

Via FedEx

August 14, 2020

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

Subject: Second 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 April 1 through June 30, 2020 (Second 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>

SECOND 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 Second Quarter 2020. Table I summarizes the Second Quarter 2020 sampling record by outfall or location and sample type collected per the requirements of the NPDES Permit.
- **Second Quarter 2020 Summary of Exceedances and/or Non-Compliance:** This section summarizes the Second Quarter 2020 sample results that exceeded NPDES Permit Limits, Benchmarks, and Receiving Water Limits, and the potential causes thereof.
- **Reasonable Potential Analysis:** This section discusses the results of the analysis.
- **Stormwater Treatment System at Outfall 018 Activities:** This section summarizes the Second Quarter 2020 activities at the stormwater treatment system at Outfall 018.
- **Second 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 Second Quarter 2020 as well as activities associated with NASA, DOE, the Stormwater Expert Panel (Expert Panel), NASA and Boeing BMP Monitoring-Related Activities, the Northern Drainage, the Outfall 001/002 BMP Compliance Report, and Other BMP Activities. Table II

summarizes typical BMP-related activities that occur at outfalls every quarter. Table III summarizes specific BMP activities completed during the Second Quarter 2020 by outfall location.

- **Annual Comprehensive Site Compliance Evaluation Report:** This section discusses the annual site compliance evaluation.
- **SWPPP, BMP Plan, and Spill Contingency Plan Status and Effectiveness Report:** This section discusses updates to the SWPPP, BMP Plan, and Spill Contingency Plan Status and Effectiveness Report for 2020.
- **Bioassessment Monitoring:** This section discusses the bioassessment review.
- **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 Second Quarter 2020.
- **Appendix B** tabulates waste shipments during the Second Quarter 2020.
- **Appendix C** presents chemical analytical results from the Second 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 and includes the Arroyo Simi, Bell Creek, and Dayton Canyon surveys.
- **Appendix H** presents the Annual Comprehensive Sitewide Compliance Evaluation Report.
- **Appendix I** presents the 2020 Annual Bioassessment Sampling Report.

DISCHARGE AND SAMPLE COLLECTION SUMMARY

Stormwater samples were collected at Outfalls 001, 002, 008, 009, and 018 during Second Quarter 2020 (Figure 1). The Santa Susana Site had two qualifying rain events during the Second 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). Of these, one rain event produced stormwater discharges at Outfalls 001, 002, 008 and 009 and lasted 11 days. The NPDES Permit states that no more than one sample per week need be obtained during extended periods of rainfall. Therefore, samples were collected at Outfalls 002, 008 and 009 twice during this rain event as these outfalls continued to flow into the second week of rainfall. Automated flow-weighted composite samplers (autosamplers) were set in preparation for all rain events and reset for the rainfall samples collected in the second week. Boeing also collected stormwater samples from Outfall 018 because Boeing operated the Stormwater Treatment System (SWTS) at Outfall 018 to increase the capacity in Silvernale Pond. 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). Two additional receiving water grab samples were collected early in the Second Quarter 2020 at RSW-002 to calculate the geometric mean; however, these two samples were the final samples of geometric mean sampling initiated at the end of the First Quarter 2020. All geometric mean data (including the two samples collected in early Second Quarter 2020) were presented and discussed in the First Quarter 2020 report.

Table I summarizes the Second 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 Second Quarter 2020

Date	Outfall/Location	Sample Frequency	Sample Type
4/6-4/7/2020	Outfall 002	Quarterly	Grab, Composite
4/6-4/7/2020	Outfall 009	Routine	Grab, Composite
4/8-4/9/2020	Outfall 008	Routine	Grab, Composite
4/9-4/10/2020	Outfall 001	Quarterly	Grab, Composite
4/9-4/10/2020	Outfall 018	Quarterly	Grab, Composite
4/13-4/14/2020	Outfall 002	Routine (Extended Rainfall) ⁽³⁾	Grab, Composite
4/13-4/14/2020	Outfall 009	Routine (Extended Rainfall) ⁽³⁾	Grab, Composite
4/15/2020 ⁽¹⁾	Outfall 008	Routine (Extended Rainfall) ⁽³⁾	Grab, Composite
4/6/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Quarterly	Grab
4/03/2020 ⁽²⁾	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab
4/13/2020 ⁽²⁾	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Geometric Mean	Grab

Date	Outfall/Location	Sample Frequency	Sample Type
5/21/2020	Arroyo Simi Receiving Water (RSW-002, Frontier Park)	Annual Sediment	Grab

Notes:

Routine = 1 per discharge event.

- (1) – Grab and composite samples collected on the same day due to short duration of flow at the outfall.
- (2) – 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 the First Quarter 2020 DMR, the sample results and the geometric mean calculation were presented in the First Quarter DMR.
- (3) An additional sample was collected during the extended period of rainfall.

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 Second 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.

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

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

- Iron at Outfall 001.

A detailed discussion of the exceedance is provided below.

Boeing is committed to fulfilling the requirements of the NPDES Permit. Boeing and NASA each took actions during the Second 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 exceedance described below in their 2020 Annual Report.

Outfall 001

Metals: Iron

On April 10, 2020, a stormwater sample was collected from Outfall 001. Iron was detected at 2.1 milligrams per liter (mg/L), above the Daily Maximum Benchmark of 0.3 mg/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 iron concentration at Outfall 001 during the Second Quarter 2020 is attributable to erosion of natural soils. 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, the Expert Panel also reviewed metal ratio fingerprinting that further supports natural background soils as the likely source of iron in the sample having an exceedance. 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 Second Quarter 2020 to control sources in the Outfall 001 watershed are described in the Second 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.

REASONABLE POTENTIAL ANALYSIS

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

STORMWATER TREATMENT SYSTEM AT OUTFALL 018 ACTIVITIES

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

- Calibrated pH probes;
- Calibrated turbidity meters;
- Installed a new pH controller and probe for ACTIFLO;
- Rebuilt the sludge pump for the Screw Press;
- Installed a spare drop-in unit P-101;
- Purged all chemical lines with nitrogen;
- Replaced pump tubes for the chemical pumps used in ChemBox 1 and 3; and
- Installed a transient voltage suppressor for the effluent flow meter.

The SWTS operated one time during the Second Quarter 2020. Operational data are summarized below.

4th Operational Event:

- The SWTS operated from April 9 through 15, 2020, and discharged for approximately 130 hours; and
- The total amount of water treated and discharged from Silvernale Pond was 8,212,400 gallons.

