes, Florida 33016
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733
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Submitter: Haley and Aldrich
Date Received/Processed: March 24, 2020
Report Generated: March 31, 2020

SM #	Sample ID	Extraction Date	Analysis Date	Amount Processed (ml)	Analytical Volume (ul)
SM20C24001	Outfall001_20200323_Grab	3/30/2020	3/30/2020	100	2

Reported Results Authorized By: Anda Quintero, Quality Manager

Results reported herein apply only to the sample matrices as received.
Results reported herein relate to the genetic material extracted from the sample matrix processed and included in the analysis.

Laboratory Comments

Submitter: Haley and Aldrich

Report Generated: March 31, 2020

Non-Detect Results

In sample(s) classified as non-detect, the host-associated fecal gene biomarker(s) was either not detected in test replicates, one replicate was detected at a cycle threshold greater than 35 and the other was not, or one replicate was detected at a cycle threshold less than 35 and the other was not after repeated analysis.

Detected Results

In sample(s) classified as detected, the host-associated fecal gene biomarker(s) was detected in both test replicates suggesting that the host's fecal contamination is present in the sample(s). Copy number measurements reported are relative, not absolute, quantification.

Detected Not Quantified (DNQ) Results

In sample(s) classified as Detected Not Quantified (DNQ), the host-associated fecal biomarker was detected in both test replicates but in quantities below the limit of quantification. This result indicates that fecal indicators associated with the respective host was present in the sample(s) but in low concentrations.

Fecal Reference Samples

The client is encouraged to submit fecal samples from suspected sources in the surrounding area in order to gain a better understanding of the concentration of the host-associated biomarker with the regional population. A more precise interpretation would be available to the client with the submittal of such baseline samples.

Result Interpretations

The presence of the biomarker does not signify the presence or absence of that form of fecal pollution conclusively. The most reliable way to accurately test for contamination is to combine genetic testing with scientifically sound and adequate study design appropriate for the water quality questions to be answered or issues to be resolved.

Additional Testing

A portion of all samples has been frozen and will be archived for 3 months. The client is encouraged to perform additional tests on the sample(s) for other hosts suspected of contributing to the fecal contamination.

Limitation of Damages – Repayment of Service Price

It is agreed that in the event of breach of any warranty or breach of contract, or negligence of Source Molecular Corporation, as well as its agents or representatives, the liability of the company shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Source Molecular Corp. The company shall not be liable for any damages, either direct or consequential. Source Molecular Corp. provides analytical services on a PRIME CONTRACT BASIS ONLY. Terms are available upon request. The sample(s) cited in this report may be used for research purposes after an archiving period of 3 months from the date of this report. Research includes, but is not limited to internal validation studies and peer-reviewed research publications. Anonymity of the sample(s), including the exact geographic location will be maintained by assigning an arbitrary internal reference. These anonymous samples will only be grouped by state / province of origin for research purposes. The client must contact Source Molecular in writing within 10 days from the date of this report if he/she does not wish for their submitted sample(s) to be used for any type of future research.

DNA Analytical Method Explanation

Water Samples: Each submitted water sample is filtered through 0.45 micron membrane filter(s). Each filter is placed in a separate, sterile 2ml disposable tube containing a unique mix of beads and lysis buffer. The sample is homogenized for 1min and the DNA extracted using the Generite DNA-EZ ST1 extraction kit (GeneRite, NJ), as per manufacturer's protocol. Devitations to these procedures may occur at the client's request.

Non-Water Samples: Each non-water sample submitted by the client is processed as per internal laboratory extraction procedures. An extracted DNA sample is proceed directly to PCR analysis. Details available upon request.

Amplifications to detect the target gene biomarker were run on an Applied Biosystems StepOnePlus real-time thermal cycler (Applied Biosystems, Foster City, CA) in a final reaction volume of 20ul sample extract, forward primer, reverse primer, probe and an optimized buffer. All assays are run in duplicate. Quantification is achieved by extrapolating target gene copy numbers from a standard curve generated from serial dilutions of known gene copy numbers.

For quality control purposes, a positive control and a negative control, were run alongside the sample(s) to ensure a properly functioning reaction and reveal any false negatives or false positives.

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Tel: (1) 786-220-0379 Fax: (1) 786-513-2733
Email: info@sourcemolecular.com

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Human Fecal Quantification ID Test Results Report

Detection and quantification of the fecal associated Human gene biomarker by quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: March 14, 2020
Report Generated: March 23, 2020

ND: Not Detected
DNQ: Detected Not Quantified

SM #	Sample ID	Analysis Requested	Marker Quantified (copies/100 ml)	Sample Type
SM20C14001	OUTFALL 008_20200313_Grab	Human_HF183	ND	Water
SM20C14002	OUTFALL 009_20200313_Grab	Human_HF183	DNQ	Water

Reported Results Authorized By: Anda Quintero, Quality Manager

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Revision 1.4
Effective Date 12/12/19

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Human Fecal Quantification ID Test Results Report

Detection and quantification of the fecal associated Human gene biomarker by quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: March 14, 2020
Report Generated: March 23, 2020

SM #	Sample ID	Extraction Date	Analysis Date	Amount Processed (ml)	Analytical Volume (ul)
SM20C14001	OUTFALL 008_20200313_Grab	3/16/2020	3/16/2020	100	2
SM20C14002	OUTFALL 009_20200313_Grab	3/16/2020	3/16/2020	100	2

Reported Results Authorized By: Anda Quintero, Quality Manager

Results reported herein apply only to the sample matrices as received.
Results reported herein relate to the genetic material extracted from the sample matrix processed and included in the analysis.

Laboratory Comments

Submitter: Haley and Aldrich

Report Generated: March 23, 2020

Non-Detect Results
In sample(s) classified as non-detect, the host-associated fecal gene biomarker(s) was either not detected in test replicates, one replicate was detected at a cycle threshold greater than 35 and the other was not, or one replicate was detected at a cycle threshold less than 35 and the other was not after repeated analysis.

Detected Results
In sample(s) classified as detected, the host-associated fecal gene biomarker(s) was detected in both test replicates suggesting that the host's fecal contamination is present in the sample(s). Copy number measurements reported are relative, not absolute, quantification.

Detected Not Quantified (DNQ) Results
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Fecal Reference Samples
The client is encouraged to submit fecal samples from suspected sources in the surrounding area in order to gain a better understanding of the concentration of the host-associated biomarker with the regional population. A more precise interpretation would be available to the client with the submittal of such baseline samples.

Result Interpretations
The presence of the biomarker does not signify the presence or absence of that form of fecal pollution conclusively. The most reliable way to accurately test for contamination is to combine genetic testing with scientifically sound and adequate study design appropriate for the water quality questions to be answered or issues to be resolved.

Additional Testing
A portion of all samples has been frozen and will be archived for 3 months. The client is encouraged to perform additional tests on the sample(s) for other hosts suspected of contributing to the fecal contamination.

Limitation of Damages – Repayment of Service Price
It is agreed that in the event of breach of any warranty or breach of contract, or negligence of Source Molecular Corporation, as well as its agents or representatives, the liability of the company shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Source Molecular Corp. The company shall not be liable for any damages, either direct or consequential. Source Molecular Corp. provides analytical services on a PRIME CONTRACT BASIS ONLY. Terms are available upon request. The sample(s) cited in this report may be used for research purposes after an archiving period of 3 months from the date of this report. Research includes, but is not limited to internal validation studies and peer-reviewed research publications. Anonymity of the sample(s), including the exact geographic location will be maintained by assigning an arbitrary internal reference. These anonymous samples will only be grouped by state / province of origin for research purposes. The client must contact Source Molecular in writing within 10 days from the date of this report if he/she does not wish for their submitted sample(s) to be used for any type of future research.

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For quality control purposes, a positive control and a negative control, were run alongside the sample(s) to ensure a properly functioning reaction and reveal any false negatives or false positives.

15280 NW 79th Court, Suite 107 Miami Lakes, Florida 33016
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733
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Human Fecal Quantification ID Test Results Report

Detection and quantification of the fecal associated Human gene biomarker by real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: January 8, 2020
Report Generated: January 14, 2019

ND: Not Detected

SM #	Sample ID	Analysis Requested	Marker Quantified (copies/100 ml)	Sample Type
SM-0A08023	Outfall 002_20200107_Grab	Human Bacteroidetes ID: Dorei	ND	Water
SM-0A08024	Outfall 002_20200107_4_Grab	Human Bacteroidetes ID: Dorei	ND	Water
SM-0A08025	Outfall018_20200107_Grab	Human Bacteroidetes ID: Dorei	ND	Water
SM-0A08026	Outfall018_20200107_4_Grab	Human Bacteroidetes ID: Dorei	ND	Water
SM-0A08027	Outfall 018_20200107_4I_Grab	Human Bacteroidetes ID: Dorei	ND	Water

Reported Results Authorized By: Anda Quintero, Quality Manager

Results reported herein apply only to the sample matrices as received.
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Effective Date 12/12/19

15280 NW 79th Court, Suite 107 Miami Lakes, Florida 33016
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Email: info@sourcemolecular.com

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Human Fecal Quantification ID Details of Sample Tested

Details of the sample material tested for the of the fecal associated Human gene biomarker by real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: January 8, 2020
Report Generated: January 14, 2019

SM #	Sample ID	Extraction Date	Analysis Date	Filtration Volume (ml)	Analytical Volume (ul)
SM-0A08023	Outfall 002_20200107_Grab	1/13/2019	1/14/2020	100	2
SM-0A08024	Outfall 002_20200107_4_Grab	1/13/2019	1/14/2020	100	2
SM-0A08025	Outfall018_20200107_Grab	1/13/2019	1/14/2020	100	2
SM-0A08026	Outfall018_20200107_4_Grab	1/13/2019	1/14/2020	100	2
SM-0A08027	Outfall 018_20200107_4I_Grab	1/13/2019	1/14/2020	60	2

Reported Results Authorized By: Anda Quintero, Quality Manager

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15280 NW 79th Court, Suite 107 Miami Lakes,
Florida 33016
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733

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Human Fecal Quantification ID Notes on Sample Condition

Details of the condition of samples tested for the fecal associated Human gene biomarker by real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received/Processed: January 8, 2020
Report Generated: January 14, 2019

SM #	Sample ID	Comments
SM-0A08023	Outfall 002_20200107_Grab	
SM-0A08024	Outfall 002_20200107_4_Grab	
SM-0A08025	Outfall018_20200107_Grab	
SM-0A08026	Outfall018_20200107_4_Grab	
SM-0A08027	Outfall 018_20200107_4I_Grab	Only 60mL in bottle

Reported Results Authorized By: Anda Quintero, Quality Manager

Results reported herein apply only to the sample matrices as received.
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Revision 1.4
Effective Date 12/12/19

Laboratory Comments

Submitter: Haley and Aldrich

Report Generated: January 14, 2019

Non-Detect Results

In sample(s) classified as non-detect, the host-associated fecal gene biomarker(s) was either not detected in test replicates, one replicate was detected at a cycle threshold greater than 35 and the other was not, or one replicate was detected at a cycle threshold less than 35 and the other was not after repeated analysis.

Detected Results

In sample(s) classified as detected, the host-associated fecal gene biomarker(s) was detected in both test replicates suggesting that the host's fecal contamination is present in the sample(s). Copy number measurements reported are relative, not absolute, quantification.

Detected Not Quantified (DNQ) Results

In sample(s) classified as Detected Not Quantified (DNQ), the host-associated fecal biomarker was detected in both test replicates but in quantities below the limit of quantification. This result indicates that fecal indicators associated with the respective host was present in the sample(s) but in low concentrations.

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A portion of all samples has been frozen and will be archived for 3 months. The client is encouraged to perform additional tests on the sample(s) for other hosts suspected of contributing to the fecal contamination.

Limitation of Damages – Repayment of Service Price

It is agreed that in the event of breach of any warranty or breach of contract, or negligence of Source Molecular Corporation, as well as its agents or representatives, the liability of the company shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Source Molecular Corp. The company shall not be liable for any damages, either direct or consequential. Source Molecular Corp. provides analytical services on a PRIME CONTRACT BASIS ONLY. Terms are available upon request. The sample(s) cited in this report may be used for research purposes after an archiving period of 3 months from the date of this report. Research includes, but is not limited to internal validation studies and peer-reviewed research publications. Anonymity of the sample(s), including the exact geographic location will be maintained by assigning an arbitrary internal reference. These anonymous samples will only be grouped by state / province of origin for research purposes. The client must contact Source Molecular in writing within 10 days from the date of this report if he/she does not wish for their submitted sample(s) to be used for any type of future research.

DNA Analytical Method Explanation

Water Samples: Each submitted water sample is filtered through 0.45 micron membrane filter(s). Each filter is placed in a separate, sterile 2ml disposable tube containing a unique mix of beads and lysis buffer. The sample is homogenized for 1min and the DNA extracted using the Generite DNA-EZ ST1 extraction kit (GeneRite, NJ), as per manufacturer's protocol. Devitations to these procedures may occur at the client's request.

Non-Water Samples: Each non-water sample submitted by the client is processed as per internal laboratory extraction procedures. An extracted DNA sample is proceed directly to PCR analysis. Details available upon request.

Amplifications to detect the target gene biomarker were run on an Applied Biosystems StepOnePlus real-time thermal cycler (Applied Biosystems, Foster City, CA) in a final reaction volume of 20ul sample extract, forward primer, reverse primer, probe and an optimized buffer. All assays are run in duplicate. Quantification is achieved by extrapolating target gene copy numbers from a standard curve generated from serial dilutions of known gene copy numbers.

For quality control purposes, a positive control and a negative control, were run alongside the sample(s) to ensure a properly functioning reaction and reveal any false negatives or false positives.

APPENDIX F

First Quarter 2020 Reasonable Potential Analysis Tables

APPENDIX F

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Reasonable Potential Analysis Summary notes

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Table F3 – Reasonable Potential Analysis – Non-priority Pollutants
(Outfalls 003-007, 009, and 010)

Table F4 – Reasonable Potential Analysis – Priority Pollutants
(Outfall 008)

Table F5 – Reasonable Potential Analysis – Non-priority Pollutants
(Outfall 008)

REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Notes:

1. The following Reasonable Potential Analysis (RPA) provides the analytical results as performed by the procedures outlined in *Reasonable Potential Analysis Methodology Technical Memo* (MWH and Flow Science, 2006).

2. The monitoring data set utilized to conduct the RPA consists of all applicable and relevant data from the present reporting quarter.

3. As directed by the CTR and the Regional Water Control Board 2,3,7,8-TCDD (Dioxin) values are to be expressed in NPDES permitting and this RPA as TCDD Total Equivalence units (TEQs). A TCDD TEQ is determined by multiplying each of the seventeen dioxin and furan congeners by their respective toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF) then summing the results of those products. For the purposes of this RPA, the resulting TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 26, of the NPDES Permit Effective April 1, 2015 (Water Board, 2015).

4. Data reported with qualifiers (e.g., J [DNQ] or R) are considered estimated or rejected and are not used in this RPA.

5. All of the following abbreviations and/or notes may not occur on every table.

6. Based on ORDER NO. R4-2015-0033, page E-2, Section I.C, only pollutants which do not have a final effluent limitation in the NPDES permit are included in this RPA analysis.

Definition of Acronyms, Abbreviations, and Terminology Used

>=	Greater than or equal to
*	Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. The equations are provided in the CTR, (US EPA, 2011). Values displayed correspond to a total hardness of 100 mg/l.
‡	Available data are below detection limits; detection limit is assigned for maximum effluent concentration (MEC) and is not applicable to compare against lowest water quality criteria concentration (C)
µg/L	Concentration units, micrograms per liter
All Data Qualified	All available monitoring data are qualified and no statistical analysis is performed.
Annual	The 2015 NPDES Permit requires annual monitoring.
ANR	Analysis not required; e.g., constituent or outfall was not required by the NPDES permit to be sampled and analyzed.
Available Data < DL	All available monitoring data that are not qualified are below detection limits.
B	Background
C	Concentration
CCC	Criterion Continuous Concentration
CMC	Criterion Maximum Concentration
CTR	California Toxics Rule
CV	Coefficient of Variation
DL	Detection Limit
EPA TSD	EPA's Technical Support Document for Water Quality Based Toxics Control, (see references).

REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Definition of Acronyms, Abbreviations, and Terminology Used (Continued)

Fibers/L	Units for asbestos concentration, fibers per liter
HH O	Human Health criteria for consumption of Organisms only
HH W&OMEC	Maximum Observed Effluent Concentration
mg/L	Concentration units, milligrams per liter
Min	Minimum
MPN/100ml	Most probable number per 100 milliliters
NA	Not Applicable
Narrative	Water quality criteria are expressed as a narrative objective rather than a numeric objective, and therefore are not part of the statistical RPA calculations.
None	No available CTR or Basin Plan criteria.
pH Dependent	CTR Criteria are based on pH.
Discharge	The 2015 NPDES Permit requires monitoring once per discharge event.
Qualified Data	Data qualifier definitions are: (a) J- The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL), (b) UJ- The analyte was not detected in the sample at the detection limit /estimated detection limit (EDL), (c) Nondetect U with blank qualifier(B, F, T) - Analyte found in sample and associated blank, (d) DNQ- Detected Not Quantified (sample results less than the RL, but great than or equal to the laboratory's MDL), and (e) rejected (R).
Reserved	EPA has reserved the CTR criteria.
RPA	Reasonable Potential Analysis
SIP	The State Water Resources Control Board "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California," (see references).
Tot	Total

Priority Pollutant RPA Column Explanation

OUTFALL	Outfall (or group of outfalls) with sampling data used in RPA.
CTR	Provides CTR constituent reference number.
Constituent	Provides CTR constituent common name.
Units	Provides the data set's concentration units as referenced by 2015 NPDES Permit.
MEC	Provides the outfall monitoring group's maximum value from the applicable data set.
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Step 1 identifies all applicable water quality criteria.	
CTR Criteria	Concentration criteria as listed in the CTR.
CMC = Acute	The Freshwater CMC is listed as the acute concentration criterion.
CCC = Chronic	The Freshwater CCC is listed as the chronic concentration criterion.
HH W&O (Not App)	The HH W&O is deemed not applicable based on past Regional Board RPAs.
HH O = HH	The HH O is listed as the CTR human health concentration criterion.

REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Priority Pollutant RPA Column Explanation (Continued)

Basin Plan Criteria	Applicable Basin Plan Criteria are listed for the Los Angeles River and/or Calleguas Creek watersheds.
C = Lowest Criteria	The comparison concentration (C) is equal to the lowest criterion for a constituent based on the CMC, CCC, HH O, and Basin Plan Criteria listed.
Step 2 defines the applicable data set.	
Is Effluent Data Available	If all data is qualified, then NO. If not, then YES.
Step 3 determines the maximum observed effluent concentration.	
Was Constituent Detected in Effluent Data	If the constituent was detected, then YES. If all monitoring data are non-detect or qualified then NO. If constituent was not required as per NPDES Permit, then NA.
Are all Detection Limits >C	If constituent was detected in effluent data or if no lowest criteria exists, then not applicable (NA). If constituent was not detected and all analysis detection limits are greater than the comparison concentration, then YES, if not then NO.
If DL > C, MEC = Min (DL)	If the previous cell answer was yes, then the MEC is equal to the minimum detection limit. If not, then NA.
Step 4 compares the MEC to the lowest applicable water quality criteria.	
MEC >= C	If the MEC is greater than or equal to the comparison concentration then YES, if not then NO. If no comparison concentration exists, then NA.

Note: Steps 5 and 6 of the Priority Pollutant RPA do not apply to the Santa Susana Site because the Regional Board gives no consideration for receiving water background constituent concentrations. Furthermore, Boeing defers the application of best professional judgment in Step 7 and final determination of reasonable potential in Step 8 to the Regional Board Staff.

Non-priority Pollutant RPA Column Explanation

Constituent	Provides the Non-Priority Pollutant constituent common name
Monitoring	Provides the 2015 NPDES Permit directed monitoring frequency
Units	Provides the data set's concentration units
Number of Samples	Provides the number of available samples that are not qualified
MEC	Provides the outfall monitoring group's maximum value from the applicable data set
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Multiplier	Utilizes the EPA's TSD calculation to determine multiplier for which the maximum effluent concentration is calculated. (MWH and Flow Science, 2006, or EPA TSD, 1991)
Projected Maximum Effluent Concentration	Utilizes the product of the multiplier and the MEC as an estimate for the projected maximum effluent concentration.
99/99	Statistical technique used in the Environmental Protection Agency's Technical Support Document RPA to compute the upper 99th confidence range of the 99th % value of the log normal distribution of monitoring data.
Dilution Ratio	The Regional Board allocates no dilution ratio to the Santa Susana Site (NA).
Background Concentration	The Regional Board allocates no background concentration to the Santa Susana Site (NA).

REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Projected Maximum Receiving Water Concentration	The Regional Board estimates the projected maximum receiving water concentration as equal to the projected maximum effluent concentration.

Non-priority Pollutant RPA Column Explanation (Continued)

Step 1, Determine Water Quality Objectives	The water quality objective is based on appropriate Basin Plan criteria as noted in the Reasonable Potential Analysis Methodology Technical Memo.
BU – Beneficial Use Protection, NC – Human Non-carcinogen, AP- Aquatic Life Protection, TMDL – Total Maximum Daily Load	This is the Regional Board's Basis for determining if reasonable potential should be evaluated for a non-priority pollutant.

Note: Boeing has completed appropriate statistical calculations but defers the application of best professional judgment and the final determination of reasonable potential to the Regional Board Staff.

REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

References:

1. Los Angeles Regional Water Quality Control Board, “Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan).” June 13, 1994.

2. MWH and Flow Science, “Reasonable Potential Analysis Methodology Technical Memo- Version 1, Final, Santa Susan Field Laboratory, Ventura County, California.” April 28, 2006.

3. State Water Resources Control Board, “Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (SIP)” Resolution No. 2005-0019, February 24, 2005.

4. US EPA, *40CFR part 131, Water Quality Standards; Establishment of numeric Criteria for Priority Toxic Pollutants for the State of California*, (CTR) Federal Registry, 2011, pp. 496 - 507.

5. US EPA, “Technical Support Document for Water Quality-based Toxics Control.” EPA/505/2-90-001, PB-91-127415, March 1991.

TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 001, 002, 011, AND 018)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
1, 2, 11, 18	15	Asbestos	Fibers/L	Not Analyzed	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7,000,000	No	NA	NA	NA	NA
1, 2, 11, 18	17	Acrolein	µg/L	Available Data <DL	0.6	NONE	NONE	320	780	NONE	780	Yes	No	No	NA	No
1, 2, 11, 18	18	Acrylonitrile	µg/L	Available Data <DL	0.6	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	1.0	NA‡
1, 2, 11, 18	19	Benzene	µg/L	Available Data <DL	0.6	NONE	NONE	1.2	71	1	1	Yes	No	No	NA	No
1, 2, 11, 18	20	Bromoform	µg/L	Available Data <DL	0.6	NONE	NONE	4.3	360	NONE	360	Yes	No	No	NA	No
1, 2, 11, 18	21	Carbon Tetrachloride	µg/L	Available Data <DL	0.6	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	No	NA	No
1, 2, 11, 18	22	Chlorobenzene	µg/L	0.61	0.6	NONE	NONE	680	21,000	70	70	Yes	Yes	NA	NA	No
1, 2, 11, 18	23	Dibromochloromethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.401	34	NONE	34	Yes	No	No	NA	No
1, 2, 11, 18	24	Chloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	25	2-Chloroethyl vinyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	26	Chloroform (Trichloromethane)	µg/L	Available Data <DL	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	27	Chlorodibromomethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.56	46	NONE	46	Yes	No	No	NA	No
1, 2, 11, 18	28	1,1-Dichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
1, 2, 11, 18	31	1,2-Dichloropropane	µg/L	Available Data <DL	0.6	NONE	NONE	0.52	39	5	5	Yes	No	No	NA	No
1, 2, 11, 18	32	cis-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
1, 2, 11, 18	32a	trans-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
1, 2, 11, 18	33	Ethylbenzene	µg/L	Available Data <DL	0.6	NONE	NONE	3,100	29,000	700	700	Yes	No	No	NA	No
1, 2, 11, 18	34	Bromomethane	µg/L	Available Data <DL	0.6	NONE	NONE	48	4,000	NONE	4,000	Yes	No	No	NA	No
1, 2, 11, 18	35	Chloromethane (Methyl Chloride)	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	36	Methylene chloride	µg/L	Available Data <DL	0.6	NONE	NONE	4.7	1,600	NONE	1,600	Yes	No	No	NA	No
1, 2, 11, 18	37	1,1,2,2-Tetrachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.17	11	1	1	Yes	No	No	NA	No
1, 2, 11, 18	38	Tetrachloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	0.8	8.85	5	5	Yes	No	No	NA	No
1, 2, 11, 18	39	Toluene	µg/L	Available Data <DL	0.6	NONE	NONE	6,800	200,000	150	150	Yes	No	No	NA	No
1, 2, 11, 18	40	trans-1,2-Dichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	700	140,000	10	10	Yes	No	No	NA	No
1, 2, 11, 18	41	1,1,1-Trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
1, 2, 11, 18	42	1,1,2-Trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.60	42	5	5	Yes	No	No	NA	No
1, 2, 11, 18	44	Vinyl chloride	µg/L	Available Data <DL	0.6	NONE	NONE	2	525	0.5	0.5	Yes	No	No	NA	No
1, 2, 11, 18	45	2-Chlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	120	400	NONE	400	Yes	No	No	NA	No
1, 2, 11, 18	46	2,4-Dichlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	93	790	NONE	790	Yes	No	No	NA	No
1, 2, 11, 18	47	2,4-Dimethylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	540	2,300	NONE	2,300	Yes	No	No	NA	No
1, 2, 11, 18	48	2-Methyl-4,6-dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	13.4	765	NONE	765	Yes	No	No	NA	No
1, 2, 11, 18	49	2,4-Dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	70	14,000	NONE	14,000	Yes	No	No	NA	No
1, 2, 11, 18	50	2-Nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	51	4-Nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	52	4-Chloro-3-methylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	54	Phenol	µg/L	Available Data <DL	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	Yes	No	No	NA	No
1, 2, 11, 18	56	Acenaphthene	µg/L	Available Data <DL	0.6	NONE	NONE	1,200	2,700	NONE	2,700	Yes	No	No	NA	No
1, 2, 11, 18	57	Acenaphthylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	58	Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	9,600	110,000	NONE	110,000	Yes	No	No	NA	No
1, 2, 11, 18	59	Benzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	Yes	No	Yes	5.2	NA‡
1, 2, 11, 18	60	Benzo(a)Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	1.0	NA‡
1, 2, 11, 18	61	Benzo(a)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	Yes	No	Yes	0.21	NA‡
1, 2, 11, 18	62	Benzo(b)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.31	NA‡
1, 2, 11, 18	63	Benzo(g,h,i)Perylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	64	Benzo(k)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.10	NA‡
1, 2, 11, 18	65	Bis (2-Chloroethoxy) methane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	66	Bis (2-Chloroethyl) ether	µg/L	Available Data <DL	0.6	NONE	NONE	0.0310	1.4	NONE	1.4	Yes	No	No	NA	No

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 001, 002, 011, AND 018)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
1, 2, 11, 18	67	Bis (2-Chloroisopropyl) Ether	µg/L	Available Data <DL	0.6	NONE	NONE	1,400	170,000	NONE	170,000	Yes	No	No	NA	No
1, 2, 11, 18	69	4-Bromophenyl phenyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	70	Butyl benzylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	3,000	5,200	NONE	5,200	Yes	No	No	NA	No
1, 2, 11, 18	71	2-Chloronaphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	1,700	4,300	NONE	4,300	Yes	No	No	NA	No
1, 2, 11, 18	72	4-Chlorophenyl phenyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	73	Chrysene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.10	NA[‡]
1, 2, 11, 18	74	Dibenz(a,h)anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.21	NA[‡]
1, 2, 11, 18	75	1,2-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	17,000	600	600	Yes	No	No	NA	No
1, 2, 11, 18	76	1,3-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	NONE	2,600	Yes	No	No	NA	No
1, 2, 11, 18	77	1,4-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	5	5	Yes	No	No	NA	No
1, 2, 11, 18	78	3,3'-Dichlorobenzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	0.10	NA[‡]
1, 2, 11, 18	79	Diethyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	23,000	120,000	NONE	120,000	Yes	No	No	NA	No
1, 2, 11, 18	80	Dimethyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	Yes	No	No	NA	No
1, 2, 11, 18	81	Di-n-butyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	12,000	NONE	12,000	Yes	No	No	NA	No
1, 2, 11, 18	83	2,6-Dinitrotoluene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	84	Di-n-octyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	85	1,2-Diphenylhydrazine/Azobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	0.040	0.54	NONE	0.54	Yes	No	No	NA	No
1, 2, 11, 18	86	Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	300	370	NONE	370	Yes	No	No	NA	No
1, 2, 11, 18	87	Fluorene	µg/L	Available Data <DL	0.6	NONE	NONE	1,300	14,000	NONE	14,000	Yes	No	No	NA	No
1, 2, 11, 18	88	Hexachlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.1	NA[‡]
1, 2, 11, 18	89	Hexachlorobutadiene	µg/L	Available Data <DL	0.6	NONE	NONE	0.44	50	NONE	50	Yes	No	No	NA	No
1, 2, 11, 18	90	Hexachlorocyclopentadiene	µg/L	Available Data <DL	0.6	NONE	NONE	240	17,000	50	50	Yes	No	No	NA	No
1, 2, 11, 18	91	Hexachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	No	NA	No
1, 2, 11, 18	92	Indeno(1,2,3-cd)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.42	NA[‡]
1, 2, 11, 18	93	Isophorone	µg/L	Available Data <DL	0.6	NONE	NONE	8.4	600	NONE	600	Yes	No	No	NA	No
1, 2, 11, 18	94	Naphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	95	Nitrobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	17	1,900	NONE	1,900	Yes	No	No	NA	No
1, 2, 11, 18	97	n-Nitroso-di-n-propylamine	µg/L	Available Data <DL	0.6	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	No	NA	No
1, 2, 11, 18	98	N-Nitrosodiphenylamine	µg/L	Available Data <DL	0.6	NONE	NONE	5.0	16	NONE	16	Yes	No	No	NA	No
1, 2, 11, 18	99	Phenanthrene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	100	Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	960	11,000	NONE	11,000	Yes	No	No	NA	No
1, 2, 11, 18	101	1,2,4-Trichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No
1, 2, 11, 18	102	Aldrin	µg/L	Available Data <DL	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.0015	NA[‡]
1, 2, 11, 18	104	beta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	No	NA	No
1, 2, 11, 18	105	gamma-BHC (Lindane)	µg/L	Available Data <DL	0.6	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	No	NA	No
1, 2, 11, 18	106	delta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
1, 2, 11, 18	107	Chlordane	µg/L	Available Data <DL	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.081	NA[‡]
1, 2, 11, 18	108	4,4'-DDT	µg/L	Available Data <DL	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0041	NA[‡]
1, 2, 11, 18	109	4,4'-DDE	µg/L	Available Data <DL	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0030	NA[‡]
1, 2, 11, 18	110	4,4'-DDD	µg/L	Available Data <DL	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.0041	NA[‡]
1, 2, 11, 18	111	Dieldrin	µg/L	Available Data <DL	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.0020	NA[‡]
1, 2, 11, 18	112	alpha-Endosulfan	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
1, 2, 11, 18	113	beta-Endosulfan	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
1, 2, 11, 18	114	Endosulfan Sulfate	µg/L	Available Data <DL	0.6	NONE	NONE	110	240	NONE	240	Yes	No	No	NA	No
1, 2, 11, 18	115	Endrin	µg/L	Available Data <DL	0.6	0.086	0.036	0.76	0.81	2	0.036	Yes	No	No	NA	No
1, 2, 11, 18	116	Endrin Aldehyde	µg/L	Available Data <DL	0.6	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	No	NA	No
1, 2, 11, 18	117	Heptachlor	µg/L	Available Data <DL	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.0030	NA[‡]

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 001, 002, 011, AND 018)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA										
						Freshwater		Human Health		Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
1, 2, 11, 18	118	Heptachlor Epoxide	µg/L	Available Data <DL	0.6	0.52	0.0038	0.00010	0.00011	0.01	0.00011	Yes	No	Yes	0.0025	NA‡
1, 2, 11, 18	119	Aroclor 1016	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	120	Aroclor 1221	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	121	Aroclor 1232	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	122	Aroclor 1242	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	123	Aroclor 1248	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	124	Aroclor 1254	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	125	Aroclor 1260	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.25	NA‡
1, 2, 11, 18	126	Toxaphene	µg/L	Available Data <DL	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.24	NA‡
1, 2, 11, 18	127	E. Coli	MPN/100ml	1100	0.6	NA	NA	NA	NA	235	235	Yes	Yes	NA	NA	Yes

TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	2	Arsenic	µg/L	Available Data <DL	0.6	340	150	NONE	NONE	50	50	Yes	No	No	NA	No
3-7, 9, 10	3	Beryllium	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	4	4	Yes	No	No	NA	No
3-7, 9, 10	5a	Chromium	µg/L	Available Data <DL	0.6	550	180	Narrative	Narrative	50	50	Yes	No	No	NA	No
3-7, 9, 10	5b	Chromium VI (Hexavalent)	µg/L	Available Data <DL	0.6	16	11	Narrative	Narrative	NONE	11	Yes	No	No	NA	No
3-7, 9, 10	10	Selenium	µg/L	Available Data <DL	0.6	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
3-7, 9, 10	11	Silver	µg/L	Available Data <DL	0.6	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	No	NA	No
3-7, 9, 10	15	Asbestos	Fibers/L	Available Data <DL	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7,000,000	Yes	No	No	NA	No
3-7, 9, 10	17	Acrolein	µg/L	Available Data <DL	0.6	NONE	NONE	320	780	NONE	780	Yes	No	No	NA	No
3-7, 9, 10	18	Acrylonitrile	µg/L	Available Data <DL	0.6	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	1.0	NA[‡]
3-7, 9, 10	19	Benzene	µg/L	Available Data <DL	0.6	NONE	NONE	1.2	71	1	1	Yes	No	No	NA	No
3-7, 9, 10	20	Bromoform	µg/L	Available Data <DL	0.6	NONE	NONE	4.3	360	NONE	360	Yes	No	No	NA	No
3-7, 9, 10	21	Carbon Tetrachloride	µg/L	Available Data <DL	0.6	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	No	NA	No
3-7, 9, 10	22	Chlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	680	21,000	70	70	Yes	No	No	NA	No
3-7, 9, 10	23	Dibromochloromethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.401	34	NONE	34	Yes	No	No	NA	No
3-7, 9, 10	24	Chloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	25	2-Chloroethyl vinyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	26	Chloroform	µg/L	Available Data <DL	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	27	Chlorodibromomethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.56	46	NONE	46	Yes	No	No	NA	No
3-7, 9, 10	28	1,1-Dichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
3-7, 9, 10	29	1,2-Dichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.38	99	0.5	0.5	Yes	No	No	NA	No
3-7, 9, 10	30	1,1-Dichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	0.057	3.2	6	3.2	Yes	No	No	NA	No
3-7, 9, 10	31	1,2-Dichloropropane	µg/L	Available Data <DL	0.6	NONE	NONE	0.52	39	5	5	Yes	No	No	NA	No
3-7, 9, 10	32	cis-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
3-7, 9, 10	32a	trans-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
3-7, 9, 10	33	Ethylbenzene	µg/L	Available Data <DL	0.6	NONE	NONE	3,100	29,000	700	700	Yes	No	No	NA	No
3-7, 9, 10	34	Bromomethane	µg/L	Available Data <DL	0.6	NONE	NONE	48	4,000	NONE	4,000	Yes	No	No	NA	No
3-7, 9, 10	35	Chloromethane (Methyl Chloride)	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	36	Methylene chloride	µg/L	Available Data <DL	0.6	NONE	NONE	4.7	1,600	NONE	1,600	Yes	No	No	NA	No
3-7, 9, 10	37	1,1,2,2-Tetrachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.17	11	1	1	Yes	No	No	NA	No
3-7, 9, 10	38	Tetrachloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	0.8	8.85	5	5	Yes	No	No	NA	No
3-7, 9, 10	39	Toluene	µg/L	Available Data <DL	0.6	NONE	NONE	6,800	200,000	150	150	Yes	No	No	NA	No
3-7, 9, 10	40	trans-1,2-Dichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	700	140,000	10	10	Yes	No	No	NA	No
3-7, 9, 10	41	1,1,1-Trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
3-7, 9, 10	42	1,1,2-Trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.6	42	5	5	Yes	No	No	NA	No
3-7, 9, 10	43	Trichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	2.7	81	5	5	Yes	No	No	NA	No
3-7, 9, 10	44	Vinyl chloride	µg/L	Available Data <DL	0.6	NONE	NONE	2	525	0.5	0.5	Yes	No	No	NA	No
3-7, 9, 10	45	2-Chlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	120	400	NONE	400	Yes	No	No	NA	No
3-7, 9, 10	46	2,4-Dichlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	93	790	NONE	790	Yes	No	No	NA	No
3-7, 9, 10	47	2,4-Dimethylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	540	2,300	NONE	2,300	Yes	No	No	NA	No
3-7, 9, 10	48	2-Methyl-4,6-dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	13.4	765	NONE	765	Yes	No	No	NA	No
3-7, 9, 10	49	2,4-Dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	70	14,000	NONE	14,000	Yes	No	No	NA	No
3-7, 9, 10	50	2-Nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	51	4-Nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	52	4-Chloro-3-methylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	53	Pentachlorophenol	µg/L	Available Data <DL	0.6	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	Yes	1.1	NA[‡]
3-7, 9, 10	54	Phenol	µg/L	Available Data <DL	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	Yes	No	No	NA	No

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	55	2,4,6-Trichlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	2.1	6.5	NONE	6.5	Yes	No	No	NA	No
3-7, 9, 10	56	Acenaphthene	µg/L	Available Data <DL	0.6	NONE	NONE	1,200	2,700	NONE	2,700	Yes	No	No	NA	No
3-7, 9, 10	57	Acenaphthylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	58	Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	9,600	110,000	NONE	110,000	Yes	No	No	NA	No
3-7, 9, 10	59	Benzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	Yes	No	Yes	5.3	NA‡
3-7, 9, 10	60	Benzo(a)Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	1.1	NA‡
3-7, 9, 10	61	Benzo(a)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	Yes	No	Yes	0.21	NA‡
3-7, 9, 10	62	Benzo(b)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.32	NA‡
3-7, 9, 10	63	Benzo(g,h,i)Perylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	64	Benzo(k)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.11	NA‡
3-7, 9, 10	65	Bis (2-Chloroethoxy) methane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	66	Bis (2-Chloroethyl) ether	µg/L	Available Data <DL	0.6	NONE	NONE	0.031	1.4	NONE	1.4	Yes	No	No	NA	No
3-7, 9, 10	67	Bis (2-Chloroisopropyl) Ether	µg/L	Available Data <DL	0.6	NONE	NONE	1,400	170,000	NONE	170,000	Yes	No	No	NA	No
3-7, 9, 10	68	Bis (2-ethylhexyl) Phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	1.8	5.9	4	4	Yes	No	No	NA	No
3-7, 9, 10	69	4-Bromophenyl phenyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	70	Butyl benzylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	3,000	5,200	NONE	5,200	Yes	No	No	NA	No
3-7, 9, 10	71	2-Chloronaphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	1,700	4,300	NONE	4,300	Yes	No	No	NA	No
3-7, 9, 10	72	4-Chlorophenyl phenyl ether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	73	Chrysene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.11	NA‡
3-7, 9, 10	74	Dibenz(a,h)anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.21	NA‡
3-7, 9, 10	75	1,2-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	17,000	600	600	Yes	No	No	NA	No
3-7, 9, 10	76	1,3-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	NONE	2,600	Yes	No	No	NA	No
3-7, 9, 10	77	1,4-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	5	5	Yes	No	No	NA	No
3-7, 9, 10	78	3,3'-Dichlorobenzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	1.1	NA‡
3-7, 9, 10	79	Diethyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	23,000	120,000	NONE	120,000	Yes	No	No	NA	No
3-7, 9, 10	80	Dimethyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	Yes	No	No	NA	No
3-7, 9, 10	81	Di-n-butyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	12,000	NONE	12,000	Yes	No	No	NA	No
3-7, 9, 10	82	2,4-Dinitrotoluene	µg/L	Available Data <DL	0.6	NONE	NONE	0.11	9.1	NONE	9.1	Yes	No	No	NA	No
3-7, 9, 10	83	2,6-Dinitrotoluene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	84	Di-n-octyl phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	85	1,2-Diphenylhydrazine/Azobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	0.04	0.54	NONE	0.54	Yes	No	No	NA	No
3-7, 9, 10	86	Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	300	370	NONE	370	Yes	No	No	NA	No
3-7, 9, 10	87	Fluorene	µg/L	Available Data <DL	0.6	NONE	NONE	1,300	14,000	NONE	14,000	Yes	No	No	NA	No
3-7, 9, 10	88	Hexachlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.11	NA‡
3-7, 9, 10	89	Hexachlorobutadiene	µg/L	Available Data <DL	0.6	NONE	NONE	0.44	50	NONE	50	Yes	No	No	NA	No
3-7, 9, 10	90	Hexachlorocyclopentadiene	µg/L	Available Data <DL	0.6	NONE	NONE	240	17,000	50	50	Yes	No	No	NA	No
3-7, 9, 10	91	Hexachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	No	NA	No
3-7, 9, 10	92	Indeno(1,2,3-cd)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.43	NA‡
3-7, 9, 10	93	Isophorone	µg/L	Available Data <DL	0.6	NONE	NONE	8.4	600	NONE	600	Yes	No	No	NA	No
3-7, 9, 10	94	Naphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	95	Nitrobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	17	1,900	NONE	1,900	Yes	No	No	NA	No
3-7, 9, 10	96	N-Nitrosodimethylamine	µg/L	Available Data <DL	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	Yes	No	No	NA	No
3-7, 9, 10	97	n-Nitroso-di-n-propylamine	µg/L	Available Data <DL	0.6	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	No	NA	No
3-7, 9, 10	98	N-Nitrosodiphenylamine	µg/L	Available Data <DL	0.6	NONE	NONE	5	16	NONE	16	Yes	No	No	NA	No
3-7, 9, 10	99	Phenanthrene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	100	Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	960	11,000	NONE	11,000	Yes	No	No	NA	No
3-7, 9, 10	101	1,2,4-Trichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	102	Aldrin	µg/L	Available Data <DL	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.0015	NA‡
3-7, 9, 10	103	alpha-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	Yes	No	No	NA	No
3-7, 9, 10	104	beta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	No	NA	No
3-7, 9, 10	105	gamma-BHC (Lindane)	µg/L	Available Data <DL	0.6	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	No	NA	No
3-7, 9, 10	106	delta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
3-7, 9, 10	107	Chlordane	µg/L	Available Data <DL	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.0082	NA‡
3-7, 9, 10	108	4,4'-DDT	µg/L	Available Data <DL	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0041	NA‡
3-7, 9, 10	109	4,4'-DDE	µg/L	Available Data <DL	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0031	NA‡
3-7, 9, 10	110	4,4'-DDD	µg/L	Available Data <DL	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.0041	NA‡
3-7, 9, 10	111	Dieldrin	µg/L	Available Data <DL	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.002	NA‡
3-7, 9, 10	112	alpha-Endosulfan	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
3-7, 9, 10	113	beta-Endosulfan	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
3-7, 9, 10	114	Endosulfan Sulfate	µg/L	Available Data <DL	0.6	NONE	NONE	110	240	NONE	240	Yes	No	No	NA	No
3-7, 9, 10	115	Endrin	µg/L	Available Data <DL	0.6	0.086	0.036	0.76	0.81	2	0.036	Yes	No	No	NA	No
3-7, 9, 10	116	Endrin Aldehyde	µg/L	Available Data <DL	0.6	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	No	NA	No
3-7, 9, 10	117	Heptachlor	µg/L	Available Data <DL	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.0026	NA‡
3-7, 9, 10	118	Heptachlor Epoxide	µg/L	Available Data <DL	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	Yes	No	Yes	0.0031	NA‡
3-7, 9, 10	119	Aroclor 1016	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	120	Aroclor 1221	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	121	Aroclor 1232	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	122	Aroclor 1242	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	123	Aroclor 1248	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	124	Aroclor 1254	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	125	Aroclor 1260	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
3-7, 9, 10	126	Toxaphene	µg/L	Available Data <DL	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.25	NA‡
3-7, 9, 10	127	E. Coli	MPN/100ml	490	0.6	NA	NA	NA	NA	235	235	Yes	Yes	NA	NA	Yes

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-3
REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALLS 003-007,009, AND 010)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC - Human noncarcinogen AP - Aquatic life protection TMDL - Total Maximum Daily Load
3-7, 9, 10	Total Suspended Solids	Discharge	mg/L	2	3.9	0.6	7.39	28.84	NA	NA	28.84	45	BU

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR						
8	002	Arsenic	µg/L	Available Data <DL	0.6	340	150	NONE	NONE	50	50	Yes	No	No	NA	No
8	003	Beryllium	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	4	4	Yes	No	No	NA	No
8	005a	Chromium	µg/L	Available Data <DL	0.6	550	180	Narrative	Narrative	50	50	Yes	No	No	NA	No
8	005b	Chromium VI	µg/L	Available Data <DL	0.6	16	11	Narrative	Narrative	NONE	11	Yes	No	No	NA	No
8	011	Silver	µg/L	Available Data <DL	0.6	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	No	NA	No
8	015	Asbestos	Fibers/L	Available Data <DL	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7,000,000	Yes	No	No	NA	No
8	017	Acrolein	µg/L	Available Data <DL	0.6	NONE	NONE	320	780	NONE	780	Yes	No	No	NA	No
8	018	Acrylonitrile	µg/L	Available Data <DL	0.6	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	1.0	NA[‡]
8	019	Benzene	µg/L	Available Data <DL	0.6	NONE	NONE	1.2	71	1	1	Yes	No	No	NA	No
8	020	Bromoform	µg/L	Available Data <DL	0.6	NONE	NONE	4.3	360	NONE	360	Yes	No	No	NA	No
8	021	Carbon Tetrachloride	µg/L	Available Data <DL	0.6	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	No	NA	No
8	022	Chlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	680	21,000	70	70	Yes	No	No	NA	No
8	023	Dibromochloromethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.401	34	NONE	34	Yes	No	No	NA	No
8	024	Chloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	025	2-Chloroethylvinylether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	026	Chloroform	µg/L	Available Data <DL	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	NA	NA	NA
8	027	Bromodichloromethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.56	46	NONE	46	Yes	No	No	NA	No
8	028	1,1-Dichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
8	029	1,2-Dichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.38	99	0.5	0.5	Yes	No	No	NA	No
8	030	1,1-Dichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	0.057	3.2	6	3.2	Yes	No	No	NA	No
8	031	1,2-Dichloropropane	µg/L	Available Data <DL	0.6	NONE	NONE	0.52	39	5	5	Yes	No	No	NA	No
8	032	cis-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
8	032a	trans-1,3-Dichloropropene	µg/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
8	033	Ethylbenzene	µg/L	Available Data <DL	0.6	NONE	NONE	3,100	29,000	700	700	Yes	No	No	NA	No
8	034	Bromomethane	µg/L	Available Data <DL	0.6	NONE	NONE	48	4,000	NONE	4,000	Yes	No	No	NA	No
8	035	Chloromethane	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	NA	NA	NA
8	036	Methylene chloride	µg/L	Available Data <DL	0.6	NONE	NONE	4.7	1,600	NONE	1,600	Yes	No	No	NA	No
8	037	1,1,2,2-Tetrachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.17	11	1	1	Yes	No	No	NA	No
8	038	Tetrachloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	0.8	8.85	5	5	Yes	No	No	NA	No
8	039	Toluene	µg/L	Available Data <DL	0.6	NONE	NONE	6,800	200,000	150	150	Yes	No	No	NA	No
8	040	trans-1,2-Dichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	700	140,000	10	10	Yes	No	No	NA	No
8	041	1,1,1-Trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
8	042	1,1,2-trichloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	0.6	42	5	5	Yes	No	No	NA	No
8	043	Trichloroethene	µg/L	Available Data <DL	0.6	NONE	NONE	2.7	81	5	5	Yes	No	No	NA	No
8	044	Vinyl chloride	µg/L	Available Data <DL	0.6	NONE	NONE	2	525	0.5	0.5	Yes	No	No	NA	No
8	045	2-chlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	120	400	NONE	400	Yes	No	No	NA	No
8	046	2,4-Dichlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	93	790	NONE	790	Yes	No	No	NA	No
8	047	2,4-dimethylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	540	2,300	NONE	2,300	Yes	No	No	NA	No
8	048	2-Methyl-4,6-dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	13.4	765	NONE	765	Yes	No	No	NA	No
8	049	2,4-dinitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	70	14,000	NONE	14,000	Yes	No	No	NA	No
8	050	2-nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	051	4-nitrophenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	052	4-Chloro-3-methylphenol	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	053	Pentachlorophenol	µg/L	Available Data <DL	0.6	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	Yes	1.1	NA[‡]
8	054	Phenol	µg/L	Available Data <DL	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	Yes	No	No	NA	No
8	055	2,4,6-Trichlorophenol	µg/L	Available Data <DL	0.6	NONE	NONE	2.1	6.5	NONE	6.5	Yes	No	No	NA	No
8	056	Acenaphthene	µg/L	Available Data <DL	0.6	NONE	NONE	1,200	2,700	NONE	2,700	Yes	No	No	NA	No

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR						
8	057	Acenaphthylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	058	Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	9,600	110,000	NONE	110,000	Yes	No	No	NA	No
8	059	Benzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.00012	0.00054	NONE	5.3	Yes	No	Yes	5.3	NA‡
8	060	Benzo(a)Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	1.1	NA‡
8	061	Benzo(a)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	Yes	No	Yes	0.21	NA‡
8	062	Benzo(b)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.32	NA‡
8	063	Benzo(g,h,i)Perylene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	064	Benzo(k)Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.11	NA‡
8	065	Bis(2-Chloroethoxy) methane	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	066	bis (2-Chloroethyl) ether	µg/L	Available Data <DL	0.6	NONE	NONE	0.031	1.4	NONE	1.4	Yes	No	No	NA	No
8	067	Bis(2-Chloroisopropyl) Ether	µg/L	Available Data <DL	0.6	NONE	NONE	1,400	170,000	NONE	170,000	Yes	No	No	NA	No
8	068	bis (2-ethylhexyl) Phthalate	µg/L	Available Data <DL	0.6	NONE	NONE	1.8	5.9	4	4	Yes	No	No	NA	No
8	069	4-Bromophenylphenylether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	070	Butylbenzylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	3,000	5,200	NONE	5,200	Yes	No	No	NA	No
8	071	2-Chloronaphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	1,700	4,300	NONE	4,300	Yes	No	No	NA	No
8	072	4-Chlorophenylphenylether	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	073	Chrysene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.11	NA‡
8	074	Dibenzo(a,h)Anthracene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.21	NA‡
8	075	1,2-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	17,000	600	600	Yes	No	No	NA	No
8	076	1,3-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	NONE	2,600	Yes	No	No	NA	No
8	077	1,4-Dichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	400	2,600	5	5	Yes	No	No	NA	No
8	078	3,3'-Dichlorobenzidine	µg/L	Available Data <DL	0.6	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	1.1	NA‡
8	079	Diethylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	23,000	120,000	NONE	120,000	Yes	No	No	NA	No
8	080	Dimethylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	Yes	No	No	NA	No
8	081	Di-n-butylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	2,700	12,000	NONE	12,000	Yes	No	No	NA	No
8	082	2,4-Dinitrotoluene	µg/L	Available Data <DL	0.6	NONE	NONE	0.11	9.1	NONE	9.1	Yes	No	No	NA	No
8	083	2,6-Dinitrotoluene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	084	Di-n-octylphthalate	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	085	1,2-Diphenylhydrazine	µg/L	Available Data <DL	0.6	NONE	NONE	0.04	0.54	NONE	0.54	Yes	No	No	NA	NA
8	086	Fluoranthene	µg/L	Available Data <DL	0.6	NONE	NONE	300	370	NONE	370	Yes	No	No	NA	NA
8	087	Fluorene	µg/L	Available Data <DL	0.6	NONE	NONE	1,300	14,000	NONE	14,000	Yes	No	No	NA	NA
8	088	Hexachlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.11	NA‡
8	089	Hexachlorobutadiene	µg/L	Available Data <DL	0.6	NONE	NONE	0.44	50	NONE	50	Yes	No	No	NA	No
8	090	Hexachlorocyclopentadiene	µg/L	Available Data <DL	0.6	NONE	NONE	240	17,000	50	50	Yes	No	No	NA	No
8	091	Hexachloroethane	µg/L	Available Data <DL	0.6	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	No	NA	No
8	092	Indeno(1,2,3-cd)Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.43	NA‡
8	093	Isophorone	µg/L	Available Data <DL	0.6	NONE	NONE	8.4	600	NONE	600	Yes	No	No	NA	No
8	094	Naphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	095	Nitrobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	17	1,900	NONE	1,900	Yes	No	No	NA	No
8	096	N-Nitrosodimethylamine	µg/L	Available Data <DL	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	Yes	No	No	NA	No
8	097	n-Nitroso-di-n-propylamine	µg/L	Available Data <DL	0.6	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	No	NA	No
8	098	N-Nitrosodiphenylamine	µg/L	Available Data <DL	0.6	NONE	NONE	5	16	NONE	16	Yes	No	No	NA	No
8	099	Phenanthrene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	100	Pyrene	µg/L	Available Data <DL	0.6	NONE	NONE	960	11,000	NONE	11,000	Yes	No	No	NA	No
8	101	1,2,4-Trichlorobenzene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No
8	102	Aldrin	µg/L	Available Data <DL	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.0015	NA‡
8	103	alpha-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	Yes	No	No	NA	No

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR						
8	104	beta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	No	NA	No
8	105	Lindane (gamma-BHC)	µg/L	Available Data <DL	0.6	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	No	NA	No
8	106	delta-BHC	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	NA	NA	NA
8	107	Chlordane	µg/L	Available Data <DL	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.082	NA‡
8	108	4,4'-DDT	µg/L	Available Data <DL	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0041	NA‡
8	109	4,4'-DDE	µg/L	Available Data <DL	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.0031	NA‡
8	110	4,4'-DDD	µg/L	Available Data <DL	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.0041	NA‡
8	111	Dieldrin	µg/L	Available Data <DL	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.002	NA‡
8	112	Endosulfan I	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
8	113	Endosulfan II	µg/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
8	114	Endosulfan Sulfate	µg/L	Available Data <DL	0.6	NONE	NONE	110	240	NONE	240	Yes	No	No	NA	No
8	115	Endrin	µg/L	Available Data <DL	0.6	0.086	0.036	0.76	0.81	2	0.036	Yes	No	No	NA	No
8	116	Endrin Aldehyde	µg/L	Available Data <DL	0.6	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	No	NA	No
8	117	Heptachlor	µg/L	Available Data <DL	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.0026	NA‡
8	118	Heptachlor Epoxide	µg/L	Available Data <DL	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	Yes	No	Yes	0.0031	NA‡
8	119	Aroclor-1016	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	120	Aroclor-1221	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	121	Aroclor-1232	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	122	Aroclor-1242	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	123	Aroclor-1248	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	124	Aroclor-1254	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	125	Aroclor-1260	µg/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.26	NA‡
8	126	Toxaphene	µg/L	Available Data <DL	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.25	NA‡
8	127	E. Coli	MPN/100ml	490	0.6	NA	NA	NA	NA	235	235	Yes	Yes	NA	NA	Yes

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE F-5
REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALL 008)

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC - Human noncarcinogen AP - Aquatic life protection
8	Total Suspended Solids	Discharge	mg/L	2	4.1	0.60	7.39	30.31	0	0	30.31	45	BU

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

APPENDIX G

First Quarter 2020 Receiving Water Surveys

APPENDIX G

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Table G - Receiving Water Surveys

TABLE G
RECEIVING WATER SURVEYS

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

January 1 through March 31, 2020

Observation Requirements: Observations are only made during discharge on a monthly basis when 002 (Bell Creek), Outfall 008 (Dayton Creek), and Outfall 009 (Arroyo Simi) are flowing. Outfalls 002 and 009 discharged in January and March during the First Quarter 2020 and Outfall 008 discharged in March during the First Quarter 2020.

FIRST QUARTER 2020 ARROYO SIMI OBSERVATIONS at Arroyo Simi			
ARROYO SIMI OBSERVATIONS	**JANUARY**	**FEBRUARY**	**MARCH**
Date and time of inspection	1/7/2020, 10:00	N/A	3/13/2020, 07:35
Weather conditions	Clear	N/A	Raining
Color of water	Clear, Clearish Gray (Minor Turbidity)	N/A	Transluscent, Slight Yellowish Coloration
Appearance of oil films or grease, or floatable materials	None	N/A	None
Extent of visible turbidity or color patches	Minor Turbidity	N/A	Minor, Low Turbidity, Water Transluscent
Description of odor, if any	None	N/A	None
Presence or activity of California Least Tern or California Brown Pelican	No	N/A	No
Upstream Surface Water Temperature*	65°F	N/A	52°F
Upstream Surface Water pH*	7.4 pH Units	N/A	7.95 pH Units

Notes:
N/A = not applicable. Since Outfall 009 did not flow during the month of February, no monthly inspection was required at Arroyo Simi for that month.
* = These data were collected to assist in determining compliance with receiving water limitations during the quarter. Upstream data (Figure 2) were compared to the pH and temperature measured at Arroyo Simi sample location RSW-002 (Appendix C) and were within 0.5 unit and 5°F of the upstream field readings; therefore, compliance was demonstrated.

FIRST QUARTER 2020 BELL CREEK OBSERVATIONS at Outfall 002			
BELL CREEK OBSERVATIONS	**JANUARY**	**FEBRUARY**	**MARCH**
Date and time of inspection	1/7/2020, 08:55	N/A	3/23/2020, 07:40
Weather conditions	Sunny and Clear	N/A	Light Rain, Cloudy, Cool
Color of water	Brown	N/A	Brown
Appearance of oil films or grease, or floatable materials	None	N/A	Floating Leaves and Twigs
Extent of visible turbidity or color patches	Uniform turbidity	N/A	Uniform Transluscent
Description of odor, if any	None	N/A	None
Presence or activity of California Least Tern or California Brown Pelican	No	N/A	No

Notes:
N/A = not applicable. Since Outfall 002 did not flow during February, no monthly inspection was required at Outfall 002 for that month.

FIRST QUARTER 2020 DAYTON CANYON CREEK OBSERVATIONS at Outfall 008			
DAYTON CANYON CREEK OBSERVATIONS	**JANUARY**	**FEBRUARY**	**MARCH**
Date and time of inspection	N/A	N/A	3/23/2020, 07:05
Weather conditions	N/A	N/A	Overcast, slight rain, cool
Color of water	N/A	N/A	Slightly Brown
Appearance of oil films or grease, or floatable materials	N/A	N/A	None
Extent of visible turbidity or color patches	N/A	N/A	Uniform Transluscent
Description of odor, if any	N/A	N/A	None
Presence or activity of California Least Tern or California Brown Pelican	N/A	N/A	No

Notes:
NA = not applicable. Since Outfall 008 did not flow during the months of January and February, no monthly inspection was required at Outfall 008 for those months.

Receiving Water Inspection Checklist

☒ RSW-002, Arroyo Simi-Frontier Park (when OF009 flowing and/or Arroyo Simi quarterly sampling, observed at Arroyo Simi-Frontier Park)
☐ RSW-001, Bell Creek (when OF001, 002, 011 or 018 flowing, observed at one of the following outfalls)
- ☐ OF001
- ☐ OF002
- ☐ OF011
- ☐ OF018

☐ Dayton Canyon Creek (when OF008 flowing, observed at OF008)

Inspector: Rachel Hohn Date of Inspection: 01/07/20 Time 1000 am

***Complete** the **following** checklist while **surveying** the **Receiving** Water.*

1) Weather Conditions: Clear
2) Color of Water: Clear, ~~clear tan~~ ext Cleanish gray (minor turbidity)
3) Appearance of oil films or grease, or floating materials: None
4) Extent of visible turbidity or color patches: minor turbidity,
5) Description of odor, if any, of the receiving water: none
   Rotten milk?
   Musty?
   Septic?
   Chemical?
   Sulfur?
6) Presence of California Least Tern YES_____ NO X
7) Presence of California Brown Pelican: YES_____ NO X
8) Flow Velocity: _____ ft/second N/A
9) Ambient Air Temperature: 65 °C/°F
10) Upstream Temperature (for Arroyo Simi only): 65 °C/°F Located south of Ish Drive & east of Tapo Street
11) Upstream pH (for Arroyo Simi only): 7.4 pH unit Located south of Ish Drive & east of Tapo Street

Notes:



California Least Tern

California Brown Pelican



Receiving Water Surveys required Attachment E VIII. B.