SECOND 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 Second 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 Second Quarter 2020 by outfall or BMP location.

TABLE III: Additional Second Quarter 2020 BMP Activities

Outfall or BMP Location	BMP Activities During Second Quarter 2020
All Outfalls	Removed old sample tubing; cleaned and flipped overpack drums for storage during the dry season to eliminate accumulation of debris or moisture.
003	Installed a keyed start/stop switch for manual pump operation.
005	Installed a keyed start/stop switch for manual pump operation.
007	Installed a keyed start/stop switch for manual pump operation; installed a felt walkway in the basin to allow safe access to float switches.
010	Replaced a mechanical seal on the conveyance pump. Installed a cap on the media underdrain to prevent algae growth in the sump box.
018	Installed a transient voltage suppressor for the flow meters; disconnected the conduit and belts from pump P104 to prepare for motor replacement.
001 and 002 Drainages	Installed media wattles around more than 50 utility poles from the Burn Pit to Bell Canyon Road and from the Burn Pit along the Southern Buffer zone to STL-IV Road.

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 Second Quarter 2020, NASA maintained wattles as linear sediment controls, maintained silt fencing, and installed gravel/riprap in areas within these sites where construction activities had been completed. Notice of Termination (NOT) was submitted to RWQCB in Second Quarter 2020.

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 Second Quarter 2020, NASA maintained sandbags, maintained wattles as linear sediment controls, and installed gravel/riprap in areas within these sites where construction activities had been completed. Notice of Termination (NOT) was submitted to RWQCB in Second Quarter 2020.

DOE Related Activities

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

Expert Panel-Related Activities

The BMP activities discussed below were performed, commenced, or completed during the Second 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 Second Quarter 2020 activities included:

- BMP inspections, including the culvert inlets and riprap check dams; and
- All CMs, basins, and weir boards were cleaned of debris, as needed.

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 Second 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 Second 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 Second 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 Second 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 Second 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 Second 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.

Approximately 586,100 gallons of stormwater were pumped from the cistern to the sedimentation basin during the Second 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 Second Quarter 2020 activities included BMP inspections and accumulated sediment removal from the inlet structures.

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 Second Quarter 2020 activities included BMP inspections. 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 and subarea monitoring samples were collected in the watersheds associated with Outfalls 002 and 009 during the Second 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 Second Quarter 2020.

Outfall 001/002 BMP Compliance Report Related Activities

The Daily Maximum Benchmark exceedance at Outfall 001 during the Second Quarter 2020 did not trigger a new BMP Compliance Report. In accordance with the current BMP compliance reports, 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 and subarea monitoring samples collected during the Second Quarter 2020. These sampling results will be reported by the Expert Panel in their 2020 Annual Report.

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

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.

ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION REPORT

The annual comprehensive site compliance evaluation was conducted in June 2020 and a summary is included in Appendix H.

SWPPP, BMP PLAN, AND SPILL CONTINGENCY PLAN STATUS AND EFFECTIVENESS REPORT

The SWPPP, BMP Plan, and Spill Contingency Plan (heretofore referred to as the Spill Prevention and Response Plan [SPRP]) are implemented and the effectiveness is evaluated by Boeing annually. The SWPPP, BMP Plan, and SPRP were reviewed following the annual comprehensive site compliance evaluation in June 2020 (Appendix H) and will be issued in the Third Quarter 2020.

BIOASSESSMENT MONITORING

A bioassessment review was conducted at the Santa Susana Site on June 4, 2020 to evaluate water quality conditions in the tributary to Arroyo Simi downstream of Outfall 006 and the tributary to the Los Angeles River downstream of Outfall 001 in accordance with NPDES Permit requirements. The methods, procedures, and results of the bioassessment are reported in the Bioassessment Monitoring Report included in Appendix I. Note that there was insufficient water flow to conduct the bioassessment monitoring in the Second Quarter of 2020.

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 14th of August 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 – Second Quarter 2020 Rainfall Data Summary

Appendix B – Second Quarter 2020 Waste Shipment Summary Tables

Appendix C – Second Quarter 2020 Discharge Monitoring Data Summary Tables

Appendix D – Second Quarter 2020 Summary of Permit Limit Exceedances and/or Non-Compliance

Appendix E – Second Quarter 2020 Analytical Laboratory Reports, Chain of Custody Forms, and Validation Reports