Arroyo Simi only - PH

Receiving Water Inspection Checklist

☐ RSW-002, Arroyo Simi-Frontier Park (when OF009 flowing and/or Arroyo Simi quarterly sampling, observed at Arroyo Simi-Frontier Park)

☑ RSW-001, Bell Creek (when OF001, 002, 011 or 018 flowing, observed at one of the following outfalls)

- ☐ OF001
- ☑ OF002
- ☐ OF011
- ☑ OF018

☐ Dayton Canyon Creek (when OF008 flowing, observed at OF008)

03/13/2020

Inspector: Rachel Hann Date of Inspection: ~~03/14~~ Time _____

Complete the following checklist while surveying the Receiving Water.

1) Weather Conditions: Raining, 50°
2) Color of Water: Translucent, slight yellowish coloration
3) Appearance of oil films or grease, or floating materials: None
4) Extent of visible turbidity or color patches: Minor, low turbidity, water translucent
5) Description of odor, if any, of the receiving water: No smell
   Rotten milk?
   Musty?
   Septic?
   Chemical?
   Sulfur?
6) Presence of California Least Tern YES_____ NO✓
7) Presence of California Brown Pelican: YES_____ NO✓
8) Flow Velocity: 0.3 ft/second
9) Ambient Air Temperature: ~~50 °C/F PH~~ 11:38 PH 50° F
10) Upstream Temperature (for Arroyo Simi only): ~~PH~~ °C/°F Located south of Ish Drive & east of Tapo Street
11) Upstream pH (for Arroyo Simi only): 7.95 pH unit Located south of Ish Drive & east of Tapo Street

Notes:



California Least Tern

California Brown Pelican



Receiving Water Surveys required Attachment E VIII. B.

Scanned with CamScanner

Receiving Water Inspection Checklist

☐RSW-002, Arroyo Simi-Frontier Park (when OF009 flowing and/or Arroyo Simi quarterly sampling, observed at Arroyo Simi-Frontier Park)
☐RSW-001, Bell Creek (when OF001, 002, 011 or 018 flowing, observed at one of the following outfalls)
- ☑OF001
- ☐OF002
- ☐OF011
- ☐OF018

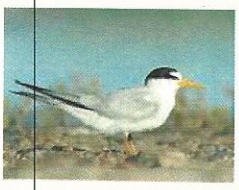
☐Dayton Canyon Creek (when OF008 flowing, observed at OF008)

Inspector: MARK DOMINICK Date of Inspection: 3-23-2020 Time ~~0740~~ 0740

Complete the following checklist while surveying the Receiving Water.

1) Weather Conditions: Light rain, cloudy, cool
2) Color of Water: Brown
3) Appearance of oil films or grease, or floating materials: Floating leaves and twigs
4) Extent of visible turbidity or color patches: Uniform translucent
5) Description of odor, if any, of the receiving water: None
   Rotten milk?
   Musty?
   Septic?
   Chemical?
   Sulfur?
6) Presence of California Least Tern YES_____ NO ✓
7) Presence of California Brown Pelican: YES_____ NO ✓
8) Flow Velocity: 0.5 ft/second
9) Ambient Air Temperature: 52 °C/~~°F~~
10) Upstream Temperature (for Arroyo Simi only): _____°C/°F Located south of Ish Drive & east of Tapo Street
11) Upstream pH (for Arroyo Simi only): _____pH unit Located south of Ish Drive & east of Tapo Street

Notes:



California Least Tern



California Brown Pelican

Receiving Water Inspection Checklist

☐ RSW-002, Arroyo Simi-Frontier Park (when OF009 flowing and/or Arroyo Simi quarterly sampling, observed at Arroyo Simi-Frontier Park)
☐ RSW-001, Bell Creek (when OF001, 002, 011 or 018 flowing, observed at one of the following outfalls)
- ☐ OF001
- ☐ OF002
- ☐ OF011
- ☐ OF018

☑ Dayton Canyon Creek (when OF008 flowing, observed at OF008)

Inspector: MARK DOMINICK Date of Inspection: 3-23-2020 Time 0705

Complete the following checklist while surveying the Receiving Water.

1) Weather Conditions: Overcast, slight rain, cool
2) Color of Water: Slightly brown
3) Appearance of oil films or grease, or floating materials: None
4) Extent of visible turbidity or color patches: Uniform translucent
5) Description of odor, if any, of the receiving water: N/A
   Rotten milk?
   Musty?
   Septic?
   Chemical?
   Sulfur?
6) Presence of California Least Tern YES____ NO ✓
7) Presence of California Brown Pelican: YES____ NO ✓
8) Flow Velocity: 0.5 ft/second
9) Ambient Air Temperature: 50 °C/°F
10) Upstream Temperature (for Arroyo Simi only): N/A °C/°F Located south of Ish Drive & east of Tapo Street
11) Upstream pH (for Arroyo Simi only): N/A pH unit Located south of Ish Drive & east of Tapo Street

Notes:



California Least Tern

California Brown Pelican



Receiving Water Surveys required Attachment E VIII. B.

APPENDIX H

First Quarter 2020 Analytical Laboratory Methods, Method Detection Limits, Reporting Limits, QA/QC Procedures, and ELAP

APPENDIX H

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Table H - Annual List of Analytical Methods by Analyte with Corresponding Laboratory Reporting Limits and Method Detection Limits

TestAmerica Quality Assurance Summary (QAS)

TestAmerica Irvine CA Certificate of Environmental Accreditation

TestAmerica Irvine CA Environmental Laboratory Accreditation Program

TestAmerica Sacramento CA Certificate of Environmental Accreditation

TestAmerica Sacramento CA Environmental Laboratory Accreditation Program

TestAmerica Seattle CA Environmental Laboratory Accreditation Program

TestAmerica St. Louis CA Certificate of Environmental Accreditation

TestAmerica St. Louis CA Environmental Laboratory Accreditation Program

Aquatic Bioassay & Consulting Laboratories, Inc. CA Certificate of Environmental Accreditation

Aquatic Bioassay & Consulting Laboratories, Inc. CA Environmental Laboratory Accreditation Program

EMSL Analytical Inc. CA Environmental Laboratory Accreditation Program

Enthalpy Analytical, LLC CA Certificate of Environmental Accreditation

Enthalpy Analytical, LLC CA Environmental Laboratory Accreditation Program

Eurofins Lancaster Laboratories Environmental, LLC CA Certificate of Environmental Accreditation

Eurofins Lancaster Laboratories Environmental, CA Environmental Laboratory Accreditation Program

Weck Laboratories, Inc. CA Certificate of Environmental Accreditation

Weck Laboratories, Inc. CA Environmental Laboratory Accreditation Program

Weck Laboratories, Inc. CA Analytical Method Information

TABLE H
ANNUAL LIST OF ANALYTICAL METHODS BY ANALYTE WITH CORRESPONDING LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

							Permit Limits/Benchmarks					
Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML[1]**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
EPA 624 - Low-level	1,1,1-Trichloroethane	µg/L	0.250	0.500	2	--[b]						
	1,1,2,2-Tetrachloroethane	µg/L	0.250	0.500	1	--[b]						
	1,1,2-Trichloroethane	µg/L	0.250	0.500	2	--[b]						
	1,1-Dichloroethane	µg/L	0.250	0.500	1	--[b]						
	1,1-Dichloroethene	µg/L	0.250	0.500	2	--[a]	3.2	6.0				
	1,2-Dichlorobenzene	µg/L	0.250	0.500	2	--[b]						
	1,2-Dichloroethane	µg/L	0.250	0.500	2	--[a]		0.5				
	1,2-Dichloropropane	µg/L	0.250	0.500	1	--[b]						
	1,3-Dichlorobenzene	µg/L	0.250	0.500	2	--[b]						
	1,3-Dichloropropene (reported as cis & trans)	µg/L	0.250	0.500	2	--[b]						
	1,4-Dichlorobenzene	µg/L	0.250	0.500	2	--[b]						
	Benzene	µg/L	0.250	0.500	2	--[b]						
	Bromoform	µg/L	0.400	1.00	2	--[b]						
	Bromomethane	µg/L	0.250	0.500	2	--[b]						
	Carbon tetrachloride	µg/L	0.250	0.500	2	--[b]						
	Chlorobenzene	µg/L	0.250	0.500	2	--[b]						
	Chlorodibromomethane	µg/L	0.250	0.500	2	--[b]						
	Chloroethane	µg/L	0.400	1.00	2	--[b]						
	Chloroform (Trichloromethane)	µg/L	0.250	0.500	2	--[b]						
	Chloromethane (Methyl Chloride)	µg/L	0.250	0.500	2	--[b]						
	Dibromochloromethane	µg/L	0.250	0.500	2	--[b]						
	Ethylbenzene	µg/L	0.250	0.500	2	--[b]						
	Methylene chloride	µg/L	0.880	2.00	2	--[b]						
	Tetrachloroethene	µg/L	0.250	0.500	2	--[b]						
	Toluene	µg/L	0.250	0.500	2	--[b]						
	trans-1,2-Dichloroethene	µg/L	0.250	0.500	1	--[b]						
	Trichloroethene	µg/L	0.250	0.500	2	--[a]		5.0				
	Vinyl chloride	µg/L	0.250	0.500	2	--[b]						
	m,p-Xylenes	µg/L	0.500	1.00	n/a	--[d]						
	Naphthalene	µg/L	0.400	1.00	n/a	--[d]						
	o-Xylene	µg/L	0.250	0.500	n/a	--[d]						
	Trichlorofluoromethane	µg/L	0.250	0.500	n/a	--[d]						
VOC - Add-ons (EPA 624)	1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	0.500	2.00	n/a	--[d]						
	1,2-Dichloro-1,1,2-trifluoroethane	µg/L	1.00	2.00	n/a	--[d]						
	Cyclohexane	µg/L	1.00	2.00	n/a	--[d]						
EPA 624/8260B A-A+2CVE LOW	Acrolein	µg/L	2.50	5.00	5	--[b]						
	Acrylonitrile	µg/L	1.00	2.00	2	--[b]						
	2-Chloroethyl vinyl ether	µg/L	1.00	2.00	1	--[b]						

TABLE H
ANNUAL LIST OF ANALYTICAL METHODS BY ANALYTE WITH CORRESPONDING LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

							Permit Limits/Benchmarks					
Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML[1]**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
EPA 625+NDMA+Hydrazine -Low-level	1,2,4-Trichlorobenzene	µg/L	0.200	1.00	5	--[b]						
	1,2-Dichlorobenzene	µg/L	0.200	0.500	2	--[b]						
	1,2-Diphenylhydrazine/Azobenzene	µg/L	0.200	1.00	1	--[b]						
	1,3-Dichlorobenzene	µg/L	0.200	0.500	1	--[b]						
	1,4-Dichlorobenzene	µg/L	0.200	0.500	1	--[b]						
	2,4-Dichlorophenol	µg/L	0.200	2.00	5	--[b]						
	2,4-Dimethylphenol	µg/L	0.500	2.00	2	--[b]						
	2,4-Dinitrophenol	µg/L	1.00	5.00	5	--[b]						
	2,4-Dinitrotoluene	µg/L	2.00	5.00	5	--[a]	9.1	18				
	2,4,6-Trichlorophenol	µg/L	0.100	1.00	10	--[a]	6.5	13				
	2,6-Dinitrotoluene	µg/L	2.00	5.00	5	--[b]						
	2-Chloronaphthalene	µg/L	0.100	0.500	10	--[b]						
	2-Chlorophenol	µg/L	0.100	1.00	5	--[b]						
	2-Methyl-4,6-Dinitrophenol	µg/L	1.00	5.00	5	--[b]						
	2-Nitrophenol	µg/L	0.200	2.00	10	--[b]						
	3,3'-Dichlorobenzidine	µg/L	1.00	5.00	5	--[b]						
	4-Bromophenyl phenyl ether	µg/L	0.100	1.00	5	--[b]						
	4-Chloro-3-methylphenol	µg/L	0.200	2.00	1	--[b]						
	4-Chlorophenyl phenyl ether	µg/L	0.100	0.500	5	--[b]						
	4-Nitrophenol	µg/L	2.00	5.00	10	--[b]						
	Acenaphthene	µg/L	0.100	0.500	1	--[b]						
	Acenaphthylene	µg/L	0.100	0.500	10	--[b]						
	Anthracene	µg/L	0.100	0.500	10	--[b]						
	Benzidine	µg/L	5.00	10.0	5	--[b]						
	Benzo(a)anthracene	µg/L	1.00	5.00	5	--[b]						
	Benzo(a)pyrene	µg/L	0.200	2.00	10	--[b]						
	Benzo(b)fluoranthene	µg/L	0.300	2.00	10	--[b]						
	Benzo(g,h,i)perylene	µg/L	1.00	5.00	5	--[b]						
	Benzo(k)fluoranthene	µg/L	0.100	0.500	10	--[b]						
	Bis (2-chloroethoxy) methane	µg/L	0.200	0.500	5	--[b]						
	Bis (2-chloroethyl) ether	µg/L	0.050	0.500	1	--[b]						
	Bis (2-chloroisopropyl) ether	µg/L	0.100	0.500	2	--[b]						
	Bis (2-ethylhexyl) phthalate	µg/L	2.00	5.00	5	--[a]		4.0				
	Butyl benzylphthalate	µg/L	2.00	5.00	10	--[b]						
	Chrysene	µg/L	0.100	0.500	10	--[b]						
EPA 625+NDMA+Hydrazine -Low-level	Dibenz(a,h)anthracene	µg/L	0.200	0.500	10	--[b]						
	Diethyl phthalate	µg/L	0.200	1.00	2	--[b]						
	Dimethyl phthalate	µg/L	0.100	0.500	2	--[b]						
	Di-n-butyl phthalate	µg/L	0.500	2.00	10	--[b]						
	Di-n-octyl phthalate	µg/L	1.00	5.00	10	--[b]						
	Fluoranthene	µg/L	0.100	0.500	1	--[b]						
	Fluorene	µg/L	0.100	0.500	10	--[b]						
	Hexachlorobenzene	µg/L	0.100	1.00	1	--[b]						
	Hexachlorobutadiene	µg/L	0.500	2.00	1	--[b]						
	Hexachlorocyclopentadiene	µg/L	2.00	5.00	5	--[b]						
	Hexachloroethane	µg/L	0.500	3.00	1	--[b]						
	Indeno(1,2,3-cd)pyrene	µg/L	0.400	2.00	10	--[b]						
	Isophorone	µg/L	0.200	1.00	1	--[b]						
	Naphthalene	µg/L	0.050	1.00	1	--[b]						

TABLE H
ANNUAL LIST OF ANALYTICAL METHODS BY ANALYTE WITH CORRESPONDING LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

							Permit Limits/Benchmarks					
Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML[1]**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
	Nitrobenzene	µg/L	0.200	1.00	1	--[b]						
	n-Nitrosodimethylamine	µg/L	0.300	2.00	5	--[a]	8.1	16				
	n-Nitroso-di-n-propylamine	µg/L	0.200	2.00	5	--[b]						
	n-Nitrosodiphenylamine	µg/L	0.200	1.00	1	--[b]						
	Pentachlorophenol	µg/L	1.00	2.00	5	--[a]	8.2	16.5				
	Phenanthrene	µg/L	0.100	0.500	5	--[b]						
	Phenol	µg/L	0.100	1.00	1	--[b]						
	Pyrene	µg/L	0.100	0.500	10	--[b]						
PCB, Low Level (EPA 608)	Aroclor 1016	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1221	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1232	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1242	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1248	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1254	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1260	µg/L	0.250	0.500	0.5	--[g]					0.0003	
	Aroclor 1016	µg/g	0.005	0.022	n/a	--[f]						0.12
	Aroclor 1221	µg/g	0.006	0.049	n/a	--[f]						0.12
	Aroclor 1232	µg/g	0.010	0.049	n/a	--[f]						0.12
	Aroclor 1242	µg/g	0.004	0.049	n/a	--[f]						0.12
	Aroclor 1248	µg/g	0.004	0.049	n/a	--[f]						0.12
	Aroclor 1254	µg/g	0.004	0.049	n/a	--[f]						0.12
	Aroclor 1260	µg/g	0.006	0.049	n/a	--[f]						0.12
Pesticides, Low Level (EPA 608)	Aldrin	µg/L	0.00150	0.00500	0.005	--[b]						
	alpha-BHC	µg/L	0.00250	0.00500	0.01	--[a]	0.01	0.03				
	alpha-Endosulfan	µg/L	0.00300	0.00500	0.02	--[b]						
	beta-BHC	µg/L	0.00400	0.0100	0.005	--[b]						
	beta-Endosulfan	µg/L	0.00200	0.00500	0.01	--[b]						
	delta-BHC	µg/L	0.00350	0.00500	0.005	--[b]						
	gamma-BHC (Lindane)	µg/L	0.00300	0.0100	0.02	--[b]						
	Chlordane	µg/L	0.0800	0.100	0.1	--[g]					0.001	
	4,4'-DDD	µg/L	0.00400	0.00500	0.05	--[g]					0.0014	
	4,4'-DDE	µg/L	0.00300	0.00500	0.05	--[g]					0.001	
	4,4'-DDT	µg/L	0.00400	0.0100	0.01	--[g]					0.001	
	Dieldrin	µg/L	0.00200	0.00500	0.01	--[g]					0.0002	
	Endosulfan sulfate	µg/L	0.00300	0.0100	0.05	--[b]						
	Endrin	µg/L	0.00200	0.00500	0.01	--[b]						
	Endrin aldehyde	µg/L	0.00200	0.0100	0.01	--[b]						
	Heptachlor	µg/L	0.00300	0.00900	0.01	--[b]						
	Heptachlor epoxide	µg/L	0.00250	0.00500	0.01	--[b]						
	Toxaphene	µg/L	0.24000	0.500	0.5	--[g]					0.0003	
	Chlordane	µg/g	0.01500	0.05000	n/a	--[f]						0.0033
	4,4'-DDD	µg/g	0.00150	0.00500	n/a	--[f]						0.002
	4,4'-DDE	µg/g	0.00150	0.00500	n/a	--[f]						0.0014
	4,4'-DDT	µg/g	0.00150	0.00500	n/a	--[f]						0.0003
	Dieldrin	µg/g	0.00150	0.00500	n/a	--[f]						0.0002
	Toxaphene	µg/g	0.05000	0.20000	n/a	--[f]						0.0006
EPA 525.2	Chlorpyrifos	µg/L	0.0069	0.0010	n/a	--[c]					0.02	

TABLE H
ANNUAL LIST OF ANALYTICAL METHODS BY ANALYTE WITH CORRESPONDING LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

FIRST QUARTER 2020
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

							Permit Limits/Benchmarks					
Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML [1]**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
	Diazinon	µg/L	0.0052	0.0010	n/a	--[c]					0.16	
ICP/MS 200.8	Antimony	µg/L	0.500	2.00	0.5	--[a]		6.0	6.0	6.0		
	Cadmium	µg/L	0.250	1.00	0.25	--[a]	2.0	4.0/3.1	4.0	4.0/3.1		
	Copper	µg/L	0.500	2.00	0.5	--[a]	5.8	14	13	14		
	Lead	µg/L	0.500	1.00	0.5	--[a]	2.6	5.2	5.2	5.2		
	Selenium	µg/L	0.500	2.00	2	--[a]	4.1	8.2/5		5		
	Silver	µg/L	0.500	1.00	0.25	--[a]	2.0	4.1				
	Thallium	µg/L	0.200	1.00	1	--[a]		2.0	2.0	2.0		
ICP 200.7	Aluminum	µg/L	50.0	100	n/a	--[d]						
	Arsenic	µg/L	8.90	10.0	10	--[a]		10.0				
	Barium	µg/L	5.00	10.0	n/a	--[c]		1000				
	Beryllium	µg/L	1.00	2.00	2	--[a]		4.0				
	Boron	mg/L	0.0250	0.0500	n/a	--[c]			1.0	1.0		
	Chromium	µg/L	2.50	5.00	10	--[a]	see Cr VI	see Cr VI				
	Cobalt	µg/L	5.00	10.0	n/a	--[d]						
	Hardness (as CaCO3)	mg/L	0.170	0.330	n/a	--[d]						
	Iron	mg/L	0.0500	0.100	n/a	--[c]		0.3				
	Manganese	µg/L	15.0	20.0	n/a	--[c]		50				
	Nickel	µg/L	5.00	10.0	20	--[a]	35	94	86	86		
	Vanadium	µg/L	5.00	10.0	n/a	--[d]						
	Zinc	µg/L	12.0	20.0	20	--[a]	43	119	120	120		
Mercury (EPA 245.1)	Mercury	µg/L	0.100	0.200	0.2	--[a]	0.05	0.10	0.13	0.13		
Chromium VI (EPA 218.6)	Chromium VI (Hexavalent)	µg/L	0.250	1.00	n/a	--[c]	8.0	16				
Cyanide by EPA (SM4500)	Cyanide	µg/L	2.50	5.00	5	--[a]	4.3	8.5	9.5	9.5		
Asbestos by EPA 600	Asbestos	MFL	n/a [2]	n/a [2]	n/a	--[d]						
EPA 8260B-Mod	1,4-Dioxane	µg/L	0.500	2.00	n/a	--[d]						
EPA 8015-Mod	Diesel Range Organics (DRO C13-C28)	mg/L	0.100	0.500	n/a	--[d]						
	Gasoline Range Organics (GRO C4-C12)	mg/L	0.0250	0.0500	n/a	--[d]						
EPA 314.0	Perchlorate	µg/L	0.950	4.00	n/a	--[c]		6.0	6.0	6.0		
EPA 1613	TCDD TEQ	µg/L	n/a	n/a	n/a	--[e]	1.4E-08	2.8E-08	2.8E-08	2.8E-08		
General Chemistry, (Field Test)	Chlorine, Total Residual [3]	mg/L	n/a	0.1	n/a	--[c]		0.1				
	Dissolved Oxygen [3]	mg/L	n/a	1	n/a	--[d]						
General Chemistry, EPA 120.1	Conductivity	µmhos/cm	n/a	1.00	n/a	--[d]						
General Chemistry, EPA 1664	Oil & Grease	mg/L	1.40	5.00	n/a	--[c]	10	15	15	15		

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NPDES PERMIT CA0001309

							Permit Limits/Benchmarks					
Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML[1]**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
General Chemistry, EPA 180.1	Turbidity	NTU	0.0400	0.100	n/a	--[d]						
General Chemistry, EPA 300	Chloride	mg/L	0.250	0.500	n/a	--[c]		150	150	150		
	Nitrate + Nitrite as Nitrogen (N)	mg/L	0.055	0.110	n/a	--[c]		8	10	8		
	Nitrate - N	mg/L	0.0550	0.110	n/a	--[c]		8		8		
	Nitrite - N	mg/L	0.0250	0.150	n/a	--[c]		1		1		
	Sulfate	mg/L	0.250	0.500	n/a	--[c]		300	250	300		
General Chemistry, SM2540C	Total Dissolved Solids	mg/L	5.00	10.0	n/a	--[c]		950	850	950		
General Chemistry, SM2540D	Total Suspended Solids	mg/L	0.500	1.00	n/a	--[c]	15	45				
General Chemistry, SM2540F	Settleable Solids	ml/L	n/a	0.100	n/a	--[c]	0.1	0.3				
General Chemistry, SM4500F-C	Fluoride	mg/L	0.250	0.500	n/a	--[c]		1.6	1.6	1.6		
General Chemistry, SM4500-NH3	Ammonia – N	mg/L	0.100	0.200	n/a	--[c]	1.96	10.1		10.1		
General Chemistry, SM5210B	Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	2.00	2.00	n/a	--[c]	20	30				
General Chemistry, SM5310B	Total Organic Carbon	mg/L	0.650	1.00	n/a	--[d]						
General Chemistry, SM5540	Detergents (as MBAS)	mg/L	0.0500	0.100	n/a	--[c]		0.5				
Radiochemistry	Uranium	pCi/L	n/a	1.00 [4]	n/a	--[c]		20	20	20		
Radiochemistry, EPA 900	Gross Alpha	pCi/L	n/a	3.00 [4]	n/a	--[c]		15	15	15		
	Gross Beta	pCi/L	n/a	4.00 [4]	n/a	--[c]		50	50	50		
Radiochemistry, EPA 901.1	Cesium-137	pCi/L	n/a	20.0 [4]	n/a	--[c]		200	200	200		
	Potassium-40	pCi/L	n/a	n/a	n/a	--[d]						
Radiochemistry, EPA 903/904	Combined Radium-226 & Radium-228	pCi/L	n/a	n/a	n/a	--[e]		5.0	5.0	5.0		
Radiochemistry, EPA 905.0	Strontium-90	pCi/L	n/a	3.00 [4]	n/a	--[c]		8.0	8.0	8.0		
Radiochemistry, EPA 906.0	Tritium	pCi/L	n/a	500 [4]	n/a	--[c]		20000	20000	20000		

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Method	**Analyte**	**Units**	**TestAmerica Laboratory 2019-Q12020 MDL**	**TestAmerica Laboratory 2019-Q12020 RL**	**SWRCB ML**	**Laboratory vs ML (1)**	**Monthly Average Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Daily Maximum Limits**	**Receiving Water Limits**	**Receiving Water Sediment Limits**
							019, 020	**001, 002 011, 018**	**003-007, 009, 010**	**008**	**Arroyo Simi**	**Arroyo Simi**
8315M (Truesdail Lab)	Monomethyl hydrazine	µg/L	2.0	2.0	n/a	--(d)						
Toxicity (Aquatic Lab), EPA 1002	Chronic Toxicity	Pass or Fail, % Effect	n/a	n/a	n/a	--(e)	Pass or Fail	Pass or % Effect <50	Pass or % Effect <50	Pass or % Effect <50		
Biological, SM9221F	E. Coli	MPN/100ml	n/a	1.80	n/a	--(c)					235	

Notes:
Benchmark limitations: Outfalls 001, 002
Compliance limitations: Outfalls 003-011, 018-020

Columns are used to compare laboratory's reporting limits (RLs) and method detection limits (MDLs) to the SWRCB Minimum Levels (MLs) and the permit limits (PLs).
(1) This column indicates the status of analytical capabilities if the ML is less than the laboratory RL and/or MDL. See explanation for "--" below.
The following designations summarize the comparison of RLs, MDLs, MLs, and permit limits:
-- = Laboratory reporting limit meets ML if applicable and permit limit requirements.
--(a) Laboratory reporting limit or method detection limit meets ML and permit limit requirements.
--(b) Laboratory reporting limit or method detection limit meets ML. This analyte has no permit limit requirements.
--(c) Laboratory reporting limit or method detection limit meets permit limit. This analyte has no ML.
--(d) This analyte has no ML or permit limit.
--(e) This analyte is a calculation or chronic toxicity and does not have a reporting limit. This calculation or chronic toxicity has no ML.
--(f) This analyte has no ML. Laboratory reporting limit or method detection limit does not meet permit limit.
--(g) Laboratory reporting limit or method detection limit meets ML, but does not meet permit limit requirements.
In the above context, "meet" means equal to or less than (IE if a Laboratory reporting limit or method detection limit meets a criteria, the laboratory reporting limit is less than or equal to that criteria
The receiving water sediment limits do not have a ML and are included for reference only.

(2) The RL and MDL for asbestos varies based upon the sample.
(3) Total residual chlorine (TRC) and dissolved oxygen (DO) are measured in the field. The RL is the lowest limit of the instrument. The MDL is not relevant for field parameters.
(4) This value is the minimum detectable activity (MDA) which applies only to radiological constituents.

Acronyms:
MFL = million fibers per liter
mg/L = milligrams per liter
MPN/100ml = most probable number per 100 milliliters
pCi/L = picoCuries per liter
SWRCB = State Water Resources Control Board
µg/L = micrograms per liter
µg/g = micrograms per gram
n/a = not applicable

Quality Assurance Summary (QAS)

Client / Project:	Boeing
QAPP or SOW:	Waste Discharge Requirements for the Boeing Company, Santa Susana Field Laboratory, Order R4-2015-0033, NPDES CA0001309, Los Angeles Regional Water Quality Control Board, April 1, 2015

Project Organization

Project Managers	Urvashi Patel
Special Notification Requirements	Management Changes TestAmerica must notify all parties (Consultant, Mec^{X}) within 30 days of any changes in senior management (Lab Director, QA Manager, Operations Manager, Manager of Project Management) or Project Manager at the laboratory. Certification Changes In addition to providing an annual update on current laboratory methods, certifications, reporting limits and MDLs, any changes in the laboratory's ability to perform requested analyses must be communicated to all parties immediately. Changes will generally be provided no later than October, prior to the start of the rainy season.
Sampling Event Information	The SSFL site is monitored for discharge under NPDES permit CA0001309. This discharge permit encompasses 16 outfalls that are monitored on routine, monthly, quarterly, and annual frequencies as specified in the permit. The outfalls are grouped by their monitoring parameter lists: **Monitoring List*** / **Outfall ID** E-2a: 001, 002, 011, 018 E-2b: 003, 004, 005, 006, 007, 008, 009, 010 E-2c: 019,020 *From Permit table

Sampling Event Information, continued	Monitoring Frequency Tables E-2a, b, and c in the Permit specify the analytical parameters, units, sample type (grab or composite) and sampling frequency. Sampling frequencies may change based on detects, non-detects, and recommendations by the consultants and/or the SSFL expert panel.
Special Bottle Order/Bottle Preps (containers, preservation, etc.)	1) Bottle orders are coordinated between the TestAmerica project manager and the consultant. . The laboratory will be instructed as to what Outfall and events are planned to be sampled so correct bottle sets can be sent. 2) ISRA, BMP and GETs bottle orders are sent in bulk shipments when requested by Consultant 3) Preserved bottles must be individually bagged and an absorbent pad must also be placed each cooler in case of a spill. 4) Laboratory pre-printed labels on NPDES outfall bottle orders when requested by consultant. 5) Laboratory-supplied water for trip blanks must be lot-traceable. 6) When requested by consultant, low level 1631 mercury kits will be utilized for sample collection for method 245.1. Consultant will inform the lab as to whether these unpreserved VOA vials should have nitric acid added to them prior to or after sample collection. **Interim Source Removal Action (ISRA)** Performance Monitoring Samples are collected in accordance with the Los Angeles Regional Water Quality Control Board (LARWQB). Consultant indicates on the COC which samples are to be run through the Dekaport Cone Splitter. These split samples are analyzed by both TestAmerica Irvine and American Scientific Laboratories (ASL).