Appendix F – Second Quarter 2020 Reasonable Potential Analysis Tables

Appendix G – Second Quarter 2020 Receiving Water Surveys

Appendix H – Annual Comprehensive Sitewide Compliance Evaluation Report

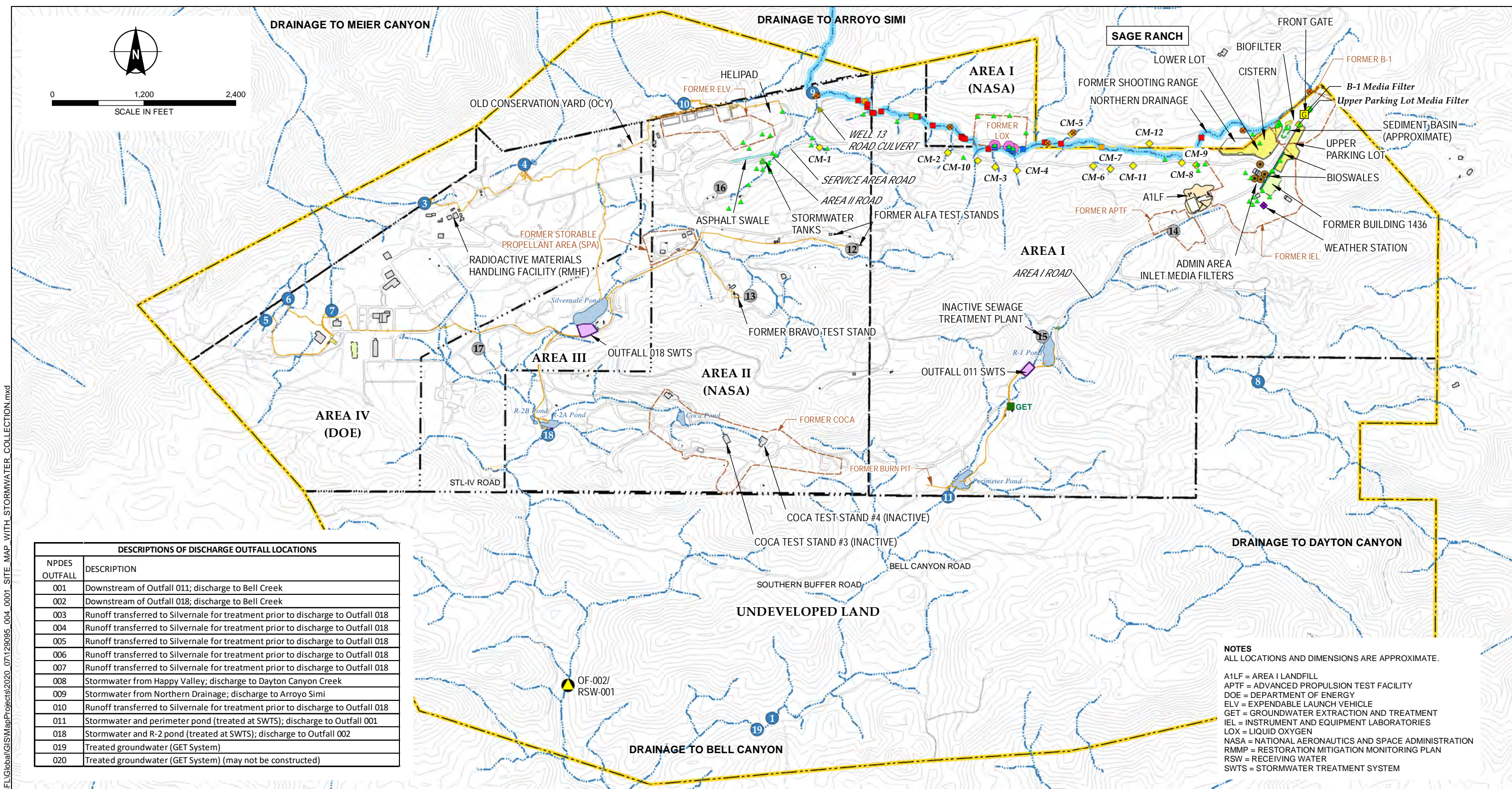
Appendix I – Annual Bioassessment Sampling Report

- 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. 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.
4. 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.
5. Haley & Aldrich, Inc., 2019. Stormwater Pollution and Prevention Plan (Version 6 for Compliance with 2015 NPDES Permit). 26 September.
6. 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)
020	Treated groundwater (GET System) (may not be constructed)

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

- LEGEND**
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 - 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 AREA
 - 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

HALEY ALDRICH

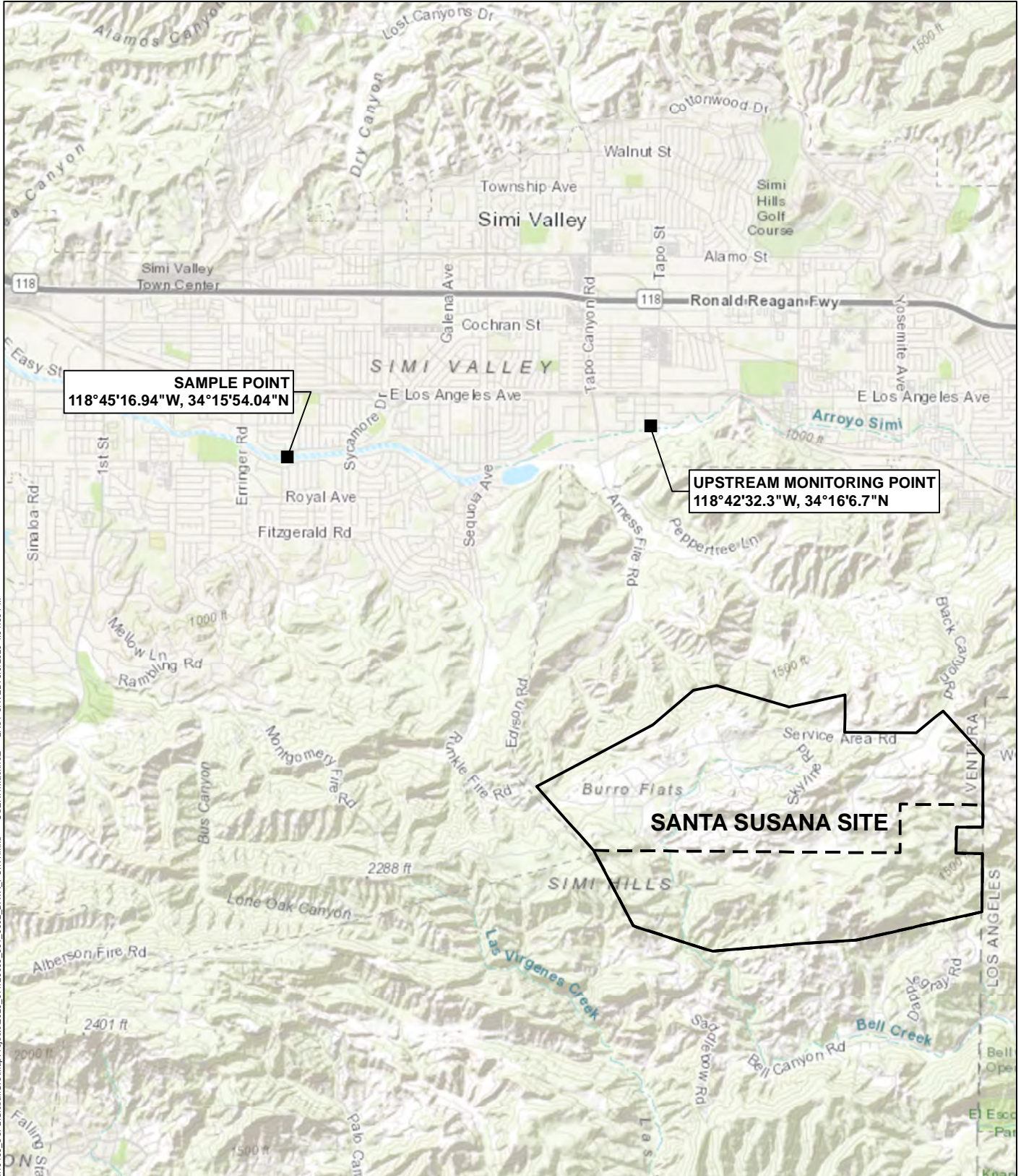
NPDES PERMIT COMPLIANCE SECOND QUARTER 2020
 DISCHARGE MONITORING REPORT
 THE BOEING COMPANY
 VENTURA COUNTY, CALIFORNIA

SITE MAP WITH STORMWATER COLLECTION AND CONVEYANCE SYSTEM AND SITE FEATURES

AUGUST 2020 FIGURE 1

h:\haley\aldrich.com\share\sgd_common\40458_SSF\Global\GIS\Map\Projects\2020_07\129095_004_0001_SITE_MAP_WITH_STORMWATER_COLLECTION.mxd

GIS FILE PATH: \\haleyaldrich.com\haley\sf_projects\2020_0712\20065_004_0002_DATA_POINT.mxd — USER: hwaschote — LAST SAVED: 8/3/2020 4:04:55 PM



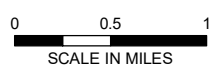
SAMPLE POINT
118°45'16.94"W, 34°15'54.04"N

UPSTREAM MONITORING POINT
118°42'32.3"W, 34°16'6.7"N

SANTA SUSANA SITE

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.



**HALEY
ALDRICH**

NPDES PERMIT COMPLIANCE SECOND 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**

AUGUST 2020

FIGURE 2

APPENDIX A

Second Quarter 2020 Rainfall Data Summary

APPENDIX A
TABLE OF CONTENTS

Table A – Daily Rainfall Summary

**TABLE A
DAILY RAINFALL SUMMARY**

**THE BOEING COMPANY
NPDES PERMIT CA0001309**

Station: AREA 1
Parameter: Rain
Month/Year: April 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	Total
	DAY																									
D	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
A	2	0.00	0.00	0.00	0.03	0.03	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	0.07
Y	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
O	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
F	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	0.02	0.04	0.06	0.02	0.10	0.24
T	6	0.15	0.27	0.29	0.19	0.10	0.01	0.00	0.09	0.00	0.07	0.02	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	1.21
H	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.05	0.13	0.06	0.11	0.05	0.08	0.01	0.00	0.00	0.00	0.00	0.54
M	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.19
O	9	0.01	0.01	0.06	0.05	0.07	0.02	0.07	0.05	0.09	0.08	0.04	0.09	0.07	0.07	0.08	0.17	0.09	0.05	0.04	0.03	0.02	0.02	0.04	0.08	1.40
N	10	0.04	0.02	0.02	0.01	0.03	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
T	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
H	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	0.01	0.00	0.01	0.01	0.02	0.00	0.05
M	13	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	0.00	0.01
O	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
N	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
T	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
H	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
M	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
O	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
N	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
T	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
H	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
	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

**TABLE A
DAILY RAINFALL SUMMARY**

**THE BOEING COMPANY
NPDES PERMIT CA0001309**

Station: AREA 1
Parameter: Rain
Month/Year: June 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	Total	
DAY																											
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	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	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	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	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	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	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	0.00	0.00
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	0.00	0.00
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	0.00	0.00
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	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	0.00	0.00
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	0.00	0.00
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	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	0.00	0.00
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	0.00	0.00
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	0.00	0.00
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	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	0.00	0.00
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	0.00	0.00
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	0.00	0.00
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	0.00	0.00
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	0.00	0.00
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	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	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	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	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	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	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	d	d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00

Flags: d = Off-line part of hour, invalid hour due to semi-annual audit (June 29). For the off-line event, the rain gauge at Sage Ranch confirmed that no rainfall was recorded on June 29 during hours 07:00-09:00.

APPENDIX B

Second Quarter 2020 Waste Shipment Summary Tables

APPENDIX B
TABLE OF CONTENTS

Table B – Waste Shipment Summary Table

**TABLE B
WASTE SHIPMENT SUMMARY TABLE**

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

TYPE OF WASTE	MATRIX	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	DESTINATION
Asbestos	Solid	140	Y	MP Environmental Services, Inc.	n/a	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Hazardous Waste	Liquid	51,708	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	US Ecology Vernon 5375 South Boyle Avenue Los Angeles, CA 90058
Hazardous Waste	Liquid	71	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	Liquid	187	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Aragonite LLC 11600 North Apts Road Grantsville, UT 84029
Hazardous Waste	Liquid	4	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Buttonwillow LLC 2500 West Lokern Road Buttonwillow, CA 93206
Hazardous Waste	Liquid	3,840	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Deer Park LLC 2027 Independence Parkway South La Porte, TX 77571
Hazardous Waste	Liquid	1,400	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
Hazardous Waste	Liquid	4,940	P	MP Environmental Services, Inc.	n/a	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Hazardous Waste	Solid	50	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	4	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
Hazardous Waste	Solid	34,015	P	MP Environmental Services, Inc.	n/a	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Hazardous Waste	Solid	5	P	Veolia ES Technical Solutions, LLC 5736 W. Jefferson Street Phoenix, AZ 85043	n/a	Veolia ES Technical Solutions, LLC 5736 W. Jefferson Street Phoenix, AZ 85043
Hazardous Waste	Liquid	1,475	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Rust & Sons Trucking	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Hazardous Waste	Solid	60	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

**TABLE B
WASTE SHIPMENT SUMMARY TABLE**

**SECOND 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	Solid	15	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Rust & Sons Trucking	Clean Harbors Wilmington LLC 2247 South Highway 71 Kimball, NE 69142
Hazardous Waste , Flammable	Aerosols	4	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 , Flammable	Liquid	120	P	MP Environmental Services, Inc.	n/a	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Non Hazardous Waste	Liquid	55,000	G	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058	n/a	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058
Non Hazardous Waste	Liquid	21,600	G	American Integrated Services, Inc.	n/a	Crosby & Overton 1630 W 17th Street Long Beach, CA 90813
Non Hazardous, Non D.O.T. Regulated Waste	Liquid	34,000	G	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058
Non Hazardous, Non D.O.T. Regulated Waste	Liquid	5	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
Non Hazardous, Non D.O.T. Regulated Waste	Solid	240	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, Non D.O.T. Regulated Waste	Solid	2,344	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 Waste	Solid	637	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
Non RCRA Hazardous Waste	Liquid	5,366	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	Liquid	271	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	Solid	408	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	509	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029

**TABLE B
WASTE SHIPMENT SUMMARY TABLE**

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

TYPE OF WASTE	MATRIX	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	DESTINATION
Non Regulated Batteries	Solid	20	P	MP Environmental Services, Inc.	n/a	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Universal Waste	Solid	422	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

Second Quarter 2020 Discharge Monitoring Data Summary Tables

APPENDIX C

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Reporting Summary Notes

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Outfall 009 - Discharge Monitoring Mass Summary Table

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Outfall 018 - Discharge Monitoring Mass Summary Table

Arroyo Simi - Discharge Monitoring Data Summary Table
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**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.