Sample Pickup	1) All couriers must be on pre-approved courier list to be granted access to SSFL. If an outside courier service is used, the courier must have been audited by TestAmerica. 2) TestAmerica will submit a list of couriers to Consultant with the appropriate documentation so that the courier will be granted access to the site. 3) If a new courier is hired and it is anticipated that he/she will be servicing SSFL, then TestAmerica will pro-actively submit the documentation to Consultant for SSFL approval. 4) At a minimum, appropriate courier documentation consists of the full name of the courier. 5) Custody seals must be placed on the cooler whenever samples are not counted in the field. 6) Check for short-hold analyses on COCs and notify the TestAmerica project manager. a) Bioassay-36 hour holding time may need to be delivered immediately to Aquatic Bioassay Laboratories. b) Hydrazine has a 72 hour holding time so may need to be sent via Fed-ex direct from site to the appropriate subcontract lab: TestAmerica Denver for SSFL NPDES work. c) Notify the TestAmerica project manager of all other analyses with short holding times (48 hours or less) such as Micro, bioassays, Chromium VI, nitrate, pH, and turbidity. d) 525.2 Diazinon and Chloropyrifos has a 24-hour extraction holding time.

Subsampling or Compositing?	Cone Splitting Procedure (see IR-WI-CONE_SPLIT, current revision) 1) The Cone Splitter must be correctly assembled, cleaned, leveled and pre-rinsed prior to use. A Performance Check must be run prior to the first sampling event of the season. 2) There are two levels of cleaning for the cone splitter. Each has a checklist: a) **Level 1** is performed each time before use for samples collected from different sites on the same day. b) **Level 2** cleaning is performed if the splitter has dried before cleaning or was used for splitting sample with known or suspected high level target analytes. 3) Only laboratory staff with documented training on the Cone Splitter Work Instruction (can be involved in the cone splitting procedure. Clarification on Cone Splitter Protocol 1) Performance tests are performed at the request of the Consultant, typically on an annual basis. 2) Sample Volumes: the client submits approximately 4 liters of sample. The final volumes after splitting are approximately 800mL in each 1 Liter container and approximately 400mL in each 500mL container. For dioxin analysis, the dioxin testing laboratory is provided with instructions on the COC to use the contents of both a 1 liter amber and a 500mL amber for testing and to perform a solvent rinse on both containers. For equipment blanks, volume from all 3-500mL ambers are used and solvent rinsed. 3) Holding time: Lab performs cone splitting within 24 hours of receipt. SOP has a recommended holding time of 5 hours if splitting is performed in field or “best professional judgment.” Analyses being performed have holding times of 7 days or greater.

Subcontract Labs	Radiological Sample Preparation 1) Radiological samples subcontracted to an outside laboratory require documentation of sample preparation procedure performed at TestAmerica Irvine. a) Either the Sample Control department manager or the Metals dept manager oversees the processing of these samples. b) Every batch of samples (each 2.5 gallon container) requires a trip blank with the exception of samples for tritium analyses. c) Prepare the trip blank by filling a 2.5 gallon container with Laboratory Reagent-Grade Water (RGW). d) Add 25mL of nitric acid to each sample and trip blank. e) Check pH with pH paper by taking an aliquot of sample using a disposable transfer pipette and squeezing a few drops on the pH strip. (Do not dip pH strip directly into sample container). f) If pH<2, record on log sheet. g) If pH>2, add another 5mL and recheck pH. h) Record sample ID, acid vendor, lot#, date and time on log sheet-see Attachment 2. Note any comments if needed. i) Notify Sample Control that samples have been prepared/are ready to be shipped. j) Sample Control logs in the trip blank (use prep date/time as sample date) on the same work order and logs in the applicable test methods, prints subcontract COC and sends to a pre-approved radiological testing laboratory with original pH adjustment log. Sample Control attaches a copy of pH adjustment log to work order. k) Samples must not be filtered. l) A site specific sample duplicate must be run with each batch of samples. Dioxin Analysis 1) Report in µg/L. 2) Report down to the EDL for non-detects and below the EDL for isomers meeting required signal-to-noise ratios. 3) Narrate any detection below EDL. 4) Confirm all 2,3,7,8-TCDF J-flag hits and report both results. 5) EMPCs are reported as positive results with the appropriate qualifiers. 6) Flag total results as the summation of all flags within the homolog group.

Sample Receiving/Login Instructions

Special forms?	1) Receipt Acknowledgements should be sent within 24 hours of receipt. The format and the delivery instructions are specified in LIMS under the Deliverables section for the project.

Other Comments	1) Log in the sample with dioxin, TSS, metals analysis as indicated on COC and add the following containers with TestAmerica labels for the analyst: 2-1 gal ambers (as received from client) 1-500mL poly for TSS 1-500mL poly w/Nitric acid 1-1000mL amber 1-500mL amber 2) Log in an equipment blank per sample and an equipment blank after the last sample that will be placed on hold. Equipment Blank and Analyses to be provided by the Client to the TestAmerica project manager. Provide empty containers with TestAmerica labels with each equipment blank in sequential order (equipment blank #1, #2, etc.) for: 1-1000mL poly for TSS 1-1000mL poly w/Nitric acid 3-500mL ambers 3) After the cone splitting is completed, the TestAmerica project manager will update the equipment blank sample descriptions and add any analyses requested per the Equipment Blank COC provided. 4) Note any comments on the COC in LIMS (for example “high concentrations”). 5) Field blanks do not go through cone splitter and will be logged in for analyses or placed on a “hold” status as indicated on COC. 6) The split samples: For each sample, the following containers will have labels with client descriptions and will be sent directly to ASL labs (info below). These will NOT be logged into TestAmerica’s LIMS. Consultant will provide the COC that will accompany the samples to ASL. 1-500mL poly for TSS 1-500mL poly w/Nitric acid 1-1000mL amber 1-500mL amber 7) Once split samples are ready, a courier will send splits and the COC to ASL labs at the address listed below. A copy of COC will also be emailed to Consultant. Molky Brar American Scientific Laboratories, LLC 2520 North San Fernando Road Los Angeles, CA 90065 Phone: 323 223 9700 Fax: 323 223 9500

Deliverable Requirements

Report on Dry-Weight Basis?	N/A
Special Flagging/Reporting	**Level 2** 1) Analyses performed at TestAmerica Irvine and dioxin work are due in 10 business days unless otherwise noted on the COC. GETS program is typically requested on a 48 hour rush as indicated on the chain of custody. 2) Complete level 2 report (with all subcontract data), equis EDD, and Access 7 EDD is due 28 calendar days from sample receipt. 3) Upon receipt of the dioxin and radiological data they will each be merged into the report and EDD. 4) Bioassay and particle size data is merged into the PDF report but not included in the EDD. 5) No partial EDDs are needed unless specifically requested by Consultant or MEC^{x} . 6) J-flag all results to MDL (to the EDL for dioxins). 7) Report must be in NPDES format. 8) Geotracker EDF needed when requested on COC. 9) Grab and composite samples from the same sampling event must be merged into a single report and SDG. 10) NPDES SSFL-significant figures and units must match permit. 11) Deliverable instructions are specified in TALS. **Level 4** 1) Data package due 28 days after sample collection date unless otherwise noted on the COC. 2) Post to Total Access and mail CD and hard copy to Kim Schultz at MEC^{x} for NPDES reports or when specifically requested by the Consultant project manager for other programs. 3) Data packages from sublabs are saved into the subcontract folder in the level IV deliverable so that one complete data package is completed. 4) Unless otherwise requested by Consultant, Level 4 data packages are not generated for ISRA, BMP, and GETs sampling events.
Special Narrative	NPDES format (includes perjury statement)
EDD	StdAccess 7 (UDS) and Equ_HaleyAldrich_HdrY (UDS)
Special Invoice	None
Other	None

Technical Requirements for All Lab Areas

	Yes	No	Notes
Full Analyte Spike List?		X	
Reporting Multiple Dilutions?		X	

	Yes	No	Notes
Special reanalysis requirements?	X		See Technical Requirements for Specific Areas
Project-specified action limits?	X		1) An Action Limit Group is set up in LIMS for each outfall group. 2) The appropriate action limit is applied to analysis during the login process. 3) Automated exceedence notifications are emailed to the TestAmerica project manager for review and distribution to Consultant and MEC[x]. 4) Action limits do not apply to ISRA, BMP, and GETs sampling events.
Project-specified QC limits?		X	
Project-specified RLs?	X		For select parameters from each outfall, daily maximum and monthly average discharge levels are specified in the permit.
Special MDL Requirements?		X	
Special QC Samples or Frequency?	X		See Technical Requirements for Specific Areas
Special Blank Control Requirements		X	
Reagents and Standards		X	

Technical Requirements for Specific Areas

Method	Special Requirements
1613-Dioxin	1) Report down to the EDL for ND and below the EDL for isomers meeting required signal-to-noise ratios. 2) Narrate any detection below EDL. 3) Confirm all 2,3,7,8-TCDF J-flag hits and report both results. 4) EMPCs are reported as positive results with the appropriate qualifiers. 5) Flag total results as the summation of all flags within the homolog group.
Perchlorate 314.0	1) A low level MS is required on any samples with elevated baseline (baseline above the height of the 4ppb standard) 2) All samples with detected (>MDL) results for perchlorate must be post-spiked with perchlorate at a concentration 2-5x the native sample concentration to verify that the peak identified in the samples is perchlorate.

Method	Special Requirements
DI Leach	On an as-needed basis, the laboratory will be requested to perform a 1:10 DI leaching procedure for solid materials that are being used at the site in order to determine if they could introduce target analytes into the monitored outfalls. For specifics of the leaching process, see, IR-WI-BOEING_LEACH
Microbiology (SM9221B & Enterolert)	Samples must be prepared at 1X, 10X and 100X dilutions. The dilutions are indicated on the COC. Laboratory must report the geometric mean of these results.
Mercury 245.1	1631 low level mercury kits will be utilized upon client request. Consultant will inform the lab if nitric acid should be added to the unpreserved vials prior to or after sample collection. Vials will remain bagged through log in and sample storage. The vials will only be opened by metals staff trained in special sample handling: hands and forearms must be washed prior to preparation, wear clean gloves when handling these samples, analyst will not wear a watch or use cell phone or IR temperature probe.
Volatile Organics	Method Blanks must be < 1/2 RL or 1/10 associated sample concentrations

Sample Archive/Disposal Instructions

Long-term sample storage required?	After analysis is complete, samples from this site are to be refrigerated for 30 days and maintained at room temperature storage at the laboratory for six months.
Disposal requirements:	Approval for disposal is communicated to Sample Control staff by the laboratory project manager for all Boeing work.

Attachments

1) pH adjustment Log for Radiological Samples

Revision History

This section has been added beginning with Revision 0. Only details of the last two revisions are incorporated into this SOP. Prior revisions are documented in the QA files.

Revision 2, dated 03/13/2015

- This revision supersedes IR-QAS-BOEING_NPDES, revision 1, 11/21/2014
- Addition of microbiology requirements for multiple dilutions and geometric mean.

Revision 3, dated 03/18/2016

- This revision supersedes IR-QAS-BOEING_NPDES, revision 2, 03/13/2015
- Added special mercury sample bottle and handling
- Updated references to new permit (dates, revision, tables, action limits)
- Updated Project Manager and subcontract lab for hydrazine and bioassays
- Removed Outfall Discharge Limit tables
- Removed attachments for work instructions IR-WI-CONE_SPLIT and IR-WI-BOEING_LEACH

Laboratory Review/Approval

Title	Name	Signature	Date
Project Manager	Urvashi Patel		
Manager of Project Management	Urvashi Patel		
Interim Quality Assurance Manager	Dave Dawes		03/17/16
Operations Manager	Debby Wilson		03/17/16
Laboratory Director	Linda Scharpenberg		3/17/16

Revision 3, dated 03/18/2016

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Laboratory Review/Approval

Title	Name	Signature	Date
Project Manager	Urvashi Patel	Urvashi Patel	3/17/16
Manager of Project Management	Urvashi Patel	Urvashi Patel	3/17/16
Interim Quality Assurance Manager	Dave Dawes		
Operations Manager	Debby Wilson		
Laboratory Director	Linda Scharpenberg		

Attachment 1
pH adjustment Log for Radiological Samples

pH Adustment Log

Laboratory: **TestAmerica Irvine** Method:

Analyst: Nitric Acid Lot #:

DATE: TIME:

Lab Sample Number	Sample Volume (gal)	Nitric Acid Volume added (ml)	Check pH < 2	Comments

pH Adustment Log.xls
Revision 0, 03/26/2010

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

TestAmerica Irvine

Irvine

17461 Derian Avenue

Irvine, CA 92614-5817

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2706**

Expiration Date: **6/30/2020**

Effective Date: **7/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

TestAmerica Irvine
Irvine
17461 Derian Avenue
Irvine, CA 92614-5817
Phone: 9492611022

Certificate No. 2706
Expiration Date 6/30/2020

Field of Testing: 101 - Microbiology of Drinking Water

101.010	001	Heterotrophic Bacteria	SM 9215 B
101.010	002	Heterotrophic Bacteria	SimPlate
101.020	001	Total Coliform P/A	SM 9221 B
101.020	002	Fecal Coliform P/A	SM 9221 B,E
101.020	003	E. coli P/A	SM 9221 B,F
101.050	001	Total Coliform P/A	SM 9223 B Colilert
101.050	002	E. coli P/A	SM 9223 B Colilert
101.050	003	Total Coliform (Enumeration)	SM 9223 B Colilert
101.050	004	E. coli (Enumeration)	SM 9223 B Colilert
101.050	005	Total Coliform P/A	SM 9223 B Colilert 18
101.050	006	E. coli P/A	SM 9223 B Colilert 18
101.050	007	Total Coliform (Enumeration)	SM 9223 B Colilert 18
101.050	008	E. coli (Enumeration)	SM 9223 B Colilert 18
101.050	009	Total Coliform P/A	SM 9223 B Colisure
101.050	010	E. coli P/A	SM 9223 B Colisure
101.050	011	Total Coliform (Enumeration)	SM 9223 B Colisure
101.050	012	E. coli (Enumeration)	SM 9223 B Colisure

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.015	001	Hydrogen Ion (pH)	EPA 150.1
102.020	001	Turbidity	EPA 180.1
102.026	001	Calcium	EPA 200.7
102.026	002	Magnesium	EPA 200.7
102.026	003	Potassium	EPA 200.7
102.026	004	Silica	EPA 200.7
102.026	005	Sodium	EPA 200.7
102.026	006	Hardness (Calculation)	EPA 200.7
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate (as N)	EPA 300.0
102.030	007	Nitrite (as N)	EPA 300.0
102.030	008	Phosphate,Ortho (as P)	EPA 300.0
102.030	009	Sulfate (as SO4)	EPA 300.0
102.040	001	Bromide	EPA 300.1

As of 6/25/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

102.040	002	Chlorite	EPA 300.1
102.040	003	Chlorate	EPA 300.1
102.040	004	Bromate	EPA 300.1
102.045	001	Perchlorate	EPA 314.0
102.095	001	Turbidity	SM 2130 B-2001
102.100	001	Alkalinity	SM 2320 B-1997
102.120	001	Hardness (Calculation)	SM 2340 B-1997
102.121	001	Hardness	SM 2340 C-1997
102.130	001	Specific Conductance	SM 2510 B-1997
102.140	001	Residue, Filterable TDS	SM 2540 C-1997
102.175	001	Chlorine, Free	SM 4500-Cl G-2000
102.175	002	Chlorine, Total Residual	SM 4500-Cl G-2000
102.190	001	Cyanide, Total	SM 4500-CN E-1999
102.200	001	Fluoride	SM 4500-F C-2011
102.203	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
102.262	001	Total Organic Carbon TOC	SM 5310 C-2000
102.263	001	Dissolved Organic Carbon (DOC)	SM 5310 C-2000
102.270	001	Surfactants	SM 5540 C-2000
102.564	001	Cyanide, Total	Kelada-01 Revision 1.2

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.130	001	Aluminum	EPA 200.7
103.130	003	Barium	EPA 200.7
103.130	004	Beryllium	EPA 200.7
103.130	005	Cadmium	EPA 200.7
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	012	Nickel	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.130	018	Boron	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8
103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8

103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.140	018	Vanadium	EPA 200.8
103.160	001	Mercury	EPA 245.1
103.310	001	Chromium (VI)	EPA 218.6
103.311	001	Chromium (VI)	EPA 218.7

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.035	001	1,2,3-Trichloropropane (TCP)	SRL 524M-TCP
104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	001	Benzene	EPA 524.2
104.040	007	n-Butylbenzene	EPA 524.2
104.040	008	sec-Butylbenzene	EPA 524.2
104.040	009	tert-Butylbenzene	EPA 524.2
104.040	010	Carbon Tetrachloride	EPA 524.2
104.040	011	Chlorobenzene	EPA 524.2
104.040	015	2-Chlorotoluene	EPA 524.2
104.040	016	4-Chlorotoluene	EPA 524.2
104.040	019	1,3-Dichlorobenzene	EPA 524.2
104.040	020	1,2-Dichlorobenzene	EPA 524.2
104.040	021	1,4-Dichlorobenzene	EPA 524.2
104.040	022	Dichlorodifluoromethane	EPA 524.2
104.040	023	1,1-Dichloroethane	EPA 524.2
104.040	024	1,2-Dichloroethane	EPA 524.2
104.040	025	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 524.2
104.040	026	cis-1,2-Dichloroethene	EPA 524.2
104.040	027	trans-1,2-Dichloroethene	EPA 524.2
104.040	028	Dichloromethane (Methylene Chloride)	EPA 524.2
104.040	029	1,2-Dichloropropane	EPA 524.2
104.040	033	cis-1,3-Dichloropropene	EPA 524.2
104.040	034	trans-1,3-Dichloropropene	EPA 524.2
104.040	035	Ethylbenzene	EPA 524.2
104.040	037	Isopropylbenzene	EPA 524.2
104.040	039	Naphthalene	EPA 524.2
104.040	041	N-propylbenzene	EPA 524.2
104.040	042	Styrene	EPA 524.2
104.040	043	1,1,1,2-Tetrachloroethane	EPA 524.2
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2
104.040	045	Tetrachloroethylene (Tetrachloroethene)	EPA 524.2
104.040	046	Toluene	EPA 524.2

104.040	047	1,2,3-Trichlorobenzene	EPA 524.2
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2
104.040	049	1,1,1-Trichloroethane	EPA 524.2
104.040	050	1,1,2-Trichloroethane	EPA 524.2
104.040	051	Trichloroethene	EPA 524.2
104.040	052	Trichlorofluoromethane	EPA 524.2
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2
104.040	056	Vinyl Chloride	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2
104.045	000	Trihalomethanes, Total	EPA 524.2
104.045	001	Bromodichloromethane	EPA 524.2
104.045	002	Bromoform	EPA 524.2
104.045	003	Chloroform	EPA 524.2
104.045	004	Dibromochloromethane	EPA 524.2
104.050	000	Gasoline Additives	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	003	tert-Amyl Methyl Ether (TAME)	EPA 524.2
104.050	004	Ethyl tert-butyl Ether (ETBE)	EPA 524.2
104.050	005	Trichlorotrifluoroethane	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2

Field of Testing: 106 - Radiochemistry of Drinking Water

106.092	001	Uranium	EPA 200.8

Field of Testing: 107 - Microbiology of Wastewater

107.020	002	Total Coliform (Enumeration)	SM 9221 B-2006
107.030	002	Total Coliform with Chlorine Present	SM 9221 B,C-2006
107.040	002	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
107.050	002	Fecal Coliform with Chlorine Present	SM 9221 C,E-2006
107.242	001	Enterococci	Enterolert
107.245	002	E. coli (Enumeration)	SM 9223 B Colilert
107.247	001	E. coli (Enumeration)	SM 9221 B,F-2006

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.020	001	Specific Conductance	EPA 120.1
108.090	001	Residue, Volatile	EPA 160.4
108.110	001	Turbidity	EPA 180.1
108.112	001	Boron	EPA 200.7
108.112	002	Calcium	EPA 200.7
108.112	003	Hardness (Calculation)	EPA 200.7
108.112	004	Magnesium	EPA 200.7
108.112	005	Potassium	EPA 200.7
108.112	006	Silica, Dissolved	EPA 200.7
108.112	007	Sodium	EPA 200.7

108.112	008	Phosphorus,Total	EPA 200.7
108.120	001	Bromide	EPA 300.0
108.120	002	Chloride	EPA 300.0
108.120	003	Fluoride	EPA 300.0
108.120	008	Sulfate (as SO4)	EPA 300.0
108.120	012	Nitrate (as N)	EPA 300.0
108.120	013	Nitrate-Nitrite (as N)	EPA 300.0
108.120	014	Nitrite (as N)	EPA 300.0
108.120	015	Phosphate,Ortho (as P)	EPA 300.0
108.209	001	Ammonia (as N)	EPA 350.1
108.211	002	Kjeldahl Nitrogen,Total (as N)	EPA 351.2
108.264	001	Phosphate, Ortho	EPA 365.3
108.265	001	Phosphorus,Total	EPA 365.3
108.323	001	Chemical Oxygen Demand	EPA 410.4
108.381	001	Oil and Grease	EPA 1664 A
108.381	002	Oil & Grease Total	EPA 1664 B
108.385	001	Color	SM 2120 B-2001
108.390	001	Turbidity	SM 2130 B-2001
108.400	001	Acidity	SM 2310 B-1997
108.410	001	Alkalinity	SM 2320 B-1997
108.420	001	Hardness (Calculation)	SM 2340 B-1997
108.421	001	Hardness	SM 2340 C-1997
108.430	001	Specific Conductance	SM 2510 B-1997
108.439	001	Residue, Volatile	SM 2540 E-1997
108.440	001	Residue, Total	SM 2540 B-1997
108.441	001	Residue, Filterable TDS	SM 2540 C-1997
108.442	001	Residue, Non-filterable TSS	SM 2540 D-1997
108.443	001	Residue, Settleable	SM 2540 F-1997
108.465	001	Chlorine, Total Residual	SM 4500-Cl G-2000
108.470	001	Cyanide, Total	SM 4500-CN B or C-1999
108.472	001	Cyanide, Total	SM 4500-CN E-1999
108.473	001	Cyanide, Amenable	SM 4500-CN G-1999
108.490	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
108.502	002	Ammonia (as N)	SM 4500-NH3 B,D-1997
108.506	002	Ammonia (as N)	SM 4500-NH3 G-1997
108.536	001	Oxygen, Dissolved	SM 4500-O G-2001
108.584	001	Sulfide (as S)	SM 4500-S D-2000
108.592	001	Biochemical Oxygen Demand	SM 5210 B -2001
108.592	002	Carbonaceous BOD	SM 5210 B -2001
108.595	001	Chemical Oxygen Demand	SM 5220 D-1997
108.596	001	Organic Carbon-Total (TOC)	SM 5310 B-2000
108.605	001	Surfactants	SM 5540 C-2000

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	006	Boron	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	025	Titanium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.020	021	Iron	EPA 200.8

109.020	022	Tin	EPA 200.8
109.104	001	Chromium (VI)	EPA 218.6
109.190	001	Mercury	EPA 245.1
109.445	002	Chromium (VI)	SM 3500-Cr B-2009

Field of Testing: 110 - Volatile Organic Chemistry of Wastewater

110.040	000	Purgeable Organic Compounds	EPA 624

Field of Testing: 111 - Semi-volatile Organic Chemistry of Wastewater

111.100	000	Base/Neutral & Acid Organics	EPA 625
111.103	000	Nitrosamines	EPA 625
111.170	000	Organochlorine Pesticides and PCBs	EPA 608

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B
114.010	002	Arsenic	EPA 6010 B
114.010	003	Barium	EPA 6010 B
114.010	004	Beryllium	EPA 6010 B
114.010	005	Cadmium	EPA 6010 B
114.010	006	Chromium	EPA 6010 B
114.010	007	Cobalt	EPA 6010 B
114.010	008	Copper	EPA 6010 B
114.010	009	Lead	EPA 6010 B
114.010	010	Molybdenum	EPA 6010 B
114.010	011	Nickel	EPA 6010 B
114.010	012	Selenium	EPA 6010 B
114.010	013	Silver	EPA 6010 B
114.010	014	Thallium	EPA 6010 B
114.010	015	Vanadium	EPA 6010 B
114.010	016	Zinc	EPA 6010 B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020

114.020	016	Zinc	EPA 6020
114.103	001	Chromium (VI)	EPA 7196 A
114.106	001	Chromium (VI)	EPA 7199
114.140	001	Mercury	EPA 7470 A
114.141	001	Mercury	EPA 7471 A
114.222	001	Cyanide, Total	EPA 9014
114.230	001	Sulfides, Total	EPA 9034
114.240	001	Corrosivity - pH Determination	EPA 9040 B
114.241	001	Corrosivity - pH Determination	EPA 9045 C
114.250	001	Fluoride	EPA 9056
114.270	001	Fluoride	EPA 9214

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)
115.021	001	TCLP Inorganics	EPA 1311 (TCLP)
115.022	001	TCLP Extractables	EPA 1311 (TCLP)
115.023	001	TCLP Volatiles	EPA 1311 (TCLP)
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.030	001	Gasoline-range Organics	EPA 8015 B
116.080	000	Volatile Organic Compounds	EPA 8260 B
116.080	120	Oxygenates	EPA 8260 B
116.100	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT GC/MS
116.110	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B
117.016	001	Diesel-range Total Petroleum Hydrocarbons	LUFT
117.110	000	Extractable Organics	EPA 8270 C
117.150	000	Carbonyl Compounds	EPA 8315 A
117.210	000	Organochlorine Pesticides	EPA 8081 A
117.220	000	PCBs	EPA 8082

Field of Testing: 120 - Physical Properties of Hazardous Waste

120.010	001	Ignitability	EPA 1010
120.020	001	Ignitability	EPA 1020A
120.070	001	Corrosivity - pH Determination	EPA 9040 B
120.080	001	Corrosivity - pH Determination	EPA 9045 C

Field of Testing: 126 - Microbiology of Recreational Water

126.010	001	Total Coliform (Enumeration)	SM 9221 B-2006
126.030	001	Fecal Coliform (Enumeration)	SM 9221 B,E-2006
126.050	001	Total Coliform (Enumeration)	SM 9223 B Colilert
126.050	002	E. coli (Enumeration)	SM 9223 B Colilert

126.080	001	Enterococci	Enterolert

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Eurofins TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2897**

Expiration Date: **1/31/2022**

Effective Date: **2/1/2020**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Eurofins TestAmerica Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone: 9163735600

Certificate No. 2897
Expiration Date 1/31/2022

Field of Testing: 102 - Inorganic Chemistry of Drinking Water			
102.045	001	Perchlorate	EPA 314.0
102.047	001	Perchlorate	EPA 331.0
Field of Testing: 105 - Semi-volatile Organic Chemistry of Drinking Water			
105.106	000	Per- and Polyfluorinated Alkyl Substances (PFAS)	EPA 537.1
105.230	001	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	EPA 1613 B
Field of Testing: 108 - Inorganic Constituents in Non-Potable Water			
108.015	001	Calcium	EPA 200.8 (1994 Rev. 5.4)
108.015	002	Magnesium	EPA 200.8 (1994 Rev. 5.4)
108.015	003	Potassium	EPA 200.8 (1994 Rev. 5.4)
108.017	001	Bromide	EPA 300.0 (1993 Rev. 2.1)
108.017	002	Chloride	EPA 300.0 (1993 Rev. 2.1)
108.017	003	Fluoride	EPA 300.0 (1993 Rev. 2.1)
108.017	004	Nitrate (as N)	EPA 300.0 (1993 Rev. 2.1)
108.017	006	Nitrite (as N)	EPA 300.0 (1993 Rev. 2.1)
108.017	007	Phosphate,Ortho (as P)	EPA 300.0 (1993 Rev. 2.1)
108.017	008	Sulfate (as SO4)	EPA 300.0 (1993 Rev. 2.1)
108.033	001	Nitrate-Nitrite (as N)	EPA 353.2 (1993 Rev. 2.0)
108.033	002	Nitrite (as N)	EPA 353.2 (1993 Rev. 2.0)
108.045	001	Chemical Oxygen Demand	EPA 410.4 (1993 Rev. 2.0)
108.063	001	Alkalinity	SM 2320 B-2011
108.065	001	Hardness (Calculation)	SM 2340 B-2011
108.069	001	Specific Conductance	SM 2510 B-2011
108.071	001	Residue, Total	SM 2540 B-2011
108.073	001	Residue, Filterable TDS	SM 2540 C-2011
108.075	001	Residue, Non-filterable TSS	SM 2540 D-2011
108.137	001	Hydrogen Ion (pH)	SM 4500-H+ B-2011
Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water			
109.625	001	Aluminum	EPA 200.8 (1994 Rev. 5.4)
109.625	002	Antimony	EPA 200.8 (1994 Rev. 5.4)
109.625	003	Arsenic	EPA 200.8 (1994 Rev. 5.4)
109.625	004	Barium	EPA 200.8 (1994 Rev. 5.4)
109.625	005	Beryllium	EPA 200.8 (1994 Rev. 5.4)
109.625	007	Cadmium	EPA 200.8 (1994 Rev. 5.4)