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

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 (CaCO ₃).
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.

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

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.

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

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.

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

(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 8.06lbs/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.

**OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/9/2020 12:55 - 4/10/2020 09:30		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	117.83	1/Discharge	Meas	0.400854	*
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	7.78	*
Total Suspended Solids [#]	mg/L	45	1/Discharge	Composite	22 ^(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 < 0.0026	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	3.8	--
Cyanide	µg/L	8.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	1.6	--
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	15	J (DNQ)
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	4.0	*
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, -12.55	*
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/Discharge ^(g)	Composite	2.1	--
Manganese	µg/L	50	1/Discharge ^(g)	Composite	37	*
Nitrate - N	mg/L	8	1/Discharge	Composite	0.13	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.13	J (DNQ*)
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	5.9	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	52.3	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	110	*
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	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U*
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	Grab	ND < 0.25	U*
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	ANR	ANR	ANR

OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/9/2020 12:55 - 4/10/2020 09:30		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
1,3-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U*
1,4-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U*
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	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	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	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	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	Grab	ND < 0.40	U*
Bromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U*
Butyl benzylphthalate	µg/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	Grab	ND < 0.25	U*
Chlordane	µg/L	-	1/Year	Composite	ND < 0.083	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	ANR	ANR	ANR

OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/9/2020 12:55 - 4/10/2020 09:30		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Chrysene	µg/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U*
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	Grab	ND < 0.25	U*
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	Grab	ND < 0.25	U*
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	Grab	ND < 0.88	U*
Naphthalene	µg/L	-	1/Year	Grab	ND < 0.40	U*
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	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	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	Grab	ND < 0.25	U*
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	Grab	ND < 0.50	U*
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 ^(p)	µg/L	-	1/Year	Grab	ND < 0.25	U*
Cobalt	µg/L	-	1/Year	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	Grab	130	*
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	8.94	*
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	Composite	44	*

OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/9/2020 12:55 - 4/10/2020 09:30		
				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	51	*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS⁽²⁾						
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	1.8	J (DNQ)
Hardness, Dissolved (as CaCO ₃)	mg/L	-	Additional/Year	Composite	41	*
Human Bacteroides	CEs/100mL	-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge ⁽⁹⁾	Composite	0.20	--
Lead, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U
Manganese, dissolved	µg/L	-	Additional/Discharge ⁽⁹⁾	Composite	ND < 0.015	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	1.2	J (DNQ)
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	16	J (DNQ)

**OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/10/2020 09:30 (Composite)			
					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	1.2E-06	2.6E-05	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	8.3E-07	2.0E-05	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	1.0E-06	7.4E-06	UJ (*III)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	9.4E-07	8.3E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	1.6E-06	7.0E-06	J (DNQ)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	9.6E-07	6.3E-06	UJ (*III)	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	1.8E-06	7.3E-06	J (DNQ)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	8.7E-07	5.4E-06	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	1.1E-06	6.7E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	8.4E-07	7.3E-06	U (B)	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	7.5E-07	6.4E-06	J (DNQ)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	1.1E-06	6.2E-06	UJ (*III)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	7.1E-07	6.2E-06	J (DNQ)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	6.5E-07	3.8E-06	UJ (*III)	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	1.1E-06	1.5E-06	UJ (*III)	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	1.4E-06	1.8E-04	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	9.7E-07	3.9E-05	U (B)	ND

TCDD TEQ w/out DNQ Values ⁽⁴⁾	ND
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TCDD TEQ (PRIORITY POLLUTANTS) DAILY MAXIMUM BENCHMARK LIMIT = 2.8E-08

OUTFALL 001
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/10/2020 09:30 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	0.935+/-0.827	1.24	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	1.54+/-0.630	0.816	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.735+/-0.429	NM	U
Strontium-90	pCi/L	8.0	1/Discharge	-0.163+/-0.393	0.725	U
Tritium	pCi/L	20,000	1/Discharge	-40.1+/-149	273	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-2.27+/-15.2	15.4	U
Uranium	pCi/L	20	1/Discharge	0.250+/-0.250	0.297	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	8.98+/-159	222	U

**OUTFALL 001
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/9/2020 12:55 - 4/10/2020 09:30		LABORATORY/ VALIDATION QUALIFIER
				SAMPLE TYPE	RESULT	
Flow**	MGD	117.83	1/Discharge	Meas	0.400854	*
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	74 ^(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	0.013	--
Cyanide	LBS/DAY	8.35	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	5.11	1/Discharge	Composite	0.0053	--
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	0.050	J (DNQ)
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	13	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.25	J (DNQ*)
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Discharge ⁽⁹⁾	Composite	7.0	--
Manganese	LBS/DAY	49.1	1/Discharge ⁽⁹⁾	Composite	0.12	*
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	0.43	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	0.43	J (DNQ*)
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	20	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	368	*

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/6/2020 07:20 - 4/7/2020 08:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	0.0740838	*
CONVENTIONAL POLLUTANTS								
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	mg/L	30	1/Discharge	NA	-	Composite	3.3	*
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	7.58	*
Total Suspended Solids [†]	mg/L	45	1/Discharge	1/Year	-	Composite	1.8 ^(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 < 2.2	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	-	ANR	ANR	ANR
Arsenic	µg/L	10.0	1/Year	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 ^(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	1.1	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 < 0.32	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	ND < 0.100	U*
Barium	mg/L	1.0	1/Year	NA	-	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	NA	-	Composite	28	*
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	0.099	J (DNQ*)
Fluoride	mg/L	1.6	1/Year	NA	-	ANR	ANR	ANR
Iron	mg/L	0.3	1/Discharge ^(g)	NA	-	Composite	0.066	J (DNQ)

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

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/6/2020 07:20 - 4/7/2020 08:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Manganese	µg/L	50	1/Year	NA	-	ANR	ANR	ANR
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	0.10 ^(c)	*
Sulfate	mg/L	300	1/Discharge	NA	-	Composite	170	*
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	52.6	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	500	*
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	-	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
1,2-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
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	-	ANR	ANR	ANR
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
1,3-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
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	-	Composite	ND < 0.0042	U*
4,4'-DDE	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.0031	U*
4,4'-DDT	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.0042	U*
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

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/6/2020 07:20 - 4/7/2020 08:15		
						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	-	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	-	ANR	ANR	ANR
Aroclor 1016	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1221	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1232	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1242	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1248	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1254	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.26	U*
Aroclor 1260	µg/L	-	1/Year	1/Quarter	-	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	-	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	-	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	-	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	-	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	-	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
Chlordane	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.083	U*
Chlorobenzene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
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	-	ANR	ANR	ANR
Chrysene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/6/2020 07:20 - 4/7/2020 08:15		
						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 < 0.0036	U*
Dibenz(a,h)anthracene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
Dichlorobromomethane	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
Dieldrin	µg/L	-	1/Year	1/Quarter	-	Composite	ND < 0.0021	U*
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	-	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	-	ANR	ANR	ANR
Fluorene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
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	-	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	-	Grab	ND < 0.88	U*
Naphthalene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.40	U*
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	-	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	-	Composite	ND < 0.25	U*
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 31, 2020

						4/6/2020 07:20 - 4/7/2020 08:15		
ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	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	-	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	1/5 Years	-	Grab	ND < 0.25	U*
Xylenes (Total)	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS^(p)								
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	-	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	-	Grab	0.36	J (DNQ*)
Cobalt	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
Conductivity	µmhos/cm	-	1/Discharge	NA	-	Grab	660	*
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	15.46	*
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	-	Composite	270	*
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	2.0	*
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(p)}								
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Year	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	1.0	J (DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	NA	-	Composite	270	*
Human Bacteroides	CEs/100mL	-	Additional/Year	NA	-	ANR	ANR	ANR
Iron, dissolved	mg/L	-	Additional/Discharge ⁽⁹⁾	NA	-	Composite	ND < 0.050	U
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	U
Manganese, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/6/2020 07:20 - 4/7/2020 08:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
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	NA	-	Composite	ND < 0.0052	U*
Chlorpyrifos	µg/L	-	Additional	NA	-	Composite	ND < 0.0069	U*

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	117.83	1/Discharge	1/Quarter	-	Meas	1.28121	*
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	7.08	*
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 < 0.11	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/Year	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	2.0	--
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 < 0.32	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 ^(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	0.66	*
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	8.1	*
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 < 0.50	U

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

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Manganese	µg/L	50	1/Year	NA	-	ANR	ANR	ANR
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	99	*
Temperature (Field)	Deg F	86	1/Discharge	1/Quarter	-	Grab	54.1	*
Total Dissolved Solids	mg/L	950	1/Discharge	NA	-	Composite	280	*
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	-	ANR	ANR	ANR
4,4'-DDE	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
4,4'-DDT	µg/L	-	1/Year	1/Quarter	-	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

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						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	-	ANR	ANR	ANR
Aroclor 1221	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Aroclor 1232	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Aroclor 1242	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Aroclor 1248	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Aroclor 1254	µg/L	-	1/Year	1/Quarter	-	ANR	ANR	ANR
Aroclor 1260	µg/L	-	1/Year	1/Quarter	-	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	-	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

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						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	-	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	-	ANR	ANR	ANR
trans-1,2-Dichloroethene	µg/L	-	1/Year	1/5 Years	-	ANR	ANR	ANR

**OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						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^(p)								
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	400	*
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	5.96	*
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	0.31	*
Vanadium	µg/L	-	1/Year	NA	-	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(p)}								
Antimony, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Arsenic, dissolved	µg/L	-	Additional/Year	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	1.4	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 ⁽⁹⁾	NA	-	Composite	ND < 0.50	U
Lead, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.50	U
Manganese, dissolved	µg/L	-	Additional/Year	NA	-	ANR	ANR	ANR
Mercury, dissolved	µg/L	-	Additional/Discharge	NA	-	Composite	ND < 0.10	U*
Nickel, dissolved	µg/L	-	Additional/Year	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

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

April 1 through June 31, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/13/2020 09:00 - 4/14/2020 09:15		
						SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
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	NA	-	ANR	ANR	ANR
Chlorpyrifos	µg/L	-	Additional	NA	-	ANR	ANR	ANR

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/7/2020 08:15 (Composite)			
						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	4.0E-07	2.3E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	1.1E-06	2.0E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	1.2E-06	ND	U	ND
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	1.0E-06	3.4E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	5.7E-07	1.6E-06	U (B)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	1.1E-06	ND	U	ND
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	5.9E-07	1.5E-06	U (B)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	9.8E-07	2.7E-06	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	5.1E-07	2.2E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	1.3E-06	ND	U	ND
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	9.3E-07	ND	U	ND
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	5.1E-07	1.7E-06	J (DNQ)	ND
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	9.9E-07	ND	U	ND
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	1.9E-06	ND	U	ND
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	4.6E-07	ND	U	ND
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	1.4E-06	1.1E-05	U (B)	ND
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	1.6E-06	5.4E-06	U (B)	ND

TCDD TEQ w/out DNQ Values ⁽⁴⁾	ND
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TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT⁽⁵⁾ = 2.8E-08

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/14/2020 09:15 (Composite)			
						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	4.1E-07	2.5E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	1/Year	0.01	0.01	µg/L	4.2E-07	2.0E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	1/Year	0.01	0.4	µg/L	4.4E-07	ND	U	ND
1,2,3,4,7,8-HxCDD	1/Discharge	1/Year	0.1	0.3	µg/L	7.0E-07	2.5E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	1/Year	0.1	0.08	µg/L	7.9E-07	ND	U	ND
1,2,3,6,7,8-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	6.6E-07	2.1E-06	J (DNQ)	ND
1,2,3,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.2	µg/L	8.2E-07	ND	U	ND
1,2,3,7,8,9-HxCDD	1/Discharge	1/Year	0.1	0.1	µg/L	6.2E-07	ND	U	ND
1,2,3,7,8,9-HxCDF	1/Discharge	1/Year	0.1	0.6	µg/L	4.1E-07	1.1E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1/Year	1.0	0.9	µg/L	5.3E-07	ND	U	ND
1,2,3,7,8-PeCDF	1/Discharge	1/Year	0.05	0.2	µg/L	4.1E-07	ND	U	ND
2,3,4,6,7,8-HxCDF	1/Discharge	1/Year	0.1	0.7	µg/L	4.6E-07	ND	U	ND
2,3,4,7,8-PeCDF	1/Discharge	1/Year	0.5	1.6	µg/L	5.0E-07	ND	U	ND
2,3,7,8-TCDD	1/Discharge	1/Year	1.0	1.0	µg/L	4.5E-07	ND	U	ND
2,3,7,8-TCDF	1/Discharge	1/Year	0.1	0.8	µg/L	3.0E-07	ND	U	ND
OCDD	1/Discharge	1/Year	0.0001	0.01	µg/L	5.1E-07	1.5E-05	U (B)	ND
OCDF	1/Discharge	1/Year	0.0001	0.02	µg/L	5.8E-07	4.7E-06	U (B)	ND