As of 2/1/2020 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

109.625	008	Chromium	EPA 200.8 (1994 Rev. 5.4)
109.625	009	Cobalt	EPA 200.8 (1994 Rev. 5.4)
109.625	010	Copper	EPA 200.8 (1994 Rev. 5.4)
109.625	012	Iron	EPA 200.8 (1994 Rev. 5.4)
109.625	013	Lead	EPA 200.8 (1994 Rev. 5.4)
109.625	014	Manganese	EPA 200.8 (1994 Rev. 5.4)
109.625	015	Molybdenum	EPA 200.8 (1994 Rev. 5.4)
109.625	016	Nickel	EPA 200.8 (1994 Rev. 5.4)
109.625	017	Selenium	EPA 200.8 (1994 Rev. 5.4)
109.625	018	Silver	EPA 200.8 (1994 Rev. 5.4)
109.625	019	Thallium	EPA 200.8 (1994 Rev. 5.4)
109.625	020	Tin	EPA 200.8 (1994 Rev. 5.4)
109.625	021	Titanium	EPA 200.8 (1994 Rev. 5.4)
109.625	022	Vanadium	EPA 200.8 (1994 Rev. 5.4)
109.625	023	Zinc	EPA 200.8 (1994 Rev. 5.4)

Field of Testing: 111 - Semi-volatile Organic Constituents in Non-Potable Water

111.250	001	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	EPA 1613 B
111.250	002	Total TCDD	EPA 1613 B
111.250	003	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	EPA 1613 B
111.250	004	Total TCDF	EPA 1613 B
111.250	005	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	EPA 1613 B
111.250	006	Total PeCDD	EPA 1613 B
111.250	007	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	EPA 1613 B
111.250	008	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	EPA 1613 B
111.250	009	Total PeCDF	EPA 1613 B
111.250	010	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B
111.250	011	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B
111.250	012	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B
111.250	013	Total HxCDD	EPA 1613 B
111.250	014	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B
111.250	015	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B
111.250	016	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B
111.250	017	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B
111.250	018	Total HxCDF	EPA 1613 B
111.250	019	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	EPA 1613 B
111.250	020	Total HpCDD	EPA 1613 B
111.250	021	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	EPA 1613 B
111.250	022	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	EPA 1613 B
111.250	023	Total HpCDF	EPA 1613 B
111.250	024	OCDD	EPA 1613 B
111.250	025	OCDF	EPA 1613 B
111.345	001	N-ethyl perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	DoD QSM Version 5.1

111.345	002	4:2 Fluorotelomer Sulfonic Acid (4:2 FTS)	DoD QSM Version 5.1
111.345	003	6:2 Fluorotelomer Sulfonic Acid (6:2 FTS)	DoD QSM Version 5.1
111.345	004	8:2 Fluorotelomer Sulfonic Acid (8:2 FTS)	DoD QSM Version 5.1
111.345	005	N-methyl perfluorooctanesulfonamidoacetic Acid (NM	DoD QSM Version 5.1
111.345	006	Perfluorobutanoic Acid (PFBA)	DoD QSM Version 5.1
111.345	007	Perfluorobutanesulfonic Acid (PFBS)	DoD QSM Version 5.1
111.345	008	Perfluorodecanoic Acid (PFDA)	DoD QSM Version 5.1
111.345	009	Perfluorododecanoic Acid (PFDoA)	DoD QSM Version 5.1
111.345	010	Perfluorodecane Sulfonic Acid (PFDS)	DoD QSM Version 5.1
111.345	011	Perfluoroheptanoic Acid (PFHpA)	DoD QSM Version 5.1
111.345	012	Perfluoroheptane Sulfonic Acid (PFHpS)	DoD QSM Version 5.1
111.345	013	Perfluorohexanesulfonic Acid (PFHxS)	DoD QSM Version 5.1
111.345	014	Perfluorohexanoic Acid (PFHxA)	DoD QSM Version 5.1
111.345	015	Perfluorononanoic Acid (PFNA)	DoD QSM Version 5.1
111.345	016	Perfluorooctanoic Acid (PFOA)	DoD QSM Version 5.1
111.345	017	Perfluorooctylsulfonic Acid (PFOS)	DoD QSM Version 5.1
111.345	018	Perfluorooctane Sulfonamide (PFOSAm)	DoD QSM Version 5.1
111.345	019	Perfluoropentanoic Acid (PFPeA)	DoD QSM Version 5.1
111.345	020	Perfluoropentane Sulfonic Acid (PFPeS)	DoD QSM Version 5.1
111.345	021	Perfluorotetradecanoic Acid (PFTA)	DoD QSM Version 5.1
111.345	022	Perfluorotridecanoic Acid (PFTrDA)	DoD QSM Version 5.1
111.345	023	Perfluoroundecanoic Acid (PFUnA)	DoD QSM Version 5.1
111.345	026	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	DoD QSM Version 5.1
111.345	029	10:2 Fluorotelomer Sulfonic Acid (10:2 FTS)	DoD QSM Version 5.1
111.345	030	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	DoD QSM Version 5.1
111.345	033	Perfluorohexadecanoic Acid (PFHxDA)	DoD QSM Version 5.1
111.345	034	Perfluorononane Sulfonic Acid (PFNS)	DoD QSM Version 5.1

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B
114.010	002	Arsenic	EPA 6010 B
114.010	003	Barium	EPA 6010 B
114.010	004	Beryllium	EPA 6010 B
114.010	005	Cadmium	EPA 6010 B
114.010	006	Chromium	EPA 6010 B
114.010	007	Cobalt	EPA 6010 B
114.010	008	Copper	EPA 6010 B
114.010	009	Lead	EPA 6010 B
114.010	010	Molybdenum	EPA 6010 B
114.010	011	Nickel	EPA 6010 B
114.010	012	Selenium	EPA 6010 B
114.010	013	Silver	EPA 6010 B
114.010	014	Thallium	EPA 6010 B

114.010	015	Vanadium	EPA 6010 B	
114.010	016	Zinc	EPA 6010 B	
114.020	001	Antimony	EPA 6020	
114.020	002	Arsenic	EPA 6020	
114.020	003	Barium	EPA 6020	
114.020	004	Beryllium	EPA 6020	
114.020	005	Cadmium	EPA 6020	
114.020	006	Chromium	EPA 6020	
114.020	007	Cobalt	EPA 6020	
114.020	008	Copper	EPA 6020	
114.020	009	Lead	EPA 6020	
114.020	010	Molybdenum	EPA 6020	
114.020	011	Nickel	EPA 6020	
114.020	012	Selenium	EPA 6020	
114.020	013	Silver	EPA 6020	
114.020	014	Thallium	EPA 6020	
114.020	015	Vanadium	EPA 6020	
114.020	016	Zinc	EPA 6020	
114.103	001	Chromium (VI)	EPA 7196 A	Aqueous Only
114.140	001	Mercury	EPA 7470 A	
114.141	001	Mercury	EPA 7471 A	
114.240	001	Corrosivity - pH Determination	EPA 9040 B	Aqueous Only
114.241	001	Corrosivity - pH Determination	EPA 9045 C	
114.250	001	Fluoride	EPA 9056	

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)	
115.021	001	TCLP Inorganics	EPA 1311 (TCLP)	
115.022	001	TCLP Extractables	EPA 1311 (TCLP)	
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II	
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)	

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.080	000	Volatile Organic Compounds	EPA 8260 B	
116.080	120	Oxygenates	EPA 8260 B	
116.100	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT GC/MS	
116.100	010	BTEX and MTBE	LUFT GC/MS	

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B	
117.016	001	Diesel-range Total Petroleum Hydrocarbons	LUFT	
117.110	000	Extractable Organics	EPA 8270 C	
117.120	000	Dioxins and Dibenzofurans	EPA 8280 A	
117.130	000	Dioxins and Dibenzofurans	EPA 8290	
117.170	000	Nitroaromatics and Nitramines	EPA 8330	

117.171	000	Nitroaromatics and Nitramines	EPA 8330 A
117.210	000	Organochlorine Pesticides	EPA 8081 A
117.220	000	PCBs	EPA 8082
117.290	000	Per- and Polyfluorinated Alkyl Substances (PFAS)	DoD QSM Version 5.1

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Eurofins TestAmerica Seattle
Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 2539222310

Certificate No. **2901**
Expiration Date **11/5/2020**

				Primary Accreditation Body
Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water				
104.030	001	1,2-Dibromoethane (EDB, Ethylene Dibromide)	EPA 504.1	OR
104.030	002	1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1	OR
Field of Testing: 108 - Inorganic Constituents in Non-Potable Water				
108.001	001	Specific Conductance	EPA 120.1 (1982 Rev.1.0)	OR
108.007	001	Residue, Volatile	EPA 160.4 (1971)	OR
108.009	001	Turbidity	EPA 180.1 (1993 Rev. 2.0)	OR
108.013	001	Calcium	EPA 200.7 (1994 Rev. 4.4)	OR
108.013	002	Magnesium	EPA 200.7 (1994 Rev. 4.4)	OR
108.013	004	Potassium	EPA 200.7 (1994 Rev. 4.4)	OR
108.013	005	Silica, Dissolved	EPA 200.7 (1994 Rev. 4.4)	OR
108.013	006	Sodium	EPA 200.7 (1994 Rev. 4.4)	OR
108.017	001	Bromide	EPA 300.0 (1993 Rev. 2.1)	OR
108.017	002	Chloride	EPA 300.0 (1993 Rev. 2.1)	OR
108.017	003	Fluoride	EPA 300.0 (1993 Rev. 2.1)	OR
108.017	004	Nitrate (as N)	EPA 300.0 (1993 Rev. 2.1)	OR
108.017	006	Nitrate-Nitrite (as N)	EPA 300.0 (1993 Rev. 2.1)	OR
108.023	001	Cyanide, Total	EPA 335.4 (1993 Rev. 1.0)	OR
108.025	001	Ammonia (as N)	EPA 350.1 (1993 Rev. 2.0)	OR
108.033	001	Nitrate-Nitrite (as N)	EPA 353.2 (1993 Rev. 2.0)	OR
108.035	001	Phosphate,Ortho (as P)	EPA 365.1 (1993 Rev. 2.0)	OR
108.035	002	Phosphorus,Total	EPA 365.1 (1993 Rev. 2.0)	OR
108.053	001	Oil & Grease Total	EPA 1664 A	OR
108.059	001	Turbidity	SM 2130 B-2011	OR
108.063	001	Alkalinity	SM 2320 B-2011	OR
108.065	001	Hardness (Calculation)	SM 2340 B-2011	OR
108.067	001	Hardness	SM 2340 C-2011	OR
108.069	001	Specific Conductance	SM 2510 B-2011	OR
108.071	001	Residue, Total	SM 2540 B-2011	OR
108.073	001	Residue, Filterable TDS	SM 2540 C-2011	OR
108.075	001	Residue, Non-filterable TSS	SM 2540 D-2011	OR
108.079	001	Residue, Settleable	SM 2540 F-2011	OR
108.125	001	Cyanide, Total	SM 4500-CN E-2011	OR
108.129	001	Cyanide, Available	SM 4500-CN G-2011	OR

As of 11/6/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

108.137	001	Hydrogen Ion (pH)	SM 4500-H+ B-2011	OR
108.147	001	Ammonia (as N)	SM 4500-NH3 G-2011	OR
108.207	001	Biochemical Oxygen Demand	SM 5210 B-2011	OR
108.207	002	Carbonaceous BOD	SM 5210 B-2011	OR
108.211	001	Chemical Oxygen Demand	SM 5220 C-2011	OR
108.213	001	Chemical Oxygen Demand	SM 5220 D-2011	OR
108.215	001	Organic Carbon-Total (TOC)	SM 5310 B-2011	OR

Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water

109.623	001	Aluminum	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	002	Antimony	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	003	Arsenic	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	004	Barium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	005	Beryllium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	006	Boron	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	007	Cadmium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	008	Chromium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	009	Cobalt	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	010	Copper	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	011	Iron	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	012	Lead	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	013	Manganese	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	014	Molybdenum	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	015	Nickel	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	016	Selenium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	017	Silver	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	018	Thallium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	019	Tin	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	020	Titanium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	021	Vanadium	EPA 200.7 (1994 Rev. 4.4)	OR
109.623	022	Zinc	EPA 200.7 (1994 Rev. 4.4)	OR
109.625	001	Aluminum	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	002	Antimony	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	003	Arsenic	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	004	Barium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	005	Beryllium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	007	Cadmium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	008	Chromium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	009	Cobalt	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	010	Copper	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	012	Iron	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	013	Lead	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	014	Manganese	EPA 200.8 (1994 Rev. 5.4)	OR

109.625	015	Molybdenum	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	016	Nickel	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	017	Selenium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	018	Silver	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	019	Thallium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	021	Titanium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	022	Vanadium	EPA 200.8 (1994 Rev. 5.4)	OR
109.625	023	Zinc	EPA 200.8 (1994 Rev. 5.4)	OR
109.635	001	Mercury	EPA 245.1 (1994 Rev. 3.0)	OR

Field of Testing: 110 - Volatile Organic Constituents in Non-Potable Water

110.040	001	Acetone	EPA 624.1	OR
110.040	002	Acetonitrile	EPA 624.1	OR
110.040	003	Acrolein	EPA 624.1	OR
110.040	004	Acrylonitrile	EPA 624.1	OR
110.040	005	Benzene	EPA 624.1	OR
110.040	006	Bromodichloromethane	EPA 624.1	OR
110.040	007	Bromoform	EPA 624.1	OR
110.040	008	Bromomethane	EPA 624.1	OR
110.040	010	Carbon Tetrachloride	EPA 624.1	OR
110.040	011	Chlorobenzene	EPA 624.1	OR
110.040	012	Chloroethane	EPA 624.1	OR
110.040	013	2-Chloroethylvinyl Ether	EPA 624.1	OR
110.040	014	Chloroform	EPA 624.1	OR
110.040	016	Dibromochloromethane	EPA 624.1	OR
110.040	017	1,2-Dichlorobenzene	EPA 624.1	OR
110.040	018	1,3-Dichlorobenzene	EPA 624.1	OR
110.040	019	1,4-Dichlorobenzene	EPA 624.1	OR
110.040	020	1,1-Dichloroethane	EPA 624.1	OR
110.040	021	1,2-Dichloroethane	EPA 624.1	OR
110.040	022	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 624.1	OR
110.040	023	trans-1,2-Dichloroethene	EPA 624.1	OR
110.040	024	1,2-Dichloropropane	EPA 624.1	OR
110.040	025	cis-1,3-Dichloropropene	EPA 624.1	OR
110.040	026	trans-1,3-Dichloropropene	EPA 624.1	OR
110.040	029	Ethylbenzene	EPA 624.1	OR
110.040	031	Methylene Chloride	EPA 624.1	OR
110.040	032	4-Methyl-2-pentanone (MIBK)	EPA 624.1	OR
110.040	034	1,1,2,2-Tetrachloroethane	EPA 624.1	OR
110.040	035	Tetrachloroethylene (Tetrachloroethene)	EPA 624.1	OR
110.040	036	Tetrahydrofuran	EPA 624.1	OR
110.040	037	Toluene	EPA 624.1	OR
110.040	038	1,1,1-Trichloroethane	EPA 624.1	OR

110.040	039	1,1,2-Trichloroethane	EPA 624.1	OR
110.040	040	Trichloroethene	EPA 624.1	OR
110.040	041	Vinyl Chloride	EPA 624.1	OR
110.040	043	o-Xylene	EPA 624.1	OR
110.040	045	Trichlorofluoromethane	EPA 624.1	OR

Field of Testing: 111 - Semi-volatile Organic Constituents in Non-Potable Water

111.055	001	Aldrin	EPA 608.3	OR
111.055	002	alpha-BHC	EPA 608.3	OR
111.055	003	beta-BHC	EPA 608.3	OR
111.055	004	delta-BHC	EPA 608.3	OR
111.055	005	gamma-BHC (Lindane)	EPA 608.3	OR
111.055	006	Chlordane	EPA 608.3	OR
111.055	007	4,4'-DDD	EPA 608.3	OR
111.055	008	4,4'-DDE	EPA 608.3	OR
111.055	009	4,4'-DDT	EPA 608.3	OR
111.055	010	Dieldrin	EPA 608.3	OR
111.055	011	Endosulfan I	EPA 608.3	OR
111.055	012	Endosulfan II	EPA 608.3	OR
111.055	013	Endosulfan Sulfate	EPA 608.3	OR
111.055	014	Endrin	EPA 608.3	OR
111.055	015	Endrin Aldehyde	EPA 608.3	OR
111.055	016	Heptachlor	EPA 608.3	OR
111.055	017	Heptachlor Epoxide	EPA 608.3	OR
111.055	019	PCB-1016	EPA 608.3	OR
111.055	020	PCB-1221	EPA 608.3	OR
111.055	021	PCB-1232	EPA 608.3	OR
111.055	022	PCB-1242	EPA 608.3	OR
111.055	023	PCB-1248	EPA 608.3	OR
111.055	024	PCB-1254	EPA 608.3	OR
111.055	025	PCB-1260	EPA 608.3	OR
111.055	060	Toxaphene	EPA 608.3	OR
111.160	001	Acenaphthene	EPA 625.1	OR
111.160	002	Acenaphthylene	EPA 625.1	OR
111.160	003	Anthracene	EPA 625.1	OR
111.160	005	Benzo(a)anthracene	EPA 625.1	OR
111.160	006	Benzo(a)pyrene	EPA 625.1	OR
111.160	007	Benzo(b)fluoranthene	EPA 625.1	OR
111.160	008	Benzo(g,h,i)perylene	EPA 625.1	OR
111.160	009	Benzo(k)fluoranthene	EPA 625.1	OR
111.160	010	Bis(2-chloroethoxy) Methane	EPA 625.1	OR
111.160	011	Bis(2-chloroethyl) Ether	EPA 625.1	OR
111.160	013	Bis(2-ethylhexyl)phthalate	EPA 625.1	OR

111.160	014	4-Bromophenyl Phenyl Ether	EPA 625.1	OR
111.160	015	Butyl Benzyl Phthalate	EPA 625.1	OR
111.160	016	2-Chloronaphthalene	EPA 625.1	OR
111.160	017	4-Chlorophenyl Phenyl Ether	EPA 625.1	OR
111.160	018	Chrysene	EPA 625.1	OR
111.160	019	Dibenz(a,h)anthracene	EPA 625.1	OR
111.160	020	3,3'-Dichlorobenzidine	EPA 625.1	OR
111.160	021	Diethyl Phthalate	EPA 625.1	OR
111.160	022	Dimethyl Phthalate	EPA 625.1	OR
111.160	023	Di-n-butyl Phthalate	EPA 625.1	OR
111.160	024	2,4-Dinitrotoluene	EPA 625.1	OR
111.160	025	2,6-Dinitrotoluene	EPA 625.1	OR
111.160	026	Di-n-octyl Phthalate	EPA 625.1	OR
111.160	027	Fluoranthene	EPA 625.1	OR
111.160	028	Fluorene	EPA 625.1	OR
111.160	029	Hexachlorobenzene	EPA 625.1	OR
111.160	030	Hexachlorobutadiene	EPA 625.1	OR
111.160	031	Hexachloroethane	EPA 625.1	OR
111.160	032	Indeno(1,2,3-c,d)pyrene	EPA 625.1	OR
111.160	033	Isophorone	EPA 625.1	OR
111.160	034	Naphthalene	EPA 625.1	OR
111.160	035	Nitrobenzene	EPA 625.1	OR
111.160	037	Phenanthrene	EPA 625.1	OR
111.160	038	Pyrene	EPA 625.1	OR
111.160	039	1,2,4-Trichlorobenzene	EPA 625.1	OR
111.160	040	4-Chloro-3-methylphenol	EPA 625.1	OR
111.160	041	2-Chlorophenol	EPA 625.1	OR
111.160	042	2,4-Dichlorophenol	EPA 625.1	OR
111.160	043	2,4-Dimethylphenol	EPA 625.1	OR
111.160	044	2,4-Dinitrophenol	EPA 625.1	OR
111.160	045	2-Methyl-4,6-dinitrophenol	EPA 625.1	OR
111.160	046	2-Nitrophenol	EPA 625.1	OR
111.160	047	4-Nitrophenol	EPA 625.1	OR
111.160	048	Pentachlorophenol	EPA 625.1	OR
111.160	049	Phenol	EPA 625.1	OR
111.160	050	2,4,6-Trichlorophenol	EPA 625.1	OR
111.160	098	Hexachlorocyclopentadiene	EPA 625.1	OR
111.160	108	N-nitrosodimethylamine	EPA 625.1	OR
111.160	109	N-nitrosodi-n-propylamine	EPA 625.1	OR
111.160	110	N-nitrosodiphenylamine	EPA 625.1	OR

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B	OR

114.010	002	Arsenic	EPA 6010 B		OR
114.010	003	Barium	EPA 6010 B		OR
114.010	004	Beryllium	EPA 6010 B		OR
114.010	005	Cadmium	EPA 6010 B		OR
114.010	006	Chromium	EPA 6010 B		OR
114.010	007	Cobalt	EPA 6010 B		OR
114.010	008	Copper	EPA 6010 B		OR
114.010	009	Lead	EPA 6010 B		OR
114.010	010	Molybdenum	EPA 6010 B		OR
114.010	011	Nickel	EPA 6010 B		OR
114.010	012	Selenium	EPA 6010 B		OR
114.010	013	Silver	EPA 6010 B		OR
114.010	014	Thallium	EPA 6010 B		OR
114.010	015	Vanadium	EPA 6010 B		OR
114.010	016	Zinc	EPA 6010 B		OR
114.020	001	Antimony	EPA 6020		OR
114.020	002	Arsenic	EPA 6020		OR
114.020	003	Barium	EPA 6020		OR
114.020	004	Beryllium	EPA 6020		OR
114.020	005	Cadmium	EPA 6020		OR
114.020	006	Chromium	EPA 6020		OR
114.020	007	Cobalt	EPA 6020		OR
114.020	008	Copper	EPA 6020		OR
114.020	009	Lead	EPA 6020		OR
114.020	010	Molybdenum	EPA 6020		OR
114.020	011	Nickel	EPA 6020		OR
114.020	012	Selenium	EPA 6020		OR
114.020	013	Silver	EPA 6020		OR
114.020	014	Thallium	EPA 6020		OR
114.020	015	Vanadium	EPA 6020		OR
114.020	016	Zinc	EPA 6020		OR
114.140	001	Mercury	EPA 7470 A		OR
114.141	001	Mercury	EPA 7471 A		OR
114.221	001	Cyanide, Total	EPA 9012 A		OR
114.240	001	Corrosivity - pH Determination	EPA 9040 B	Aqueous Only	OR
114.241	001	Corrosivity - pH Determination	EPA 9045 C		OR

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)		OR
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)		OR

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.010	000	EDB and DBCP	EPA 8011		OR
116.030	001	Gasoline-range Organics	EPA 8015 B		OR

116.080	000	Volatile Organic Compounds	EPA 8260 B		OR
Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste					
117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B		OR
117.110	000	Extractable Organics	EPA 8270 C		OR
117.250	000	Chlorinated Herbicides	EPA 8151 A		OR
Field of Testing: 120 - Physical Properties of Hazardous Waste					
120.020	001	Ignitability	EPA 1020A		OR
120.070	001	Corrosivity - pH Determination	EPA 9040 B	Aqueous Only	OR
120.080	001	Corrosivity - pH Determination	EPA 9045 C		OR

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

TestAmerica St. Louis

13715 Rider Trail North

Earth City, MO 63045

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2886**

Expiration Date: **6/30/2020**

Effective Date: **7/1/2019**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

TestAmerica St. Louis

13715 Rider Trail North
Earth City, MO 63045
Phone: 3142988566

Certificate No. 2886
Expiration Date 6/30/2020

			Primary Accreditation Body
Field of Testing: 106 - Radionuclides in Drinking Water			
106.010 001	Gross Alpha	EPA 900.0	FL
106.010 002	Gross Beta	EPA 900.0	FL
106.050 002	Radium-226	EPA 903.0	FL
106.060 001	Radium-228	EPA 904.0	FL
106.070 003	Strontium-90	EPA 905.0	FL
106.080 001	Tritium	EPA 906.0	FL
106.092 001	Uranium	EPA 200.8	FL
106.220 001	Strontium-89, 90	DOE Sr-01	FL
106.230 001	Uranium	DOE U-02	FL
106.270 001	Gross Alpha	SM 7110 C	FL
106.610 001	Radon-222	SM 7500-Rn	FL
Field of Testing: 108 - Inorganic Constituents in Non-Potable Water			
108.112 001	Boron	EPA 200.7	FL
108.112 002	Calcium	EPA 200.7	FL
108.112 004	Magnesium	EPA 200.7	FL
108.112 005	Potassium	EPA 200.7	FL
108.112 006	Silica, Dissolved	EPA 200.7	LA
108.112 007	Sodium	EPA 200.7	FL
108.113 002	Calcium	EPA 200.8	LA
108.113 003	Magnesium	EPA 200.8	FL
108.113 004	Potassium	EPA 200.8	LA
108.113 006	Sodium	EPA 200.8	LA
108.120 001	Bromide	EPA 300.0	FL
108.120 002	Chloride	EPA 300.0	FL
108.120 003	Fluoride	EPA 300.0	FL
108.120 008	Sulfate (as SO4)	EPA 300.0	FL
108.120 012	Nitrate (as N)	EPA 300.0	FL
108.120 014	Nitrite (as N)	EPA 300.0	FL
108.120 015	Phosphate,Ortho (as P)	EPA 300.0	FL
108.490 001	Hydrogen Ion (pH)	SM 4500-H+ B-2000	LA
Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water			
109.010 001	Aluminum	EPA 200.7	FL
109.010 002	Antimony	EPA 200.7	FL

109.010	003	Arsenic	EPA 200.7	FL
109.010	004	Barium	EPA 200.7	FL
109.010	005	Beryllium	EPA 200.7	FL
109.010	006	Boron	EPA 200.7	FL
109.010	007	Cadmium	EPA 200.7	FL
109.010	009	Chromium	EPA 200.7	FL
109.010	010	Cobalt	EPA 200.7	FL
109.010	011	Copper	EPA 200.7	FL
109.010	012	Iron	EPA 200.7	FL
109.010	013	Lead	EPA 200.7	FL
109.010	015	Manganese	EPA 200.7	FL
109.010	016	Molybdenum	EPA 200.7	FL
109.010	017	Nickel	EPA 200.7	FL
109.010	019	Selenium	EPA 200.7	FL
109.010	021	Silver	EPA 200.7	FL
109.010	023	Thallium	EPA 200.7	FL
109.010	024	Tin	EPA 200.7	FL
109.010	025	Titanium	EPA 200.7	FL
109.010	026	Vanadium	EPA 200.7	FL
109.010	027	Zinc	EPA 200.7	FL
109.020	001	Aluminum	EPA 200.8	FL
109.020	002	Antimony	EPA 200.8	FL
109.020	003	Arsenic	EPA 200.8	FL
109.020	004	Barium	EPA 200.8	FL
109.020	005	Beryllium	EPA 200.8	FL
109.020	006	Cadmium	EPA 200.8	FL
109.020	007	Chromium	EPA 200.8	FL
109.020	008	Cobalt	EPA 200.8	FL
109.020	009	Copper	EPA 200.8	FL
109.020	010	Lead	EPA 200.8	FL
109.020	011	Manganese	EPA 200.8	FL
109.020	012	Molybdenum	EPA 200.8	FL
109.020	013	Nickel	EPA 200.8	FL
109.020	014	Selenium	EPA 200.8	FL
109.020	015	Silver	EPA 200.8	FL
109.020	016	Thallium	EPA 200.8	FL
109.020	017	Vanadium	EPA 200.8	FL
109.020	018	Zinc	EPA 200.8	FL
109.020	021	Iron	EPA 200.8	LA
109.020	022	Tin	EPA 200.8	LA
109.020	023	Titanium	EPA 200.8	LA
109.190	001	Mercury	EPA 245.1	FL

Field of Testing: 112 - Radionuclides in Non-Potable Water

112.010	001	Gross Alpha	EPA 900.0	FL
112.010	002	Gross Beta	EPA 900.0	FL
112.020	001	Total Alpha Radium	EPA 903.0	LA
112.140	001	Cesium	EPA 901.1	LA
112.140	002	Gamma Emitters	EPA 901.1	FL
112.160	001	Radium-228	EPA 904.0	FL
112.170	001	Strontium	EPA 905.0	FL
112.180	001	Tritium	EPA 906.0	FL
112.510	001	Strontium	DOE Sr-02	FL
112.520	001	Uranium	DOE U-02	LA

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B	DOD
114.010	002	Arsenic	EPA 6010 B	DOD
114.010	003	Barium	EPA 6010 B	DOD
114.010	004	Beryllium	EPA 6010 B	DOD
114.010	005	Cadmium	EPA 6010 B	DOD
114.010	006	Chromium	EPA 6010 B	DOD
114.010	007	Cobalt	EPA 6010 B	DOD
114.010	008	Copper	EPA 6010 B	DOD
114.010	009	Lead	EPA 6010 B	DOD
114.010	010	Molybdenum	EPA 6010 B	DOD
114.010	011	Nickel	EPA 6010 B	DOD
114.010	012	Selenium	EPA 6010 B	DOD
114.010	013	Silver	EPA 6010 B	DOD
114.010	014	Thallium	EPA 6010 B	DOD
114.010	015	Vanadium	EPA 6010 B	DOD
114.010	016	Zinc	EPA 6010 B	DOD
114.020	001	Antimony	EPA 6020	FL
114.020	002	Arsenic	EPA 6020	FL
114.020	003	Barium	EPA 6020	FL
114.020	004	Beryllium	EPA 6020	FL
114.020	005	Cadmium	EPA 6020	FL
114.020	006	Chromium	EPA 6020	FL
114.020	007	Cobalt	EPA 6020	FL
114.020	008	Copper	EPA 6020	FL
114.020	009	Lead	EPA 6020	FL
114.020	010	Molybdenum	EPA 6020	FL
114.020	011	Nickel	EPA 6020	FL
114.020	012	Selenium	EPA 6020	FL
114.020	013	Silver	EPA 6020	FL
114.020	014	Thallium	EPA 6020	FL

114.020	015	Vanadium	EPA 6020		FL
114.020	016	Zinc	EPA 6020		FL
114.103	001	Chromium (VI)	EPA 7196 A	Aqueous Only	LA
114.140	001	Mercury	EPA 7470 A	Aqueous Only	LA
114.141	001	Mercury	EPA 7471 A		DOD
114.240	001	Corrosivity - pH Determination	EPA 9040 B		LA
114.241	001	Corrosivity - pH Determination	EPA 9045 C		LA
114.250	001	Fluoride	EPA 9056		FL
Field of Testing: 115 - Extraction Test of Hazardous Waste					
115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)		FL
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II		DOD
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)		FL
Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste					
116.030	001	Gasoline-range Organics	EPA 8015 B		LA
116.080	000	Volatile Organic Compounds	EPA 8260 B		LA
Field of Testing: 118 - Radionuclides in Hazardous Waste					
118.010	001	Gross Alpha	EPA 9310		FL
118.010	002	Gross Beta	EPA 9310		FL
118.020	001	Radium, Total	EPA 9315		FL
118.030	001	Radium-228	EPA 9320		FL
118.271	001	Strontium	DOE Sr-02		LA
118.290	001	Uranium	DOE U-02		LA
Field of Testing: 120 - Physical Properties of Hazardous Waste					
120.070	001	Corrosivity - pH Determination	EPA 9040 B		LA
120.080	001	Corrosivity - pH Determination	EPA 9045 C		LA