TCDD TEQ w/out DNQ Values ⁽⁴⁾	ND
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TCDD TEQ (PRIORITY POLLUTANTS) BENCHMARK LIMIT⁽⁵⁾ = 2.8E-08

OUTFALL 002
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	OUTFALL SAMPLE FREQUENCY	RECEIVING WATER SAMPLE FREQUENCY	RECEIVING WATER LIMIT	4/7/2020 08:15 (Composite)			4/14/2020 09:15 (Composite)		
						RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER	RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS											
Gross Alpha	pCi/L	15	1/Discharge	NA	-/-	1.55+/-2.47	4.26	UJ (*III)	1.41+/-1.27	1.89	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	NA	-/-	4.88+/-1.59	2.00	--	3.23+/-0.829	0.848	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	NA	-/-	0.567+/-0.347	NM	U (B)	0.442+/-0.267	NM	UJ (*III)
Strontium-90	pCi/L	8.0	1/Discharge	NA	-/-	0.217+/-0.261	0.431	U	0.168+/-0.212	0.351	U
Tritium	pCi/L	20,000	1/Discharge	NA	-/-	14.9+/-159	282	U	136+/-176	292	U
ADDITIONAL POLLUTANTS											
Cesium-137	pCi/L	200	1/Discharge	NA	-/-	0.162+/-9.27	11.9	U	1.46+/-7.36	9.50	U
Uranium	pCi/L	20	1/Discharge	NA	-/-	1.44+/-0.347	0.163	--	0.552+/-0.289	0.280	U (B)
ADDITIONAL POLLUTANTS WITHOUT LIMITS											
Potassium-40	pCi/L	-	1/Discharge	NA	-/-	9.19+/-79.3	143	U	68.4+/-90.0	143	U

**OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/6/2020 07:20 - 4/7/2020 08:15			4/13/2020 09:00 - 4/14/2020 09:15		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER	SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	117.83	1/Discharge	Meas	0.0740838	*	Meas	1.28121	*
CONVENTIONAL POLLUTANTS									
Biochemical Oxygen Demand (BOD)(5-Day @ 20 deg. C)	LBS/DAY	29,481	1/Discharge	Composite	2.0	*	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	1.1 ^(c)	*	Composite	6.4 ^(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/Year	ANR	ANR	ANR	ANR	ANR	ANR
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	0.00068	J (DNQ)	Composite	0.021	--
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	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	ND	U	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	0.0071	*
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	ND	U*	Composite	ND	U*
Barium	LBS/DAY	983	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Chloride	LBS/DAY	147,405	1/Discharge	Composite	17	*	Composite	87	*
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	0.061	J (DNQ*)	Composite	1.1	*
Fluoride	LBS/DAY	1,572.3	1/Year	ANR	ANR	ANR	ANR	ANR	ANR
Iron	LBS/DAY	295	1/Discharge ⁽⁹⁾	Composite	0.041	J (DNQ)	Composite	ND	U
Manganese	LBS/DAY	49.1	1/Year	ANR	ANR	ANR	ANR	ANR	ANR

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

**OUTFALL 002
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM BENCHMARK LIMIT	SAMPLE FREQUENCY	4/6/2020 07:20 - 4/7/2020 08:15			4/13/2020 09:00 - 4/14/2020 09:15		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER	SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Nitrate - N	LBS/DAY	7,862	1/Discharge	Composite	ND	U*	Composite	ND	U*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	ND	U*	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	105	*	Composite	1,058	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	309	*	Composite	2,992	*

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/8/2020 07:20 - 4/9/2020 07:25		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	7.21	1/Discharge	Meas	0.00295700	*
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	7.19	*
PRIORITY POLLUTANTS						
Antimony	ug/L	6	1/Discharge	Composite	ND < 0.51	UJ (L1, B)
Cadmium	ug/L	(4.0) 3.1	1/Discharge	Composite	ND < 0.25 ^(b)	UJ (L1)
Copper	ug/L	14	1/Discharge	Composite	1.8	J (L1, DNQ)
Cyanide	ug/L	9.5	1/Discharge	Composite	ND < 2.5	U*
Lead	ug/L	5.2	1/Discharge	Composite	ND < 0.50	UJ (L1)
Mercury	ug/L	0.13	1/Discharge	Composite	ND < 0.10	U*
Nickel	ug/L	86	1/Discharge	Composite	ND < 5.0	UJ (L1)
Selenium	ug/L	5	1/Discharge	Composite	0.66	J (L1, DNQ)
Thallium	ug/L	2.0	1/Discharge	Composite	ND < 0.20	UJ (L1)
Zinc	ug/L	120	1/Discharge	Composite	60	J (L1)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	mg/L	10.1	1/Discharge	Composite	0.180	J (DNQ*)
Boron	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	4.8	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	Composite	0.16	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.16	*
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	4.0	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	78.8	*
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

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/8/2020 07:20 - 4/9/2020 07:25		
				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

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/8/2020 07:20 - 4/9/2020 07:25		
				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^(a)						
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	UJ (L1)
Total Suspended Solids	mg/L	-	1/Year	Composite	2.6	*
Vanadium	ug/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(a)}						
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	1.5	J (DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

4/8/2020 07:20 - 4/9/2020 07:25						
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	47	--

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/15/2020 09:10		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	7.21	1/Discharge	Meas	0.000429654	*
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	7.67	*
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 ^(a)	U
Copper	ug/L	14	1/Discharge	Composite	2.0	--
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	0.57	J (DNQ)
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	ND < 0.100	U*
Boron	mg/L	1.0	1/Year	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	5.0	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate - N	mg/L	8	1/Discharge	Composite	ND < 0.055	U*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	ND < 0.055	U*
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	5.0	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	54.4	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	140	*
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