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

TestAmerica St. Louis

13715 Rider Trail North
Earth City, MO 63045
Phone: 3142988566

Certificate No. **2886**
Expiration Date **6/30/2020**

				Primary Accreditation Body
Field of Testing: 106 - Radionuclides in Drinking Water				
106.010	001	Gross Alpha	EPA 900.0	FL
106.010	002	Gross Beta	EPA 900.0	FL
106.030	001	Radioactive Cesium	EPA 901.1	FL
106.030	003	Gamma Emitters	EPA 901.1	FL
106.050	002	Radium-226	EPA 903.0	FL
106.060	001	Radium-228	EPA 904.0	FL
106.070	003	Strontium-90	EPA 905.0	FL
106.080	001	Tritium	EPA 906.0	FL
106.092	001	Uranium	EPA 200.8	FL
106.220	001	Strontium-89, 90	DOE Sr-01	FL
106.230	001	Uranium	DOE U-02	FL
106.270	001	Gross Alpha	SM 7110 C	FL
106.610	001	Radon-222	SM 7500-Rn	FL
Field of Testing: 108 - Inorganic Constituents in Non-Potable Water				
108.112	001	Boron	EPA 200.7	FL
108.112	002	Calcium	EPA 200.7	FL
108.112	004	Magnesium	EPA 200.7	FL
108.112	005	Potassium	EPA 200.7	FL
108.112	006	Silica, Dissolved	EPA 200.7	LA
108.112	007	Sodium	EPA 200.7	FL
108.113	002	Calcium	EPA 200.8	LA
108.113	003	Magnesium	EPA 200.8	FL
108.113	004	Potassium	EPA 200.8	LA
108.113	006	Sodium	EPA 200.8	LA
108.120	001	Bromide	EPA 300.0	FL
108.120	002	Chloride	EPA 300.0	FL
108.120	003	Fluoride	EPA 300.0	FL
108.120	008	Sulfate (as SO4)	EPA 300.0	FL
108.120	012	Nitrate (as N)	EPA 300.0	FL
108.120	014	Nitrite (as N)	EPA 300.0	FL
108.120	015	Phosphate,Ortho (as P)	EPA 300.0	FL
108.490	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000	LA
Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water				

109.010	001	Aluminum	EPA 200.7	FL
109.010	002	Antimony	EPA 200.7	FL
109.010	003	Arsenic	EPA 200.7	FL
109.010	004	Barium	EPA 200.7	FL
109.010	005	Beryllium	EPA 200.7	FL
109.010	006	Boron	EPA 200.7	FL
109.010	007	Cadmium	EPA 200.7	FL
109.010	009	Chromium	EPA 200.7	FL
109.010	010	Cobalt	EPA 200.7	FL
109.010	011	Copper	EPA 200.7	FL
109.010	012	Iron	EPA 200.7	FL
109.010	013	Lead	EPA 200.7	FL
109.010	015	Manganese	EPA 200.7	FL
109.010	016	Molybdenum	EPA 200.7	FL
109.010	017	Nickel	EPA 200.7	FL
109.010	019	Selenium	EPA 200.7	FL
109.010	021	Silver	EPA 200.7	FL
109.010	023	Thallium	EPA 200.7	FL
109.010	024	Tin	EPA 200.7	FL
109.010	025	Titanium	EPA 200.7	FL
109.010	026	Vanadium	EPA 200.7	FL
109.010	027	Zinc	EPA 200.7	FL
109.020	001	Aluminum	EPA 200.8	FL
109.020	002	Antimony	EPA 200.8	FL
109.020	003	Arsenic	EPA 200.8	FL
109.020	004	Barium	EPA 200.8	FL
109.020	005	Beryllium	EPA 200.8	FL
109.020	006	Cadmium	EPA 200.8	FL
109.020	007	Chromium	EPA 200.8	FL
109.020	008	Cobalt	EPA 200.8	FL
109.020	009	Copper	EPA 200.8	FL
109.020	010	Lead	EPA 200.8	FL
109.020	011	Manganese	EPA 200.8	FL
109.020	012	Molybdenum	EPA 200.8	FL
109.020	013	Nickel	EPA 200.8	FL
109.020	014	Selenium	EPA 200.8	FL
109.020	015	Silver	EPA 200.8	FL
109.020	016	Thallium	EPA 200.8	FL
109.020	017	Vanadium	EPA 200.8	FL
109.020	018	Zinc	EPA 200.8	FL
109.020	021	Iron	EPA 200.8	LA
109.020	022	Tin	EPA 200.8	LA

109.020	023	Titanium	EPA 200.8	LA
109.190	001	Mercury	EPA 245.1	FL

Field of Testing: 112 - Radionuclides in Non-Potable Water

112.010	001	Gross Alpha	EPA 900.0	FL
112.010	002	Gross Beta	EPA 900.0	FL
112.020	001	Total Alpha Radium	EPA 903.0	LA
112.140	001	Cesium	EPA 901.1	LA
112.140	002	Gamma Emitters	EPA 901.1	FL
112.160	001	Radium-228	EPA 904.0	FL
112.170	001	Strontium	EPA 905.0	FL
112.180	001	Tritium	EPA 906.0	FL
112.510	001	Strontium	DOE Sr-02	FL
112.520	001	Uranium	DOE U-02	LA

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B	DOD
114.010	002	Arsenic	EPA 6010 B	DOD
114.010	003	Barium	EPA 6010 B	DOD
114.010	004	Beryllium	EPA 6010 B	DOD
114.010	005	Cadmium	EPA 6010 B	DOD
114.010	006	Chromium	EPA 6010 B	DOD
114.010	007	Cobalt	EPA 6010 B	DOD
114.010	008	Copper	EPA 6010 B	DOD
114.010	009	Lead	EPA 6010 B	DOD
114.010	010	Molybdenum	EPA 6010 B	DOD
114.010	011	Nickel	EPA 6010 B	DOD
114.010	012	Selenium	EPA 6010 B	DOD
114.010	013	Silver	EPA 6010 B	DOD
114.010	014	Thallium	EPA 6010 B	DOD
114.010	015	Vanadium	EPA 6010 B	DOD
114.010	016	Zinc	EPA 6010 B	DOD
114.020	001	Antimony	EPA 6020	FL
114.020	002	Arsenic	EPA 6020	FL
114.020	003	Barium	EPA 6020	FL
114.020	004	Beryllium	EPA 6020	FL
114.020	005	Cadmium	EPA 6020	FL
114.020	006	Chromium	EPA 6020	FL
114.020	007	Cobalt	EPA 6020	FL
114.020	008	Copper	EPA 6020	FL
114.020	009	Lead	EPA 6020	FL
114.020	010	Molybdenum	EPA 6020	FL
114.020	011	Nickel	EPA 6020	FL
114.020	012	Selenium	EPA 6020	FL

114.020	013	Silver	EPA 6020		FL
114.020	014	Thallium	EPA 6020		FL
114.020	015	Vanadium	EPA 6020		FL
114.020	016	Zinc	EPA 6020		FL
114.103	001	Chromium (VI)	EPA 7196 A	Aqueous Only	LA
114.140	001	Mercury	EPA 7470 A	Aqueous Only	LA
114.141	001	Mercury	EPA 7471 A		DOD
114.240	001	Corrosivity - pH Determination	EPA 9040 B		LA
114.241	001	Corrosivity - pH Determination	EPA 9045 C		LA
114.250	001	Fluoride	EPA 9056		FL
Field of Testing: 115 - Extraction Test of Hazardous Waste					
115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)		FL
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II		DOD
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)		FL
Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste					
116.030	001	Gasoline-range Organics	EPA 8015 B		LA
116.080	000	Volatile Organic Compounds	EPA 8260 B		LA
Field of Testing: 118 - Radionuclides in Hazardous Waste					
118.010	001	Gross Alpha	EPA 9310		FL
118.010	002	Gross Beta	EPA 9310		FL
118.020	001	Radium, Total	EPA 9315		FL
118.030	001	Radium-228	EPA 9320		FL
118.271	001	Strontium	DOE Sr-02		LA
118.290	001	Uranium	DOE U-02		LA
Field of Testing: 120 - Physical Properties of Hazardous Waste					
120.070	001	Corrosivity - pH Determination	EPA 9040 B		LA
120.080	001	Corrosivity - pH Determination	EPA 9045 C		LA

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Aquatic Bioassay & Consulting Laboratories, Inc.

29 North Olive Street

Ventura, CA 93001

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1907**

Expiration Date: **7/31/2021**

Effective Date: **8/1/2019**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Aquatic Bioassay & Consulting Laboratories, Inc.

29 North Olive Street
Ventura, CA 93001
Phone: 8056435621

Certificate No. 1907
Expiration Date 7/31/2021

Field of Testing: 113 - Whole Effluent Toxicity of Wastewater

113.010	001A	Fathead Minnow (P. promelas)	EPA 600/4-90/027F, Static
113.010	001B	Fathead Minnow (P. promelas)	EPA 600/4-90/027F, Static Renewal
113.010	003A	Rainbow trout (O. mykiss)	EPA 600/4-90/027F, Static
113.010	003B	Rainbow trout (O. mykiss)	EPA 600/4-90/027F, Static Renewal
113.010	005A	Daphnid (C. dubia)	EPA 600/4-90/027F, Static
113.010	005B	Daphnid (C. dubia)	EPA 600/4-90/027F, Static Renewal
113.010	006A	Daphnia spp.	EPA 600/4-90/027F, Static
113.010	006B	Daphnia spp.	EPA 600/4-90/027F, Static Renewal
113.010	008A	Topsmelt (A. affinis)	EPA 600/4-90/027F, Static
113.010	008B	Topsmelt (A. affinis)	EPA 600/4-90/027F, Static Renewal
113.010	009A	Silverside (Menidia spp.)	EPA 600/4-90/027F, Static
113.010	009B	Silverside (Menidia spp.)	EPA 600/4-90/027F, Static Renewal
113.010	012A	Mysid (M. bahia)	EPA 600/4-90/027F, Static
113.010	012B	Mysid (M. bahia)	EPA 600/4-90/027F, Static Renewal
113.021	001A	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static
113.021	001B	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static Renewal
113.022	003A	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Static
113.022	003B	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Static Renewal
113.023	005A	Daphnid (C. dubia)	EPA 2002 (EPA-821-R-02-012), Static
113.023	005B	Daphnid (C. dubia)	EPA 2002 (EPA-821-R-02-012), Static Renewal
113.024	006A	Daphnia spp.	EPA 2021 (EPA-821-R-02-012), Static
113.024	006B	Daphnia spp.	EPA 2021 (EPA-821-R-02-012), Static Renewal
113.025	009A	Silverside (Menidia spp.)	EPA 2006 (EPA-821-R-02-012), Static
113.025	009B	Silverside (Menidia spp.)	EPA 2006 (EPA-821-R-02-012), Static Renewal
113.027	012A	Mysid (M. bahia)	EPA 2007 (EPA-821-R-02-012), Static
113.027	012B	Mysid (M. bahia)	EPA 2007 (EPA-821-R-02-012), Static Renewal
113.028	008A	Topsmelt (A. affinis)	EPA-821-R-02-012, Static
113.028	008B	Topsmelt (A. affinis)	EPA-821-R-02-012, Static Renewal
113.029	001A	Hyalella spp.	EPA-821-R-02-012, Static
113.029	001B	Hyalella spp.	EPA-821-R-02-012, Static Renewal
113.041	001	Fathead Minnow (P. promelas)	EPA 1000 (EPA-821-R-02-013)
113.050	005	Daphnid (C. dubia)	EPA 1002 (EPA/600/4-91/002)
113.051	005	Daphnid (C. dubia)	EPA 1002 (EPA-821-R-02-013)

As of 7/29/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

113.060	020	Green algae (S. capricornutum)	EPA 1003 (EPA/600/4-91/002)
113.061	020	Green algae (S. capricornutum)	EPA 1003 (EPA-821-R-02-013)
113.071	020	Green algae (S. capricornutum)	ASTM E1218-04
113.080	009	Silverside (Menidia spp.)	EPA 1006 (EPA/600/4-91/003)
113.081	009	Silverside (Menidia spp.)	EPA 1006 (EPA-821-R-02-014)
113.090	012	Mysid (M. bahia)	EPA 1007 (EPA/600/4-91/003)
113.091	012	Mysid (M. bahia)	EPA 1007 (EPA-821-R-02-014)
113.120	008	Topsmelt (A. affinis)	EPA 600/R-95/136
113.120	014	Pacific oyster (C. gigas)	EPA 600/R-95/136
113.120	015D	Sand dollar (D. excentricus)	EPA 600/R-95/136, Fertilization Test
113.120	015E	Sand dollar (D. excentricus)	EPA 600/R-95/136, Development Test
113.120	017D	Purple sea urchin (S. purpuratus)	EPA 600/R-95/136, Fertilization Test
113.120	017E	Purple sea urchin (S. purpuratus)	EPA 600/R-95/136, Development Test
113.120	019	Mussels (Mytilus spp.)	EPA 600/R-95/136
113.120	022	Giant Kelp (M. pyrifera)	EPA 600/R-95/136
113.120	023	Red abalone (H. rufescens)	EPA 600/R-95/136
113.160	026	Amphipod (H. azteca)	EPA 600/R-99/064, EPA 100.1
113.210	030	Amphipod (E. estuarius)	EPA 600/R-94/025, EPA 100.4
Field of Testing: 119 - Toxicity Bioassay of Hazardous Waste			
119.010	001	Fathead Minnow (P. promelas)	Polisini & Miller (CDFG 1988)
119.010	003	Rainbow trout (O. mykiss)	Polisini & Miller (CDFG 1988)
119.020	026	Amphipod (H. azteca)	EPA 100.1
119.050	030	Amphipod (E. estuarius)	EPA 100.4
Field of Testing: 126 - Microbiology of Recreational Water			
126.010	001	Total Coliform (Enumeration)	SM 9221 B-2006
126.030	001	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
126.050	001	Total Coliform (Enumeration)	SM 9223 B Colilert
126.050	002	E. coli (Enumeration)	SM 9223 B Colilert
126.080	001	Enterococci	Enterolert

State Water Resources Control Board

July 30, 2019

Scott Johnson
Aquatic Bioassay & Consulting Laboratories, Inc.
29 North Olive Street
Ventura, CA 93001

Dear Scott Johnson: Certificate No. 1907

Congratulations! This notice advises that the laboratory named above has been accredited as an environmental testing laboratory pursuant to the provisions of the California Health and Safety Code (HSC) Sections 100825-100920. The analyses for which this laboratory is accredited are indicated on the enclosed "Accredited Fields of Testing" List.

The laboratory's accreditation begins on the date printed on the enclosed certificate. For renewed accreditations, this date is determined by compliance with applicable deadlines. Noncompliance with these deadlines may have resulted in lapse of accreditation.

Be advised, the laboratory may have been denied accreditation for one or more analyses for which it applied due to failure to comply with regulatory requirements for application or accreditation. It is the laboratory's responsibility to review the enclosed list and know for which methods the laboratory has been accredited. This accreditation is a final action of the state board, subject to petition under Health and Safety Code Section 116701 within 30 days. However, if you believe that a FOT has been left off of your accreditation in error, you may submit to ELAP within 30 days of this letter, an "Accreditation Inquiry Request Form" located at www.waterboards.ca.gov/elap identifying any mistakes or errors you believe occurred in your accreditation, which will begin the period in which to file a petition. ELAP will then review all timely submitted "Accreditation Inquiry Request Forms" and will make a final determination which could then petitioned to the State Water Resources Control Board. **Failure to submit a petition to the State Water Resources Control Board or an "Accreditation Inquiry Request Form" to ELAP within 30 days of this letter will prohibit you from obtaining any further review of your accreditation.**

HSC Section 100890 lists the civil penalties for environmental laboratories that perform analyses for state regulatory purposes without a valid certificate.

Continued accreditation is contingent upon compliance with HSC Sections 100825-100920 and California Code of Regulations, Title 22, Division 4, Chapter 19, Certification of Environmental Laboratories. ELAP reserves the right to take enforcement action, including issuance of civil penalties, or supension and revocation of the laboratory's ELAP certificate, for failure to comply with all applicable regulations, statutes and orders.

Thank you



Christine Sotelo, Chief
California Environmental Laboratory Accreditation Program (CA ELAP)

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Aquatic Bioassay & Consulting Laboratories, Inc.

29 North Olive Street
Ventura, CA 93001
Phone: 8056435621

Certificate No. 1907
Expiration Date 7/31/2021

Field of Testing: 113 - Whole Effluent Toxicity of Wastewater

113.010	001A	Fathead Minnow (P. promelas)	EPA 600/4-90/027F, Static
113.010	001B	Fathead Minnow (P. promelas)	EPA 600/4-90/027F, Static Renewal
113.010	003A	Rainbow trout (O. mykiss)	EPA 600/4-90/027F, Static
113.010	003B	Rainbow trout (O. mykiss)	EPA 600/4-90/027F, Static Renewal
113.010	005A	Daphnid (C. dubia)	EPA 600/4-90/027F, Static
113.010	005B	Daphnid (C. dubia)	EPA 600/4-90/027F, Static Renewal
113.010	006A	Daphnia spp.	EPA 600/4-90/027F, Static
113.010	006B	Daphnia spp.	EPA 600/4-90/027F, Static Renewal
113.010	008A	Topsmelt (A. affinis)	EPA 600/4-90/027F, Static
113.010	008B	Topsmelt (A. affinis)	EPA 600/4-90/027F, Static Renewal
113.010	009A	Silverside (Menidia spp.)	EPA 600/4-90/027F, Static
113.010	009B	Silverside (Menidia spp.)	EPA 600/4-90/027F, Static Renewal
113.010	012A	Mysid (M. bahia)	EPA 600/4-90/027F, Static
113.010	012B	Mysid (M. bahia)	EPA 600/4-90/027F, Static Renewal
113.021	001A	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static
113.021	001B	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static Renewal
113.022	003A	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Static
113.022	003B	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Static Renewal
113.023	005A	Daphnid (C. dubia)	EPA 2002 (EPA-821-R-02-012), Static
113.023	005B	Daphnid (C. dubia)	EPA 2002 (EPA-821-R-02-012), Static Renewal
113.024	006A	Daphnia spp.	EPA 2021 (EPA-821-R-02-012), Static
113.024	006B	Daphnia spp.	EPA 2021 (EPA-821-R-02-012), Static Renewal
113.025	009A	Silverside (Menidia spp.)	EPA 2006 (EPA-821-R-02-012), Static
113.025	009B	Silverside (Menidia spp.)	EPA 2006 (EPA-821-R-02-012), Static Renewal
113.027	012A	Mysid (M. bahia)	EPA 2007 (EPA-821-R-02-012), Static
113.027	012B	Mysid (M. bahia)	EPA 2007 (EPA-821-R-02-012), Static Renewal
113.028	008A	Topsmelt (A. affinis)	EPA-821-R-02-012, Static
113.028	008B	Topsmelt (A. affinis)	EPA-821-R-02-012, Static Renewal
113.029	001A	Hyalella spp.	EPA-821-R-02-012, Static
113.029	001B	Hyalella spp.	EPA-821-R-02-012, Static Renewal
113.041	001	Fathead Minnow (P. promelas)	EPA 1000 (EPA-821-R-02-013)
113.050	005	Daphnid (C. dubia)	EPA 1002 (EPA/600/4-91/002)
113.051	005	Daphnid (C. dubia)	EPA 1002 (EPA-821-R-02-013)

As of 7/29/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

113.060	020	Green algae (S. capricornutum)	EPA 1003 (EPA/600/4-91/002)
113.061	020	Green algae (S. capricornutum)	EPA 1003 (EPA-821-R-02-013)
113.071	020	Green algae (S. capricornutum)	ASTM E1218-04
113.080	009	Silverside (Menidia spp.)	EPA 1006 (EPA/600/4-91/003)
113.081	009	Silverside (Menidia spp.)	EPA 1006 (EPA-821-R-02-014)
113.090	012	Mysid (M. bahia)	EPA 1007 (EPA/600/4-91/003)
113.091	012	Mysid (M. bahia)	EPA 1007 (EPA-821-R-02-014)
113.120	008	Topsmelt (A. affinis)	EPA 600/R-95/136
113.120	014	Pacific oyster (C. gigas)	EPA 600/R-95/136
113.120	015D	Sand dollar (D. excentricus)	EPA 600/R-95/136, Fertilization Test
113.120	015E	Sand dollar (D. excentricus)	EPA 600/R-95/136, Development Test
113.120	017D	Purple sea urchin (S. purpuratus)	EPA 600/R-95/136, Fertillzation Test
113.120	017E	Purple sea urchin (S. purpuratus)	EPA 600/R-95/136, Development Test
113.120	019	Mussels (Mytilus spp.)	EPA 600/R-95/136
113.120	022	Giant Kelp (M. pyrifera)	EPA 600/R-95/136
113.120	023	Red abalone (H. rufescens)	EPA 600/R-95/136
113.160	026	Amphipod (H. azteca)	EPA 600/R-99/064, EPA 100.1
113.210	030	Amphipod (E. estuarius)	EPA 600/R-94/025, EPA 100.4
Field of Testing: 119 - Toxicity Bioassay of Hazardous Waste			
119.010	001	Fathead Minnow (P. promelas)	Polisini & Miller (CDFG 1988)
119.010	003	Rainbow trout (O. mykiss)	Polisini & Miller (CDFG 1988)
119.020	026	Amphipod (H. azteca)	EPA 100.1
119.050	030	Amphipod (E. estuarius)	EPA 100.4
Field of Testing: 126 - Microbiology of Recreational Water			
126.010	001	Total Coliform (Enumeration)	SM 9221 B-2006
126.030	001	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
126.050	001	Total Coliform (Enumeration)	SM 9223 B Colilert
126.050	002	E. coli (Enumeration)	SM 9223 B Colilert
126.080	001	Enterococci	Enterolert

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

EMSL Analytical, Inc.
South Pasadena, CA
520 Mission Street
South Pasadena, CA 91030
Phone: 8003030047

Certificate No. 2283
Expiration Date 12/31/2020
INTERIM

Field of Testing: 101 - Microbiology of Drinking Water			
101.010	001	Heterotrophic Bacteria	SM 9215 B
101.050	001	Total Coliform P/A	SM 9223 B Colilert
101.050	002	E. coli P/A	SM 9223 B Colilert
101.050	003	Total Coliform (Enumeration)	SM 9223 B Colilert
Field of Testing: 103 - Toxic Chemical Elements of Drinking Water			
103.301	001	Asbestos	EPA 100.2
Field of Testing: 107 - Microbiological Methods for Non-Potable Water and Sewage Sludge			
107.003	002	Fecal Coliform (Enumeration)	SM 9222 D-2006
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020
Field of Testing: 126 - Microbiological Methods for Ambient Water			
126.005	003	Fecal Coliform (Enumeration)	SM 9222 D-2006
126.019	001	Enterococci	Enterolert

As of 1/1/2020 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Enthalpy Analytical, LLC

931 West Barkley Avenue

Orange, CA 92868

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1338**

Expiration Date: **10/31/2020**

Effective Date: **11/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Enthalpy Analytical, LLC

931 West Barkley Avenue
Orange, CA 92868
Phone: 7147716900

Certificate No. **1338**
Expiration Date **10/31/2020**

Field of Testing: 101 - Microbiology of Drinking Water

101.010	001	Heterotrophic Plate Count	SM 9215 B
101.010	002	Heterotrophic Bacteria	SimPlate
101.020	004	Total Coliform (Enumeration)	SM 9221 B,C
101.020	005	Fecal Coliform (Enumeration)	SM 9221 B,E
101.020	006	E. coli (Enumeration)	SM 9221 B,F
101.050	001	Total Coliform P/A	SM 9223 B Colilert
101.050	002	E. coli P/A	SM 9223 B Colilert
101.050	003	Total Coliform (Enumeration)	SM 9223 B Colilert
101.050	004	E. coli (Enumeration)	SM 9223 B Colilert
101.050	005	Total Coliform P/A	SM 9223 B Colilert 18
101.050	006	E. coli P/A	SM 9223 B Colilert 18
101.050	007	Total Coliform (Enumeration)	SM 9223 B Colilert 18
101.050	008	E. coli (Enumeration)	SM 9223 B Colilert 18
101.050	009	Total Coliform P/A	SM 9223 B Colisure
101.050	010	E. coli P/A	SM 9223 B Colisure
101.050	011	Total Coliform (Enumeration)	SM 9223 B Colisure
101.050	012	E. coli (Enumeration)	SM 9223 B Colisure

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.015	001	Hydrogen Ion (pH)	EPA 150.1
102.020	001	Turbidity	EPA 180.1
102.026	001	Calcium	EPA 200.7
102.026	002	Magnesium	EPA 200.7
102.026	003	Potassium	EPA 200.7
102.026	004	Silica	EPA 200.7
102.026	005	Sodium	EPA 200.7
102.026	006	Hardness (Calculation)	EPA 200.7
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate (as N)	EPA 300.0
102.030	007	Nitrite (as N)	EPA 300.0
102.030	009	Sulfate (as SO4)	EPA 300.0
102.045	001	Perchlorate	EPA 314.0
102.050	001	Cyanide, Total	EPA 335.4

As of 10/23/2019 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

102.060	001	Nitrate (as N) (Calculation)	EPA 353.2
102.061	001	Nitrite (as N)	EPA 353.2
102.095	001	Turbidity	SM 2130 B-2001
102.100	001	Alkalinity	SM 2320 B-1997
102.120	001	Hardness (Calculation)	SM 2340 B-1997
102.130	001	Specific Conductance	SM 2510 B-1997
102.140	001	Residue, Filterable TDS	SM 2540 C-1997
102.175	001	Chlorine, Free	SM 4500-Cl G-2000
102.175	002	Chlorine, Total Residual	SM 4500-Cl G-2000
102.190	001	Cyanide, Total	SM 4500-CN E-1999
102.200	001	Fluoride	SM 4500-F C-2011
102.203	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
102.234	001	Nitrite (as N)	SM 4500-NO3 F-2000
102.234	002	Nitrate (as N)	SM 4500-NO3 F-2000
102.240	001	Phosphate,Ortho (as P)	SM 4500-P E-1999
102.242	001	Silica	SM 4500-SiO2 C-1997
102.243	001	Silica	SM 4500-SiO2 D-1997
102.260	001	Total Organic Carbon TOC	SM 5310 B-2000
102.261	001	Dissolved Organic Carbon (DOC)	SM 5310 B-2000
102.270	001	Surfactants	SM 5540 C-2000

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.130	001	Aluminum	EPA 200.7
103.130	003	Barium	EPA 200.7
103.130	004	Beryllium	EPA 200.7
103.130	005	Cadmium	EPA 200.7
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	012	Nickel	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.130	018	Boron	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8
103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8

103.140	010	Manganese	EPA 200.8
103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.140	017	Boron	EPA 200.8
103.140	018	Vanadium	EPA 200.8
103.160	001	Mercury	EPA 245.1
103.310	001	Chromium (VI)	EPA 218.6

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.035	001	1,2,3-Trichloropropane (TCP)	SRL 524M-TCP
104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	001	Benzene	EPA 524.2
104.040	007	n-Butylbenzene	EPA 524.2
104.040	008	sec-Butylbenzene	EPA 524.2
104.040	009	tert-Butylbenzene	EPA 524.2
104.040	010	Carbon Tetrachloride	EPA 524.2
104.040	011	Chlorobenzene	EPA 524.2
104.040	015	2-Chlorotoluene	EPA 524.2
104.040	016	4-Chlorotoluene	EPA 524.2
104.040	019	1,3-Dichlorobenzene	EPA 524.2
104.040	020	1,2-Dichlorobenzene	EPA 524.2
104.040	021	1,4-Dichlorobenzene	EPA 524.2
104.040	022	Dichlorodifluoromethane	EPA 524.2
104.040	023	1,1-Dichloroethane	EPA 524.2
104.040	024	1,2-Dichloroethane	EPA 524.2
104.040	025	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 524.2
104.040	026	cis-1,2-Dichloroethene	EPA 524.2
104.040	027	trans-1,2-Dichloroethene	EPA 524.2
104.040	028	Dichloromethane (Methylene Chloride)	EPA 524.2
104.040	029	1,2-Dichloropropane	EPA 524.2
104.040	033	cis-1,3-Dichloropropene	EPA 524.2
104.040	034	trans-1,3-Dichloropropene	EPA 524.2
104.040	035	Ethylbenzene	EPA 524.2
104.040	037	Isopropylbenzene	EPA 524.2
104.040	039	Naphthalene	EPA 524.2
104.040	041	N-propylbenzene	EPA 524.2
104.040	042	Styrene	EPA 524.2
104.040	043	1,1,1,2-Tetrachloroethane	EPA 524.2
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2
104.040	045	Tetrachloroethylene (Tetrachloroethene)	EPA 524.2

104.040	046	Toluene	EPA 524.2
104.040	047	1,2,3-Trichlorobenzene	EPA 524.2
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2
104.040	049	1,1,1-Trichloroethane	EPA 524.2
104.040	050	1,1,2-Trichloroethane	EPA 524.2
104.040	051	Trichloroethene	EPA 524.2
104.040	052	Trichlorofluoromethane	EPA 524.2
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2
104.040	056	Vinyl Chloride	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2
104.040	061	Carbon Disulfide	EPA 524.2
104.045	000	Trihalomethanes, Total	EPA 524.2
104.045	001	Bromodichloromethane	EPA 524.2
104.045	002	Bromoform	EPA 524.2
104.045	003	Chloroform	EPA 524.2
104.045	004	Dibromochloromethane	EPA 524.2
104.050	000	Gasoline Additives	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	003	tert-Amyl Methyl Ether (TAME)	EPA 524.2
104.050	004	Ethyl tert-butyl Ether (ETBE)	EPA 524.2
104.050	005	Trichlorotrifluoroethane	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2

Field of Testing: 107 - Microbiological Methods for Non-Potable Water and Sewage Sludge

107.010	001	Heterotrophic Plate Count	SM 9215 B
107.020	002	Total Coliform (Enumeration)	SM 9221 B-2006
107.030	002	Total Coliform with Chlorine Present	SM 9221 B,C-2006
107.040	002	Fecal Coliform (Enumeration)	SM 9221 C,E-2006
107.050	002	Fecal Coliform with Chlorine Present	SM 9221 C,E-2006
107.100	002	Fecal Streptococci	SM 9230 B-2007
107.242	001	Enterococci	Enterolert
107.245	001	E. coli (Enumeration)	SM 9223 B Colilert 18
107.245	002	E. coli (Enumeration)	SM 9223 B Colilert
107.247	001	E. coli (Enumeration)	SM 9221 B,F-2006

Field of Testing: 108 - Inorganic Constituents in Non-Potable Water

108.020	001	Specific Conductance	EPA 120.1
108.090	001	Residue, Volatile	EPA 160.4
108.110	001	Turbidity	EPA 180.1
108.112	001	Boron	EPA 200.7
108.112	002	Calcium	EPA 200.7
108.112	003	Hardness (Calculation)	EPA 200.7
108.112	004	Magnesium	EPA 200.7

108.112	005	Potassium	EPA 200.7
108.112	006	Silica, Dissolved	EPA 200.7
108.112	007	Sodium	EPA 200.7
108.113	001	Boron	EPA 200.8
108.113	002	Calcium	EPA 200.8
108.113	003	Magnesium	EPA 200.8
108.113	004	Potassium	EPA 200.8
108.113	006	Sodium	EPA 200.8
108.120	001	Bromide	EPA 300.0
108.120	002	Chloride	EPA 300.0
108.120	003	Fluoride	EPA 300.0
108.120	008	Sulfate (as SO4)	EPA 300.0
108.120	012	Nitrate (as N)	EPA 300.0
108.120	013	Nitrate-Nitrite (as N)	EPA 300.0
108.120	014	Nitrite (as N)	EPA 300.0
108.183	001	Cyanide, Total	EPA 335.4
108.209	001	Ammonia (as N)	EPA 350.1
108.211	002	Kjeldahl Nitrogen,Total (as N)	EPA 351.2
108.232	003	Nitrate-Nitrite (as N)	EPA 353.2
108.232	004	Nitrite (as N)	EPA 353.2
108.323	001	Chemical Oxygen Demand	EPA 410.4
108.360	001	Phenols, Total	EPA 420.1
108.381	001	Oil and Grease	EPA 1664 A
108.385	001	Color	SM 2120 B-2001
108.390	001	Turbidity	SM 2130 B-2001
108.410	001	Alkalinity	SM 2320 B-1997
108.420	001	Hardness (Calculation)	SM 2340 B-1997
108.430	001	Specific Conductance	SM 2510 B-1997
108.439	001	Residue, Volatile	SM 2540 E-1997
108.440	001	Residue, Total	SM 2540 B-1997
108.441	001	Residue, Filterable TDS	SM 2540 C-1997
108.442	001	Residue, Non-filterable TSS	SM 2540 D-1997
108.443	001	Residue, Settleable	SM 2540 F-1997
108.444	001	Temperature	SM 2550 B-2010
108.465	001	Chlorine, Total Residual	SM 4500-Cl G-2000
108.470	001	Cyanide, Total	SM 4500-CN B or C-1999
108.472	001	Cyanide, Total	SM 4500-CN E-1999
108.473	001	Cyanide, Amenable	SM 4500-CN G-1999
108.480	001	Fluoride	SM 4500-F B,C-1997
108.490	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
108.500	002	Ammonia (as N)	SM 4500-NH3 B,C-1997
108.501	002	Kjeldahl Nitrogen,Total (as N)	SM 4500-NH3 C-1997

108.506	002	Ammonia (as N)	SM 4500-NH3 G-1997
108.507	002	Kjeldahl Nitrogen,Total (as N)	SM 4500-NH3 G-1997
108.529	001	Nitrate-Nitrite (as N)	SM 4500-NO3 F-2000
108.529	002	Nitrite (as N)	SM 4500-NO3 F-2000
108.529	003	Nitrate (as N)	SM 4500-NO3 F-2000
108.536	001	Oxygen, Dissolved	SM 4500-O G-2001
108.540	001	Phosphate,Ortho (as P)	SM 4500-P E-1999
108.541	001	Phosphorus,Total	SM 4500-P E-1999
108.552	001	Silica, Dissolved	SM 4500-SiO2 C-1997
108.560	001	Sulfite (as SO3)	SM 4500-SO3 B-2000
108.584	001	Sulfide (as S)	SM 4500-S D-2000
108.592	001	Biochemical Oxygen Demand	SM 5210 B -2001
108.592	002	Carbonaceous BOD	SM 5210 B -2001
108.595	001	Chemical Oxygen Demand	SM 5220 D-1997
108.596	001	Organic Carbon-Total (TOC)	SM 5310 B-2000
108.603	001	Oil & Grease Total	SM 5520B-2001
108.605	001	Surfactants	SM 5540 C-2000

Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	006	Boron	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	025	Titanium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8

109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.020	021	Iron	EPA 200.8
109.020	023	Titanium	EPA 200.8
109.104	001	Chromium (VI)	EPA 218.6
109.190	001	Mercury	EPA 245.1

Field of Testing: 110 - Volatile Organic Constituents in Non-Potable Water

110.040	000	Purgeable Organic Compounds	EPA 624

Field of Testing: 111 - Semi-volatile Organic Constituents in Non-Potable Water

111.100	000	Base/Neutral & Acid Organics	EPA 625
111.170	000	Organochlorine Pesticides and PCBs	EPA 608

Field of Testing: 113 - Environmental Toxicity Methods

113.010	001B	Fathead Minnow (P. promelas)	EPA 600/4-90/027F, Static Renewal
113.021	001B	Fathead Minnow (P. promelas)	EPA 2000 (EPA-821-R-02-012), Static Renewal

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B
114.010	002	Arsenic	EPA 6010 B
114.010	003	Barium	EPA 6010 B
114.010	004	Beryllium	EPA 6010 B
114.010	005	Cadmium	EPA 6010 B
114.010	006	Chromium	EPA 6010 B
114.010	007	Cobalt	EPA 6010 B
114.010	008	Copper	EPA 6010 B
114.010	009	Lead	EPA 6010 B
114.010	010	Molybdenum	EPA 6010 B
114.010	011	Nickel	EPA 6010 B
114.010	012	Selenium	EPA 6010 B

114.010	013	Silver	EPA 6010 B
114.010	014	Thallium	EPA 6010 B
114.010	015	Vanadium	EPA 6010 B
114.010	016	Zinc	EPA 6010 B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.103	001	Chromium (VI)	EPA 7196 A
114.106	001	Chromium (VI)	EPA 7199
114.140	001	Mercury	EPA 7470 A
114.141	001	Mercury	EPA 7471 A
114.221	001	Cyanide, Total	EPA 9012 A
114.222	001	Cyanide, Total	EPA 9014
114.240	001	Corrosivity - pH Determination	EPA 9040 B
114.241	001	Corrosivity - pH Determination	EPA 9045 C
114.250	001	Fluoride	EPA 9056
114.270	001	Fluoride	EPA 9214

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)
115.021	001	TCLP Inorganics	EPA 1311 (TCLP)
115.022	001	TCLP Extractables	EPA 1311 (TCLP)
115.023	001	TCLP Volatiles	EPA 1311 (TCLP)
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.030	001	Gasoline-range Organics	EPA 8015 B
116.040	062	BTEX	EPA 8021 B
116.080	000	Volatile Organic Compounds	EPA 8260 B
116.080	120	Oxygenates	EPA 8260 B

116.100	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT GC/MS
116.110	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B
117.016	001	Diesel-range Total Petroleum Hydrocarbons	LUFT
117.110	000	Extractable Organics	EPA 8270 C
117.210	000	Organochlorine Pesticides	EPA 8081 A
117.220	000	PCBs	EPA 8082

Field of Testing: 119 - Toxicity Bioassay of Hazardous Waste

119.010	001	Fathead Minnow (P. promelas)	Polisini & Miller (CDFG 1988)

Field of Testing: 120 - Physical Properties of Hazardous Waste

120.010	001	Ignitability	EPA 1010
120.010	001	Ignitability	EPA 1010
120.022	001	Ignitability	EPA 1030
120.022	001	Ignitability	EPA 1030
120.070	001	Corrosivity - pH Determination	EPA 9040 B
120.080	001	Corrosivity - pH Determination	EPA 9045 C

Field of Testing: 126 - Microbiological Methods for Ambient Water

126.010	001	Total Coliform (Enumeration)	SM 9221 B-2006
126.030	001	Fecal Coliform (Enumeration)	SM 9221 B,E-2006
126.050	001	Total Coliform (Enumeration)	SM 9223 B Colilert
126.050	002	E. coli (Enumeration)	SM 9223 B Colilert
126.080	001	Enterococci	Enterolert

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Eurofins Lancaster Laboratories Environmental, LLC

2425 New Holland Pike

Lancaster, PA 17601

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2792**

Expiration Date: **1/31/2021**

Effective Date: **2/1/2020**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Eurofins Lancaster Laboratories Environmental, LLC

2425 New Holland Pike
Lancaster, PA 17601
Phone: 7176562300

Certificate No. 2792
Expiration Date 1/31/2021

				Primary Accreditation Body
Field of Testing: 102 - Inorganic Chemistry of Drinking Water				
102.020	001	Turbidity	EPA 180.1	PA
102.026	001	Calcium	EPA 200.7	PA
102.026	002	Magnesium	EPA 200.7	PA
102.026	003	Potassium	EPA 200.7	PA
102.026	005	Sodium	EPA 200.7	PA
102.030	003	Chloride	EPA 300.0	PA
102.030	005	Fluoride	EPA 300.0	PA
102.030	006	Nitrate (as N)	EPA 300.0	PA
102.030	007	Nitrite (as N)	EPA 300.0	PA
102.030	009	Sulfate (as SO4)	EPA 300.0	PA
102.050	001	Cyanide, Total	EPA 335.4	PA
102.060	001	Nitrate (as N) (Calculation)	EPA 353.2	PA
102.061	001	Nitrite (as N)	EPA 353.2	PA
102.095	001	Turbidity	SM 2130 B	PA
102.100	001	Alkalinity	SM 2320 B	PA
102.120	001	Hardness (Calculation)	SM 2340 B	CA
102.121	001	Hardness	SM 2340 C	PA
102.130	001	Specific Conductance	SM 2510 B	PA
102.140	001	Residue, Filterable TDS	SM 2540 C	PA
102.174	002	Chlorine, Total Residual	SM 4500-Cl F	PA
102.200	001	Fluoride	SM 4500-F C	PA
102.203	001	Hydrogen Ion (pH)	SM 4500-H+B	PA
102.240	001	Phosphate,Ortho (as P)	SM 4500-P E	PA
102.242	001	Silica	SM 4500-SiO2 C	PA
102.262	001	Organic Carbon-Total (TOC)	SM 5310 C	PA
102.270	001	Surfactants	SM 5540-C	PA
Field of Testing: 103 - Toxic Chemical Elements of Drinking Water				
103.130	003	Barium	EPA 200.7	PA
103.130	007	Chromium	EPA 200.7	PA
103.130	008	Copper	EPA 200.7	PA
103.130	009	Iron	EPA 200.7	PA
103.130	011	Manganese	EPA 200.7	PA
103.130	012	Nickel	EPA 200.7	PA

103.130	015	Silver	EPA 200.7	PA
103.130	017	Zinc	EPA 200.7	PA
103.140	001	Aluminum	EPA 200.8	PA
103.140	002	Antimony	EPA 200.8	PA
103.140	003	Arsenic	EPA 200.8	PA
103.140	004	Barium	EPA 200.8	PA
103.140	005	Beryllium	EPA 200.8	PA
103.140	006	Cadmium	EPA 200.8	PA
103.140	007	Chromium	EPA 200.8	PA
103.140	008	Copper	EPA 200.8	PA
103.140	009	Lead	EPA 200.8	PA
103.140	010	Manganese	EPA 200.8	PA
103.140	012	Nickel	EPA 200.8	PA
103.140	013	Selenium	EPA 200.8	PA
103.140	015	Thallium	EPA 200.8	PA
103.140	016	Zinc	EPA 200.8	PA
103.160	001	Mercury	EPA 245.1	PA

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.035	001	1,2,3-Trichloropropane (TCP)	SRL 524M-TCP	CA
104.040	001	Benzene	EPA 524.2	PA
104.040	007	n-Butylbenzene	EPA 524.2	PA
104.040	008	sec-Butylbenzene	EPA 524.2	PA
104.040	009	tert-Butylbenzene	EPA 524.2	PA
104.040	010	Carbon Tetrachloride	EPA 524.2	PA
104.040	011	Chlorobenzene	EPA 524.2	PA
104.040	015	2-Chlorotoluene	EPA 524.2	PA
104.040	016	4-Chlorotoluene	EPA 524.2	PA
104.040	019	1,3-Dichlorobenzene	EPA 524.2	PA
104.040	020	1,2-Dichlorobenzene	EPA 524.2	PA
104.040	021	1,4-Dichlorobenzene	EPA 524.2	PA
104.040	022	Dichlorodifluoromethane	EPA 524.2	PA
104.040	023	1,1-Dichloroethane	EPA 524.2	PA
104.040	024	1,2-Dichloroethane	EPA 524.2	PA
104.040	025	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 524.2	PA
104.040	026	cis-1,2-Dichloroethene	EPA 524.2	PA
104.040	027	trans-1,2-Dichloroethene	EPA 524.2	PA
104.040	028	Dichloromethane (Methylene Chloride)	EPA 524.2	PA
104.040	029	1,2-Dichloropropane	EPA 524.2	PA
104.040	033	cis-1,3-Dichloropropene	EPA 524.2	PA
104.040	034	trans-1,3-Dichloropropene	EPA 524.2	PA
104.040	035	Ethylbenzene	EPA 524.2	PA
104.040	037	Isopropylbenzene	EPA 524.2	PA

104.040	039	Naphthalene	EPA 524.2	PA
104.040	041	N-propylbenzene	EPA 524.2	PA
104.040	042	Styrene	EPA 524.2	PA
104.040	043	1,1,1,2-Tetrachloroethane	EPA 524.2	PA
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2	PA
104.040	045	Tetrachloroethylene (Tetrachloroethene)	EPA 524.2	PA
104.040	046	Toluene	EPA 524.2	PA
104.040	047	1,2,3-Trichlorobenzene	EPA 524.2	PA
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2	PA
104.040	049	1,1,1-Trichloroethane	EPA 524.2	PA
104.040	050	1,1,2-Trichloroethane	EPA 524.2	PA
104.040	051	Trichloroethene	EPA 524.2	PA
104.040	052	Trichlorofluoromethane	EPA 524.2	PA
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2	PA
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2	PA
104.040	056	Vinyl Chloride	EPA 524.2	PA
104.040	057	Xylenes, Total	EPA 524.2	PA
104.040	061	Carbon Disulfide	EPA 524.2	PA
104.040	062	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	EPA 524.2	PA
104.045	000	Trihalomethanes, Total	EPA 524.2	PA
104.045	001	Bromodichloromethane	EPA 524.2	PA
104.045	002	Bromoform	EPA 524.2	PA
104.045	003	Chloroform	EPA 524.2	PA
104.045	004	Dibromochloromethane	EPA 524.2	PA
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2	PA
104.050	003	tert-Amyl Methyl Ether (TAME)	EPA 524.2	PA
104.050	004	Ethyl tert-butyl Ether (ETBE)	EPA 524.2	PA
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2	PA

Field of Testing: 105 - Semi-volatile Organic Chemistry of Drinking Water

105.100	001	Aldicarb	EPA 531.1	PA
105.100	002	Aldicarb Sulfone	EPA 531.1	PA
105.100	003	Aldicarb Sulfoxide	EPA 531.1	PA
105.100	004	Carbaryl	EPA 531.1	PA
105.100	005	Carbofuran	EPA 531.1	PA
105.100	006	3-Hydroxycarbofuran	EPA 531.1	PA
105.100	007	Methomyl	EPA 531.1	PA
105.100	008	Oxamyl	EPA 531.1	PA
105.106	000	Per- and Polyfluorinated Alkyl Substances (PFAS)	EPA 537.1	PA
105.230	001	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	EPA 1613 B	PA

Field of Testing: 108 - Inorganic Constituents in Non-Potable Water

108.007	001	Residue, Volatile	EPA 160.4 (1971)	PA
108.009	001	Turbidity	EPA 180.1 (1993 Rev. 2.0)	PA

108.013	001	Calcium	EPA 200.7 (1994 Rev. 4.4)	PA
108.013	002	Magnesium	EPA 200.7 (1994 Rev. 4.4)	PA
108.013	004	Potassium	EPA 200.7 (1994 Rev. 4.4)	PA
108.013	006	Sodium	EPA 200.7 (1994 Rev. 4.4)	PA
108.015	001	Calcium	EPA 200.8 (1994 Rev. 5.4)	PA
108.015	002	Magnesium	EPA 200.8 (1994 Rev. 5.4)	PA
108.015	003	Potassium	EPA 200.8 (1994 Rev. 5.4)	PA
108.015	005	Sodium	EPA 200.8 (1994 Rev. 5.4)	PA
108.017	001	Bromide	EPA 300.0 (1993 Rev. 2.1)	PA
108.017	002	Chloride	EPA 300.0 (1993 Rev. 2.1)	PA
108.017	003	Fluoride	EPA 300.0 (1993 Rev. 2.1)	PA
108.017	004	Nitrate (as N)	EPA 300.0 (1993 Rev. 2.1)	PA
108.017	006	Nitrite (as N)	EPA 300.0 (1993 Rev. 2.1)	PA
108.017	008	Sulfate (as SO4)	EPA 300.0 (1993 Rev. 2.1)	PA
108.023	001	Cyanide, Total	EPA 335.4 (1993 Rev. 1.0)	PA
108.025	001	Ammonia (as N)	EPA 350.1 (1993 Rev. 2.0)	PA
108.029	001	Kjeldahl Nitrogen,Total (as N)	EPA 351.2 (1993 Rev. 2.0)	PA
108.033	001	Nitrate-Nitrite (as N)	EPA 353.2 (1993 Rev. 2.0)	PA
108.033	002	Nitrite (as N)	EPA 353.2 (1993 Rev. 2.0)	PA
108.035	002	Phosphorus,Total	EPA 365.1 (1993 Rev. 2.0)	PA
108.037	001	Phosphate,Ortho (as P)	EPA 365.3 (1978)	PA
108.045	001	Chemical Oxygen Demand	EPA 410.4 (1993 Rev. 2.0)	PA
108.049	001	Phenols, Total	EPA 420.4 (1993 Rev. 2.0)	PA
108.053	002	Oil & Grease Total	EPA 1664 B	PA
108.055	001	Color	SM 2120 B-2011	PA
108.061	001	Acidity	SM 2310 B-2011	PA
108.063	001	Alkalinity	SM 2320 B-2011	PA
108.065	001	Hardness (Calculation)	SM 2340 B-2011	PA
108.067	001	Hardness	SM 2340 C-2011	PA
108.069	001	Specific Conductance	SM 2510 B-2011	PA
108.071	001	Residue, Total	SM 2540 B-2011	PA
108.073	001	Residue, Filterable TDS	SM 2540 C-2011	PA
108.075	001	Residue, Non-filterable TSS	SM 2540 D-2011	PA
108.079	001	Residue, Settleable	SM 2540 F-2011	PA
108.080	001	Temperature	SM 2550 B-2010	PA
108.109	001	Chlorine, Total Residual	SM 4500-Cl F-2011	PA
108.117	001	Chloride	SM 4500-Chloride C-2011	PA
108.129	001	Cyanide, Available	SM 4500-CN G-2011	PA
108.131	001	Fluoride	SM 4500-F C-2011	PA
108.137	001	Hydrogen Ion (pH)	SM 4500-H+ B-2011	PA
108.139	001	Ammonia (as N)	SM 4500-NH3 C-2011	PA
108.140	001	Ammonia (as N)	SM 4500-NH3 D-2011	PA

108.173	001	Oxygen, Dissolved	SM 4500-O G-2011	PA
108.175	001	Phosphate,Ortho (as P)	SM 4500-P E-2011	PA
108.177	002	Phosphorus,Total	SM 4500-P F-2011	PA
108.184	001	Silica, Dissolved	SM 4500-SiO2 C-2011	PA
108.189	001	Sulfite (as SO3)	SM 4500-SO3 B-2011	PA
108.201	001	Sulfide (as S)	SM 4500-S D-2011	PA
108.203	001	Sulfide (as S)	SM 4500-S F-2011	PA
108.207	001	Biochemical Oxygen Demand	SM 5210 B-2011	PA
108.207	002	Carbonaceous BOD	SM 5210 B-2011	PA
108.217	001	Organic Carbon-Total (TOC)	SM 5310 C-2011	PA
108.225	001	Surfactants	SM 5540 C-2011	PA
108.321	001	Cyanide, Total	ASTM D7511-12	PA
108.339	001	Cyanide, Available	OIA-1677-09	PA
108.339	002	Cyanide, Free	OIA-1677-09	PA

Field of Testing: 109 - Metals and Trace Elements in Non-Potable Water

109.623	002	Antimony	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	003	Arsenic	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	004	Barium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	005	Beryllium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	006	Boron	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	007	Cadmium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	008	Chromium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	009	Cobalt	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	010	Copper	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	011	Iron	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	012	Lead	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	013	Manganese	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	014	Molybdenum	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	015	Nickel	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	016	Selenium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	017	Silver	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	019	Tin	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	020	Titanium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	021	Vanadium	EPA 200.7 (1994 Rev. 4.4)	PA
109.623	022	Zinc	EPA 200.7 (1994 Rev. 4.4)	PA
109.625	001	Aluminum	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	002	Antimony	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	003	Arsenic	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	004	Barium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	005	Beryllium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	007	Cadmium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	008	Chromium	EPA 200.8 (1994 Rev. 5.4)	PA

109.625	009	Cobalt	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	010	Copper	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	012	Iron	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	013	Lead	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	014	Manganese	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	015	Molybdenum	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	016	Nickel	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	017	Selenium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	019	Thallium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	020	Tin	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	021	Titanium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	022	Vanadium	EPA 200.8 (1994 Rev. 5.4)	PA
109.625	023	Zinc	EPA 200.8 (1994 Rev. 5.4)	PA
109.629	001	Chromium (VI)	EPA 218.6 (1994 Rev. 3.3)	PA
109.635	001	Mercury	EPA 245.1 (1994 Rev. 3.0)	PA
109.685	002	Chromium (VI)	SM 3500-Cr B-2011	PA
109.693	001	Iron	SM 3500-Fe B-2011	PA

Field of Testing: 110 - Volatile Organic Constituents in Non-Potable Water

110.040	001	Acetone	EPA 624.1	PA
110.040	002	Acetonitrile	EPA 624.1	PA
110.040	003	Acrolein	EPA 624.1	PA
110.040	004	Acrylonitrile	EPA 624.1	PA
110.040	005	Benzene	EPA 624.1	PA
110.040	006	Bromodichloromethane	EPA 624.1	PA
110.040	007	Bromoform	EPA 624.1	PA
110.040	008	Bromomethane (Methyl Bromide)	EPA 624.1	PA
110.040	009	tert-Butyl Alcohol (TBA)	EPA 624.1	PA
110.040	010	Carbon Tetrachloride	EPA 624.1	PA
110.040	011	Chlorobenzene	EPA 624.1	PA
110.040	012	Chloroethane	EPA 624.1	PA
110.040	013	2-Chloroethylvinyl Ether	EPA 624.1	PA
110.040	014	Chloroform	EPA 624.1	PA
110.040	015	Chloromethane (Methyl Chloride)	EPA 624.1	PA
110.040	016	Dibromochloromethane	EPA 624.1	PA
110.040	017	1,2-Dichlorobenzene	EPA 624.1	PA
110.040	018	1,3-Dichlorobenzene	EPA 624.1	PA
110.040	019	1,4-Dichlorobenzene	EPA 624.1	PA
110.040	021	1,2-Dichloroethane	EPA 624.1	PA
110.040	022	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 624.1	PA
110.040	023	trans-1,2-Dichloroethene	EPA 624.1	PA
110.040	024	1,2-Dichloropropane	EPA 624.1	PA
110.040	025	cis-1,3-Dichloropropene	EPA 624.1	PA

110.040	026	trans-1,3-Dichloropropene	EPA 624.1	PA
110.040	028	Ethyl Acetate	EPA 624.1	PA
110.040	029	Ethylbenzene	EPA 624.1	PA
110.040	031	Methylene Chloride (Dichloromethane)	EPA 624.1	PA
110.040	032	4-Methyl-2-pentanone (MIBK)	EPA 624.1	PA
110.040	034	1,1,2,2-Tetrachloroethane	EPA 624.1	PA
110.040	035	Tetrachloroethylene (Tetrachloroethene)	EPA 624.1	PA
110.040	036	Tetrahydrofuran	EPA 624.1	PA
110.040	037	Toluene	EPA 624.1	PA
110.040	038	1,1,1-Trichloroethane	EPA 624.1	PA
110.040	039	1,1,2-Trichloroethane	EPA 624.1	PA
110.040	040	Trichloroethene	EPA 624.1	PA
110.040	041	Vinyl Chloride	EPA 624.1	PA
110.040	042	m-Xylene	EPA 624.1	PA
110.040	043	o-Xylene	EPA 624.1	PA
110.040	044	p-Xylene	EPA 624.1	PA
110.040	045	Trichlorofluoromethane	EPA 624.1	PA
110.070	002	n-Amyl Acetate	EPA 1666	PA
110.070	003	n-Amyl Alcohol	EPA 1666	PA
110.070	004	n-Butyl Acetate	EPA 1666	PA
110.070	005	tert-Butyl Alcohol (TBA)	EPA 1666	PA
110.070	009	Ethyl Acetate	EPA 1666	PA
110.070	010	n-Heptane	EPA 1666	PA
110.070	011	n-Hexane	EPA 1666	PA
110.070	012	Isobutyraldehyde	EPA 1666	PA
110.070	013	Isopropyl Acetate	EPA 1666	PA
110.070	014	Isopropyl Alcohol (Isopropanol)	EPA 1666	PA
110.070	015	Isopropyl Ether (DIPE)	EPA 1666	PA
110.070	018	Methyl Formate	EPA 1666	PA
110.070	019	4-Methyl-2-pentanone (MIBK)	EPA 1666	PA
110.070	021	Tetrahydrofuran	EPA 1666	PA
110.070	023	m-Xylene	EPA 1666	PA
110.070	024	o-Xylene	EPA 1666	PA
110.070	025	p-Xylene	EPA 1666	PA
110.090	001	Acetonitrile	EPA 1671	PA
110.090	002	Diethylamine	EPA 1671	PA
110.090	003	Dimethyl Sulfoxide	EPA 1671	PA
110.090	004	Ethanol	EPA 1671	PA
110.090	005	Methanol	EPA 1671	PA
110.090	006	2-Methoxyethanol	EPA 1671	PA
110.090	007	n-Propanol (1-Propanol)	EPA 1671	PA
110.090	008	Triethylamine	EPA 1671	PA

Field of Testing: 111 - Semi-volatile Organic Constituents in Non-Potable Water

111.055	001	Aldrin	EPA 608.3	PA
111.055	002	alpha-BHC	EPA 608.3	PA
111.055	003	beta-BHC	EPA 608.3	PA
111.055	004	delta-BHC	EPA 608.3	PA
111.055	005	gamma-BHC (Lindane)	EPA 608.3	PA
111.055	006	Chlordane	EPA 608.3	PA
111.055	007	4,4'-DDD	EPA 608.3	PA
111.055	008	4,4'-DDE	EPA 608.3	PA
111.055	009	4,4'-DDT	EPA 608.3	PA
111.055	010	Dieldrin	EPA 608.3	PA
111.055	011	Endosulfan I	EPA 608.3	PA
111.055	012	Endosulfan II	EPA 608.3	PA
111.055	013	Endosulfan Sulfate	EPA 608.3	PA
111.055	014	Endrin	EPA 608.3	PA
111.055	015	Endrin Aldehyde	EPA 608.3	PA
111.055	016	Heptachlor	EPA 608.3	PA
111.055	017	Heptachlor Epoxide	EPA 608.3	PA
111.055	019	PCB-1016	EPA 608.3	PA
111.055	020	PCB-1221	EPA 608.3	PA
111.055	021	PCB-1232	EPA 608.3	PA
111.055	022	PCB-1242	EPA 608.3	PA
111.055	023	PCB-1248	EPA 608.3	PA
111.055	024	PCB-1254	EPA 608.3	PA
111.055	025	PCB-1260	EPA 608.3	PA
111.055	046	Methoxychlor	EPA 608.3	PA
111.055	048	Mirex	EPA 608.3	PA
111.055	060	Toxaphene	EPA 608.3	PA
111.150	001	Azinphos Methyl	EPA 622	PA
111.150	002	Chlorpyrifos	EPA 622	PA
111.150	003	Demeton-O	EPA 622	PA
111.150	004	Demeton-S	EPA 622	PA
111.150	005	Diazinon	EPA 622	PA
111.150	006	Dichlorvos (DDVP)	EPA 622	PA
111.150	007	Disulfoton	EPA 622	PA
111.150	008	Ethoprop	EPA 622	PA
111.150	009	Fensulfothion	EPA 622	PA
111.150	010	Fenthion	EPA 622	PA
111.150	011	Merphos	EPA 622	PA
111.150	012	Mevinphos	EPA 622	PA
111.150	013	Naled	EPA 622	PA
111.150	014	Parathion Methyl	EPA 622	PA

111.150	015	Phorate	EPA 622	PA
111.150	016	Stirophos (Tetrachlorovinphos)	EPA 622	PA
111.150	017	Sulprofos (Bolstar)	EPA 622	PA
111.160	001	Acenaphthene	EPA 625.1	PA
111.160	002	Acenaphthylene	EPA 625.1	PA
111.160	003	Anthracene	EPA 625.1	PA
111.160	004	Benzidine	EPA 625.1	PA
111.160	005	Benzo(a)anthracene	EPA 625.1	PA
111.160	006	Benzo(a)pyrene	EPA 625.1	PA
111.160	007	Benzo(b)fluoranthene	EPA 625.1	PA
111.160	008	Benzo(g,h,i)perylene	EPA 625.1	PA
111.160	009	Benzo(k)fluoranthene	EPA 625.1	PA
111.160	010	Bis(2-chloroethoxy) Methane	EPA 625.1	PA
111.160	011	Bis(2-chloroethyl) Ether	EPA 625.1	PA
111.160	012	Bis(2-chloroisopropyl) Ether	EPA 625.1	PA
111.160	013	Bis(2-ethylhexyl)phthalate	EPA 625.1	PA
111.160	014	4-Bromophenyl Phenyl Ether	EPA 625.1	PA
111.160	015	Butyl Benzyl Phthalate	EPA 625.1	PA
111.160	016	2-Chloronaphthalene	EPA 625.1	PA
111.160	017	4-Chlorophenyl Phenyl Ether	EPA 625.1	PA
111.160	018	Chrysene	EPA 625.1	PA
111.160	019	Dibenz(a,h)anthracene	EPA 625.1	PA
111.160	020	3,3'-Dichlorobenzidine	EPA 625.1	PA
111.160	021	Diethyl Phthalate	EPA 625.1	PA
111.160	022	Dimethyl Phthalate	EPA 625.1	PA
111.160	023	Di-n-butyl Phthalate	EPA 625.1	PA
111.160	024	2,4-Dinitrotoluene	EPA 625.1	PA
111.160	025	2,6-Dinitrotoluene	EPA 625.1	PA
111.160	026	Di-n-octyl Phthalate	EPA 625.1	PA
111.160	027	Fluoranthene	EPA 625.1	PA
111.160	028	Fluorene	EPA 625.1	PA
111.160	029	Hexachlorobenzene	EPA 625.1	PA
111.160	030	Hexachlorobutadiene	EPA 625.1	PA
111.160	031	Hexachloroethane	EPA 625.1	PA
111.160	032	Indeno(1,2,3-c,d)pyrene	EPA 625.1	PA
111.160	033	Isophorone	EPA 625.1	PA
111.160	034	Naphthalene	EPA 625.1	PA
111.160	035	Nitrobenzene	EPA 625.1	PA
111.160	036	N-nitrosodi-n-propylamine	EPA 625.1	PA
111.160	037	Phenanthrene	EPA 625.1	PA
111.160	038	Pyrene	EPA 625.1	PA
111.160	039	1,2,4-Trichlorobenzene	EPA 625.1	PA

111.160	040	4-Chloro-3-methylphenol	EPA 625.1	PA
111.160	041	2-Chlorophenol	EPA 625.1	PA
111.160	042	2,4-Dichlorophenol	EPA 625.1	PA
111.160	043	2,4-Dimethylphenol	EPA 625.1	PA
111.160	044	2,4-Dinitrophenol	EPA 625.1	PA
111.160	045	2-Methyl-4,6-dinitrophenol	EPA 625.1	PA
111.160	046	2-Nitrophenol	EPA 625.1	PA
111.160	047	4-Nitrophenol	EPA 625.1	PA
111.160	048	Pentachlorophenol	EPA 625.1	PA
111.160	049	Phenol	EPA 625.1	PA
111.160	050	2,4,6-Trichlorophenol	EPA 625.1	PA
111.160	098	Hexachlorocyclopentadiene	EPA 625.1	PA
111.160	108	N-nitrosodimethylamine	EPA 625.1	PA
111.160	110	N-nitrosodiphenylamine	EPA 625.1	PA
111.250	001	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	EPA 1613 B	PA
111.250	002	Total TCDD	EPA 1613 B	PA
111.250	003	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	EPA 1613 B	PA
111.250	004	Total TCDF	EPA 1613 B	PA
111.250	005	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	EPA 1613 B	PA
111.250	006	Total PeCDD	EPA 1613 B	PA
111.250	007	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	EPA 1613 B	PA
111.250	008	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	EPA 1613 B	PA
111.250	009	Total PeCDF	EPA 1613 B	PA
111.250	010	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B	PA
111.250	011	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B	PA
111.250	012	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	EPA 1613 B	PA
111.250	013	Total HxCDD	EPA 1613 B	PA
111.250	014	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B	PA
111.250	015	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B	PA
111.250	016	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B	PA
111.250	017	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	EPA 1613 B	PA
111.250	018	Total HxCDF	EPA 1613 B	PA
111.250	019	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	EPA 1613 B	PA
111.250	020	Total HpCDD	EPA 1613 B	PA
111.250	021	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	EPA 1613 B	PA
111.250	022	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	EPA 1613 B	PA
111.250	023	Total HpCDF	EPA 1613 B	PA
111.250	024	OCDD	EPA 1613 B	PA
111.250	025	OCDF	EPA 1613 B	PA
111.345	001	N-ethyl perfluorooctanesulfonamidoacetic Acid (NEtF	DoD QSM Version 5.1	DOD
111.345	002	4:2 Fluorotelomer Sulfonic Acid (4:2 FTS)	DoD QSM Version 5.1	DOD
111.345	003	6:2 Fluorotelomer Sulfonic Acid (6:2 FTS)	DoD QSM Version 5.1	DOD

111.345	004	8:2 Fluorotelomer Sulfonic Acid (8:2 FTS)	DoD QSM Version 5.1	DOD
111.345	005	N-methyl perfluorooctanesulfonamidoacetic Acid (NM	DoD QSM Version 5.1	DOD
111.345	006	Perfluorobutanoic Acid (PFBA)	DoD QSM Version 5.1	DOD
111.345	007	Perfluorobutanesulfonic Acid (PFBS)	DoD QSM Version 5.1	DOD
111.345	008	Perfluorodecanoic Acid (PFDA)	DoD QSM Version 5.1	DOD
111.345	009	Perfluorododecanoic Acid (PFDoA)	DoD QSM Version 5.1	DOD
111.345	010	Perfluorodecane Sulfonic Acid (PFDS)	DoD QSM Version 5.1	DOD
111.345	011	Perfluoroheptanoic Acid (PFHpA)	DoD QSM Version 5.1	DOD
111.345	012	Perfluoroheptane Sulfonic Acid (PFHpS)	DoD QSM Version 5.1	DOD
111.345	013	Perfluorohexanesulfonic Acid (PFHxS)	DoD QSM Version 5.1	DOD
111.345	014	Perfluorohexanoic Acid (PFHxA)	DoD QSM Version 5.1	DOD
111.345	015	Perfluorononanoic Acid (PFNA)	DoD QSM Version 5.1	DOD
111.345	016	Perfluorooctanoic Acid (PFOA)	DoD QSM Version 5.1	DOD
111.345	017	Perfluorooctylsulfonic Acid (PFOS)	DoD QSM Version 5.1	DOD
111.345	018	Perfluorooctane Sulfonamide (PFOSAm)	DoD QSM Version 5.1	DOD
111.345	019	Perfluoropentanoic Acid (PFPeA)	DoD QSM Version 5.1	DOD
111.345	020	Perfluoropentane Sulfonic Acid (PFPeS)	DoD QSM Version 5.1	DOD
111.345	021	Perfluorotetradecanoic Acid (PFTA)	DoD QSM Version 5.1	DOD
111.345	022	Perfluorotridecanoic Acid (PFTrDA)	DoD QSM Version 5.1	DOD
111.345	023	Perfluoroundecanoic Acid (PFUnDA)	DoD QSM Version 5.1	DOD
111.345	027	N-Ethylperfluorooctane Sulfonamide (EtFOSAm)	DoD QSM Version 5.1	DOD
111.345	028	N-Ethylperfluorooctane Sulfonamido Ethanol (EtFOS	DoD QSM Version 5.1	DOD
111.345	029	10:2 Fluorotelomer Sulfonic Acid (10:2 FTS)	DoD QSM Version 5.1	DOD
111.345	031	N-Methylperfluorooctane Sulfonamide (MeFOSAm)	DoD QSM Version 5.1	DOD
111.345	032	N-Methylperfluorooctane Sulfonamido Ethanol (MeF	DoD QSM Version 5.1	DOD
111.345	033	Perfluorohexadecanoic Acid (PFHxDA)	DoD QSM Version 5.1	DOD
111.345	034	Perfluorononane Sulfonic Acid (PFNS)	DoD QSM Version 5.1	DOD

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010 B	PA
114.010	002	Arsenic	EPA 6010 B	PA
114.010	003	Barium	EPA 6010 B	PA
114.010	004	Beryllium	EPA 6010 B	PA
114.010	005	Cadmium	EPA 6010 B	PA
114.010	006	Chromium	EPA 6010 B	PA
114.010	007	Cobalt	EPA 6010 B	PA
114.010	008	Copper	EPA 6010 B	PA
114.010	009	Lead	EPA 6010 B	PA
114.010	010	Molybdenum	EPA 6010 B	PA
114.010	011	Nickel	EPA 6010 B	PA
114.010	012	Selenium	EPA 6010 B	PA
114.010	013	Silver	EPA 6010 B	PA
114.010	014	Thallium	EPA 6010 B	PA

114.010	015	Vanadium	EPA 6010 B	PA
114.010	016	Zinc	EPA 6010 B	PA
114.020	001	Antimony	EPA 6020	CA
114.020	002	Arsenic	EPA 6020	CA
114.020	003	Barium	EPA 6020	CA
114.020	004	Beryllium	EPA 6020	CA
114.020	005	Cadmium	EPA 6020	CA
114.020	006	Chromium	EPA 6020	CA
114.020	007	Cobalt	EPA 6020	CA
114.020	008	Copper	EPA 6020	CA
114.020	009	Lead	EPA 6020	CA
114.020	010	Molybdenum	EPA 6020	CA
114.020	011	Nickel	EPA 6020	CA
114.020	012	Selenium	EPA 6020	CA
114.020	013	Silver	EPA 6020	CA
114.020	014	Thallium	EPA 6020	CA
114.020	015	Vanadium	EPA 6020	CA
114.020	016	Zinc	EPA 6020	CA
114.103	001	Chromium (VI)	EPA 7196 A	PA
114.106	001	Chromium (VI)	EPA 7199	PA
114.141	001	Mercury	EPA 7471 A	PA
114.221	001	Cyanide, Total	EPA 9012 A	PA
114.241	001	Corrosivity - pH Determination	EPA 9045 C	PA

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)	PA
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)	PA

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.010	000	EDB and DBCP	EPA 8011	PA
116.020	030	Nonhalogenated Volatiles	EPA 8015 B	PA
116.020	031	Ethanol and Methanol	EPA 8015 B	PA
116.030	001	Gasoline-range Organics	EPA 8015 B	PA
116.080	000	Volatile Organic Compounds	EPA 8260 B	PA
116.080	120	Oxygenates	EPA 8260 B	PA

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B	PA
117.110	000	Extractable Organics	EPA 8270 C	PA
117.130	000	Dioxins and Dibenzofurans	EPA 8290	PA
117.150	000	Carbonyl Compounds	EPA 8315 A	PA
117.171	000	Nitroaromatics and Nitramines	EPA 8330 A	PA
117.210	000	Organochlorine Pesticides	EPA 8081 A	PA
117.220	000	PCBs	EPA 8082	PA
117.240	000	Organophosphorus Pesticides	EPA 8141 A	PA

117.250	000	Chlorinated Herbicides	EPA 8151 A	PA
117.270	000	Carbamates, N-methylcarbamates	EPA 8318	PA
117.290	000	Per- and Polyfluorinated Alkyl Substances (PFAS)	DoD QSM Version 5.1	PA

Field of Testing: 120 - Physical Properties of Hazardous Waste

120.010	001	Ignitability	EPA 1010	PA
120.040	001	Reactive Cyanide	Section 7.3 SW-846	PA
120.050	001	Reactive Sulfide	Section 7.3 SW-846	PA
120.080	001	Corrosivity - pH Determination	EPA 9045 C	PA

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
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CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Weck Laboratories, Inc.

14859 East Clark Avenue

City of Industry, CA 91745

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1132**

Expiration Date: **3/31/2020**

Effective Date: **4/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

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Expiration Date 3/31/2020

Field of Testing: 101 - Microbiology of Drinking Water

101.010	001	Heterotrophic Bacteria	SM 9215 B
101.020	004	Total Coliform (Enumeration)	SM 9221 B,C
101.020	005	Fecal Coliform (Enumeration)	SM 9221 B,E
101.020	006	E. coli (Enumeration)	SM 9221 B,F
101.050	001	Total Coliform P/A	SM 9223 B Colilert
101.050	002	E. coli P/A	SM 9223 B Colilert
101.050	003	Total Coliform (Enumeration)	SM 9223 B Colilert
101.050	004	E. coli (Enumeration)	SM 9223 B Colilert
101.050	005	Total Coliform P/A	SM 9223 B Colilert 18
101.050	006	E. coli P/A	SM 9223 B Colilert 18
101.050	007	Total Coliform (Enumeration)	SM 9223 B Colilert 18
101.050	008	E. coli (Enumeration)	SM 9223 B Colilert 18
101.050	009	Total Coliform P/A	SM 9223 B Colisure
101.050	010	E. coli P/A	SM 9223 B Colisure
101.050	011	Total Coliform (Enumeration)	SM 9223 B Colisure
101.050	012	E. coli (Enumeration)	SM 9223 B Colisure
101.140	001	Enterococci	SM 9230 B
101.170	001	Enterococci	Enterolert

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.020	001	Turbidity	EPA 180.1
102.026	001	Calcium	EPA 200.7
102.026	002	Magnesium	EPA 200.7
102.026	003	Potassium	EPA 200.7
102.026	004	Silica	EPA 200.7
102.026	005	Sodium	EPA 200.7
102.026	006	Hardness (Calculation)	EPA 200.7
102.030	001	Bromide	EPA 300.0
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate (as N)	EPA 300.0
102.030	007	Nitrite (as N)	EPA 300.0
102.030	009	Sulfate (as SO4)	EPA 300.0
102.040	001	Bromide	EPA 300.1

102.040	002	Chlorite	EPA 300.1
102.040	003	Chlorate	EPA 300.1
102.040	004	Bromate	EPA 300.1
102.045	001	Perchlorate	EPA 314.0
102.047	001	Perchlorate	EPA 331.0
102.050	001	Cyanide, Total	EPA 335.4
102.060	001	Nitrate (as N) (Calculation)	EPA 353.2
102.061	001	Nitrite	EPA 353.2
102.070	001	Phosphate, Ortho	EPA 365.1
102.085	003	Organic Carbon-Total (TOC)	EPA 415.3 Revision 1.1
102.086	001	Dissolved Organic Carbon (DOC)	EPA 415.3 Revision 1.2
102.086	002	Specific UV Absorbance SUVA	EPA 415.3 Revision 1.2
102.086	004	UV254	EPA 415.3 Revision 1.2
102.100	001	Alkalinity	SM 2320 B-1997
102.130	001	Specific Conductance	SM 2510 B-1997
102.140	001	Residue, Filterable TDS	SM 2540 C-1997
102.175	001	Chlorine, Free	SM 4500-Cl G-2000
102.175	002	Chlorine, Total Residual	SM 4500-Cl G-2000
102.180	001	Chlorine Dioxide	SM 4500-ClO2 D
102.203	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
102.260	001	Total Organic Carbon TOC	SM 5310 B-2000
102.261	001	Dissolved Organic Carbon (DOC)	SM 5310 B-2000
102.270	001	Surfactants	SM 5540 C-2000
102.280	001	UV254	SM 5910 B-2011
102.570	001	Cyanide, Free	OIA-1677, DW

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.130	001	Aluminum	EPA 200.7
103.130	003	Barium	EPA 200.7
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	012	Nickel	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.130	018	Boron	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8
103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8

103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8
103.140	011	Mercury	EPA 200.8
103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.140	017	Boron	EPA 200.8
103.140	018	Vanadium	EPA 200.8
103.160	001	Mercury	EPA 245.1
103.310	001	Chromium (VI)	EPA 218.6
103.311	001	Chromium (VI)	EPA 218.7

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.030	001	1,2-Dibromoethane (EDB, Ethylene Dibromide)	EPA 504.1
104.030	002	1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1
104.035	001	1,2,3-Trichloropropane (TCP)	SRL 524M-TCP
104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2
104.045	000	Trihalomethanes, Total	EPA 524.2
104.050	000	Gasoline Additives	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	003	tert-Amyl Methyl Ether (TAME)	EPA 524.2
104.050	004	Ethyl tert-butyl Ether (ETBE)	EPA 524.2
104.050	005	Trichlorotrifluoroethane	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2

Field of Testing: 105 - Semi-volatile Organic Chemistry of Drinking Water

105.035	000	Organochlorine Pesticides	EPA 508
105.083	000	Chlorinated Acids	EPA 515.4
105.090	000	Semi-volatile Organic Compounds	EPA 525.2
105.101	000	Carbamates	EPA 531.2
105.101	001	Carbofuran	EPA 531.2
105.101	002	Oxamyl	EPA 531.2
105.101	003	Aldicarb	EPA 531.2
105.101	004	Aldicarb Sulfone	EPA 531.2
105.101	005	Aldicarb Sulfoxide	EPA 531.2
105.101	006	Carbaryl	EPA 531.2
105.101	007	3-Hydroxycarbofuran	EPA 531.2
105.101	008	Methomyl	EPA 531.2
105.105	003	Perfluorobutanesulfonic Acid (PFBS)	EPA 537 Rev 1.1

105.105	006	Perfluoroheptanoic Acid (PFHpA)	EPA 537 Rev 1.1	
105.105	007	Perfluorohexanesulfonic Acid (PFHxS)	EPA 537 Rev 1.1	
105.105	009	Perfluorononanoic Acid (PFNA)	EPA 537 Rev 1.1	
105.105	010	Perfluorooctanoic Acid (PFOA)	EPA 537 Rev 1.1	
105.105	011	Perfluorooctylsulfonic Acid (PFOS)	EPA 537 Rev 1.1	
105.106	000	Per- and Polyfluorinated Alkyl Substances (PFAS)	EPA 537.1	CA
105.120	001	Glyphosate	EPA 547	
105.140	001	Endothall	EPA 548.1	
105.150	001	Diquat	EPA 549.2	
105.170	031	Disinfection Byproducts	EPA 551.1	
105.201	001	Haloacetic Acids (HAA5)	EPA 552.3	
105.210	002	2,4-D	EPA 555	
105.210	007	2,4,5-TP (Silvex)	EPA 555	
105.230	002	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) Screen	EPA 1613 B	

Field of Testing: 106 - Radiochemistry of Drinking Water

106.010	001	Gross Alpha and Beta Radiation	EPA 900.0	
106.092	001	Uranium	EPA 200.8	
106.270	001	Gross Alpha by Coprecipitation	SM 7110 C	
106.610	001	Radon-222	SM 7500-Rn	

Field of Testing: 107 - Microbiology of Wastewater

107.010	001	Heterotrophic Bacteria	SM 9215 B	
107.020	002	Total Coliform (Enumeration)	SM 9221 B-2006	
107.030	002	Total Coliform with Chlorine Present	SM 9221 B,C-2006	
107.040	002	Fecal Coliform (Enumeration)	SM 9221 C,E-2006	
107.050	002	Fecal Coliform with Chlorine Present	SM 9221 C,E-2006	
107.100	002	Fecal Streptococci	SM 9230 B-2007	
107.242	001	Enterococci	Enterolert	
107.245	001	E. coli (Enumeration)	SM 9223 B Colilert 18	
107.245	002	E. coli (Enumeration)	SM 9223 B Colilert	

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.090	001	Residue, Volatile	EPA 160.4	
108.110	001	Turbidity	EPA 180.1	
108.112	001	Boron	EPA 200.7	
108.112	002	Calcium	EPA 200.7	
108.112	003	Hardness (Calculation)	EPA 200.7	
108.112	004	Magnesium	EPA 200.7	
108.112	005	Potassium	EPA 200.7	
108.112	006	Silica, Dissolved	EPA 200.7	
108.112	007	Sodium	EPA 200.7	
108.112	008	Phosphorus,Total	EPA 200.7	
108.113	001	Boron	EPA 200.8	
108.113	002	Calcium	EPA 200.8	

108.113	003	Magnesium	EPA 200.8
108.113	004	Potassium	EPA 200.8
108.113	006	Sodium	EPA 200.8
108.120	001	Bromide	EPA 300.0
108.120	002	Chloride	EPA 300.0
108.120	003	Fluoride	EPA 300.0
108.120	008	Sulfate (as SO4)	EPA 300.0
108.120	012	Nitrate (as N)	EPA 300.0
108.120	013	Nitrate-Nitrite (as N)	EPA 300.0
108.120	014	Nitrite (as N)	EPA 300.0
108.121	001	Bromide	EPA 300.1
108.183	001	Cyanide, Total	EPA 335.4
108.209	001	Ammonia (as N)	EPA 350.1
108.211	002	Kjeldahl Nitrogen,Total (as N)	EPA 351.2
108.232	003	Nitrate-Nitrite (as N)	EPA 353.2
108.232	004	Nitrite (as N)	EPA 353.2
108.260	001	Phosphate, Ortho	EPA 365.1
108.261	001	Phosphorus,Total	EPA 365.1
108.264	001	Phosphate, Ortho	EPA 365.3
108.265	001	Phosphorus,Total	EPA 365.3
108.267	001	Phosphorus,Total	EPA 200.7
108.323	001	Chemical Oxygen Demand	EPA 410.4
108.362	001	Phenols, Total	EPA 420.4
108.381	002	Oil & Grease Total	EPA 1664 B
108.385	001	Color	SM 2120 B-2001
108.410	001	Alkalinity	SM 2320 B-1997
108.430	001	Specific Conductance	SM 2510 B-1997
108.439	001	Residue, Volatile	SM 2540 E-1997
108.440	001	Residue, Total	SM 2540 B-1997
108.441	001	Residue, Filterable TDS	SM 2540 C-1997
108.442	001	Residue, Non-filterable TSS	SM 2540 D-1997
108.443	001	Residue, Settleable	SM 2540 F-1997
108.444	001	Temperature	SM 2550 B-2010
108.465	001	Chlorine, Total Residual	SM 4500-Cl G-2000
108.473	001	Cyanide, Amenable	SM 4500-CN G-1999
108.490	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
108.536	001	Oxygen, Dissolved	SM 4500-O G-2001
108.560	001	Sulfite (as SO3)	SM 4500-SO3 B-2000
108.584	001	Sulfide (as S)	SM 4500-S D-2000
108.592	001	Biochemical Oxygen Demand	SM 5210 B -2001
108.592	002	Carbonaceous BOD	SM 5210 B -2001
108.596	001	Organic Carbon-Total (TOC)	SM 5310 B-2000

108.605	001	Surfactants	SM 5540 C-2000
108.927	001	Cyanide, Available	OIA-1677-09

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	006	Boron	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	025	Titanium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8

109.020	018	Zinc	EPA 200.8
109.020	021	Iron	EPA 200.8
109.020	022	Tin	EPA 200.8
109.020	023	Titanium	EPA 200.8
109.104	001	Chromium (VI)	EPA 218.6
109.190	001	Mercury	EPA 245.1
109.361	001	Mercury	EPA 1631 E
Field of Testing: 110 - Volatile Organic Chemistry of Wastewater			
110.040	000	Purgeable Organic Compounds	EPA 624
Field of Testing: 111 - Semi-volatile Organic Chemistry of Wastewater			
111.100	000	Base/Neutral & Acid Organics	EPA 625
111.101	000	Organochlorine Pesticides and PCBs	EPA 625
111.103	000	Nitrosamines	EPA 625
111.120	000	Semi-volatile Organic Compounds	EPA 1625 B
111.170	000	Organochlorine Pesticides and PCBs	EPA 608
111.210	000	Carbamates	EPA 632
Field of Testing: 112 - Radiochemistry of Wastewater			
112.010	001	Gross Alpha and Beta Radiation	EPA 900.0
112.010	002	Gross Beta	EPA 900.0
Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste			
114.010	001	Antimony	EPA 6010 B
114.010	002	Arsenic	EPA 6010 B
114.010	003	Barium	EPA 6010 B
114.010	004	Beryllium	EPA 6010 B
114.010	005	Cadmium	EPA 6010 B
114.010	006	Chromium	EPA 6010 B
114.010	007	Cobalt	EPA 6010 B
114.010	008	Copper	EPA 6010 B
114.010	009	Lead	EPA 6010 B
114.010	010	Molybdenum	EPA 6010 B
114.010	011	Nickel	EPA 6010 B
114.010	012	Selenium	EPA 6010 B
114.010	013	Silver	EPA 6010 B
114.010	014	Thallium	EPA 6010 B
114.010	015	Vanadium	EPA 6010 B
114.010	016	Zinc	EPA 6010 B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020

114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.106	001	Chromium (VI)	EPA 7199
114.140	001	Mercury	EPA 7470 A
114.141	001	Mercury	EPA 7471 A
114.222	001	Cyanide, Total	EPA 9014
114.240	001	Corrosivity - pH Determination	EPA 9040 B
114.241	001	Corrosivity - pH Determination	EPA 9045 C
114.250	001	Fluoride	EPA 9056

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311 (TCLP)
115.021	001	TCLP Inorganics	EPA 1311 (TCLP)
115.022	001	TCLP Extractables	EPA 1311 (TCLP)
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312 (SPLP)

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.020	030	Nonhalogenated Volatiles	EPA 8015 B
116.020	031	Ethanol and Methanol	EPA 8015 B
116.080	000	Volatile Organic Compounds	EPA 8260 B
116.090	000	Acrylamide, Acrylonitrile, Acrolein	EPA 8316
116.100	001	Total Petroleum Hydrocarbons - Gasoline (GRO)	LUFT GC/MS

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015 B
117.110	000	Extractable Organics	EPA 8270 C
117.111	071	Pesticides	EPA 8270 C
117.150	000	Carbonyl Compounds	EPA 8315 A
117.171	000	Nitroaromatics and Nitramines	EPA 8330 A
117.210	000	Organochlorine Pesticides	EPA 8081 A
117.220	000	PCBs	EPA 8082
117.240	000	Organophosphorus Pesticides	EPA 8141 A
117.250	000	Chlorinated Herbicides	EPA 8151 A
117.270	000	Carbamates, N-methylcarbamates	EPA 8318
117.280	000	Carbamates	EPA 8321 A

Field of Testing: 120 - Physical Properties of Hazardous Waste			
120.010	001	Ignitability	EPA 1010
120.080	001	Corrosivity - pH Determination	EPA 9045 C
Field of Testing: 126 - Microbiology of Recreational Water			
126.010	001	Total Coliform (Enumeration)	SM 9221 B,C-2006
126.030	001	Fecal Coliform (Enumeration)	SM 9221 B,E-2006
126.050	001	Total Coliform (Enumeration)	SM 9223 B Colilert
126.050	002	E. coli (Enumeration)	SM 9223 B Colilert
126.080	001	Enterococci	Enterolert

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Analytical Method Information

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Analytical Method

525.2 OPP in Water (EPA 525.2M)

Preservation: <6°C, Sulfite (if Cl2)
Container: 1-L Amber Glass-525 OPP
Hold Time: 14 days
Amount Required: 2000 mL

Analyte	MDL	Reporting Limit	Surrogate % R	Duplicate RPD	Matrix Spike % R	Matrix Spike RPD	Blank Spike / LCS % R	Blank Spike / LCS RPD
surr: 1,3-Dimethyl-2-nitrobenzene			76 - 128					
surr: Triphenyl phosphate			40 - 163					
Azinphos methyl (Guthion)	5.5	10 ng/l		30	0.1 - 154	30	0.1 - 188	30
Bolstar	4.6	10 ng/l		30	4 - 184	30	11 - 166	30
Chlorpyrifos	6.9	10 ng/l		30	37 - 168	30	37 - 169	30
Coumaphos	5.1	10 ng/l		30	0.1 - 203	30	0.1 - 225	30
Demeton-o	10	10 ng/l		30	0.1 - 208	30	0.1 - 211	30
Demeton-s	10	10 ng/l		30	0.1 - 207	30	0.1 - 213	30
Diazinon	5.2	10 ng/l		30	36 - 153	30	43 - 152	30
Dichlorvos	2.9	10 ng/l		30	42 - 137	30	46 - 133	30
Dimethoate	6.2	10 ng/l		30	4 - 222	30	10 - 234	30
Disulfoton	10	10 ng/l		30	12 - 199	30	0.1 - 212	30
Ethoprop	6.7	10 ng/l		30	51 - 167	30	53 - 163	30
Ethyl parathion	5.4	10 ng/l		30	5 - 229	30	7 - 230	30
Fensulfothion	2.9	10 ng/l		30	0.1 - 316	30	0.1 - 265	30
Fenthion	3.8	10 ng/l		30	23 - 169	30	20 - 177	30
Malathion	7.6	10 ng/l		30	6 - 184	30	14 - 175	30
Merphos	5.8	10 ng/l		30	3 - 210	30	28 - 181	30
Methyl parathion	6.3	10 ng/l		30	0.1 - 249	30	0.1 - 252	30
Mevinphos	4.2	10 ng/l		30	25 - 189	30	14 - 202	30
Naled	7.6	10 ng/l		30	0.1 - 242	30	0.1 - 240	30
Phorate	3.0	10 ng/l		30	31 - 181	30	26 - 180	30
Ronnel	4.1	10 ng/l		30	29 - 153	30	34 - 154	30
Stirophos	3.1	10 ng/l		30	0.1 - 167	30	0.1 - 188	30
Tokuthion (Prothiofos)	7.8	10 ng/l		30	27 - 160	30	23 - 159	30
Trichloronate	6.7	10 ng/l		30	40 - 150	30	34 - 153	30

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Analytical Method Information

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Analytical Method

Hydrazine_w by LCMS in Water (EPA 8315M)

Preservation: <6°C, H2SO4 **Hold Time:** 28 days

Container: 125-mL Amber Glass-Hydrazine, H2SO4(0.5mL) **Amount Required:** 125 mL

Analyte	MDL	Reporting Limit	Surrogate % R	Duplicate RPD	Matrix Spike % R	Matrix Spike RPD	Blank Spike / LCS % R	Blank Spike / LCS RPD
1,1-Dimethylhydrazine	2.0	2.0 ug/l		30	50 - 150	30	50 - 150	30
Hydrazine	0.77	1.0 ug/l		30	50 - 150	30	50 - 150	30
Monomethylhydrazine (MMH)	2.0	2.0 ug/l		30	50 - 150	30	50 - 150	30

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