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/15/2020 09:10		
				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

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/15/2020 09:10		
				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^(a)						
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	0.60	J (DNQ*)
Vanadium	ug/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(b)}						
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	1.3	J (DNQ)
Hardness, Dissolved (as CaCO3)	mg/L	-	Additional/Year	ANR	ANR	ANR

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

				4/15/2020 09:10		
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	8.9	J (DNQ)
Selenium, dissolved	ug/L	-	Additional/Discharge	Composite	0.79	J (DNQ)
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**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/9/2020 07:25 (Composite)			
					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	9.2E-07	5.1E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	5.0E-07	2.8E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	6.2E-07	1.3E-06	UJ (*III)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	5.4E-07	2.9E-06	J (DNQ)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	1.0E-06	1.8E-06	J (DNQ)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	5.6E-07	1.5E-06	UJ (*III)	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	9.9E-07	ND	U	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	5.0E-07	1.5E-06	J (DNQ)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	7.0E-07	1.3E-06	UJ (*III)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	6.9E-07	1.0E-06	UJ (*III)	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	6.7E-07	1.3E-06	U (B)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	6.8E-07	9.8E-07	UJ (*III)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	6.5E-07	9.9E-07	UJ (*III)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	6.5E-07	ND	U	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	4.2E-07	ND	U	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	2.5E-06	9.3E-05	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	8.5E-07	1.0E-05	U (B)	ND
TCDD TEQ w/out DNQ Values⁽⁴⁾								ND

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

**OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/15/2020 09:10 (Composite)			
					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	3.7E-07	1.3E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	4.2E-07	1.7E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	4.0E-07	1.7E-06	J (DNQ)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	3.9E-07	2.3E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	3.2E-07	6.4E-07	UJ (*III)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	4.2E-07	ND	U	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	3.4E-07	9.6E-07	UJ (*III)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	3.7E-07	8.3E-07	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	3.1E-07	2.2E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	7.3E-07	ND	U	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	4.5E-07	9.2E-07	UJ (*III)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	3.1E-07	7.3E-07	UJ (*III)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	4.8E-07	8.2E-07	UJ (*III)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	1.5E-06	ND	U	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	4.0E-07	ND	U	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	3.4E-07	8.6E-06	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	9.1E-07	3.7E-06	U (B)	ND
TCDD TEQ w/out DNQ Values⁽⁴⁾								ND

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

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 07:25 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	0.722+/-0.959	1.60	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	1.96+/-0.794	1.09	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.586+/-0.326	NM	U
Strontium-90	pCi/L	8.0	1/Discharge	0.447+/-0.418	0.671	U
Tritium	pCi/L	20,000	1/Discharge	-32.4+/-159	295	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-1.59+/-11.5	14.6	U
Uranium	pCi/L	20	1/Discharge	0.166+/-0.140	0.175	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	6.65+/-126	175	U

OUTFALL 008
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/15/2020 09:10 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	0.643+/-0.961	1.64	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	1.49+/-0.643	0.865	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.534+/-0.306	NM	UJ (*III)
Strontium-90	pCi/L	8.0	1/Discharge	0.208+/-0.343	0.582	U
Tritium	pCi/L	20,000	1/Discharge	140+/-176	290	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	3.99+/-8.80	14.9	U
Uranium	pCi/L	20	1/Discharge	0.0563+/-0.181	0.295	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-91.1+/-172	220	U

**OUTFALL 008
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/8/2020 07:20 - 4/9/2020 07:25		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	7.21	1/Discharge	Meas	0.00295700	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	902	1/Discharge	Grab	ND	U*
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	0.36	1/Discharge	Composite	ND	UJ (L1, B)
Cadmium	LBS/DAY	(0.24)0.19	1/Discharge	Composite	ND ^(b)	UJ (L1)
Copper	LBS/DAY	0.84	1/Discharge	Composite	4.4E-05	J (L1, DNQ)
Cyanide	LBS/DAY	0.57	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	0.31	1/Discharge	Composite	ND	UJ (L1)
Mercury	LBS/DAY	0.008	1/Discharge	Composite	ND	U*
Nickel	LBS/DAY	5.2	1/Discharge	Composite	ND	UJ (L1)
Selenium	LBS/DAY	0.3	1/Discharge	Composite	1.6E-05	J (L1, DNQ)
TCDD TEQ_NoDNQ ⁽⁴⁾	LBS/DAY	1.7E-09	1/Discharge	Composite	ND	U
Thallium	LBS/DAY	0.12	1/Discharge	Composite	ND	UJ (L1)
Zinc	LBS/DAY	7.22	1/Discharge	Composite	0.0015	J (L1)
NON-CONVENTIONAL POLLUTANTS						
Ammonia - N	LBS/DAY	607.3	1/Discharge	Composite	0.0044	J (DNQ*)
Boron	LBS/DAY	60	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	9,020	1/Discharge	Composite	0.12	*
Fluoride	LBS/DAY	96.2	1/Year	ANR	ANR	ANR
Nitrate - N	LBS/DAY	481	1/Discharge	Composite	0.0039	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	481	1/Discharge	Composite	0.0039	*
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	0.099	*
Total Dissolved Solids	LBS/DAY	57,124	1/Discharge	Composite	3.2	*

**OUTFALL 008
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/15/2020 09:10		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	7.21	1/Discharge	Meas	0.000429654	*
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	7.2E-06	--
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	2.0E-06	J (DNQ)
TCDD TEQ_NoDNQ ⁽⁴⁾	LBS/DAY	1.7E-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	ND	U*
Boron	LBS/DAY	60	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	9,020	1/Discharge	Composite	0.018	*
Fluoride	LBS/DAY	96.2	1/Year	ANR	ANR	ANR
Nitrate - N	LBS/DAY	481	1/Discharge	Composite	ND	U*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	481	1/Discharge	Composite	ND	U*
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	0.018	*
Total Dissolved Solids	LBS/DAY	57,124	1/Discharge	Composite	0.50	*

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/6/2020 07:50 - 4/7/2020 09:10		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	64.33	1/Discharge	Meas	0.302007	*
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	8.35	*
PRIORITY POLLUTANTS						
Antimony	µg/L	6.0	1/Discharge	Composite	ND < 0.50	U
Cadmium	µg/L	4.0	1/Discharge	Composite	ND < 0.25	U
Copper	µg/L	13	1/Discharge	Composite	3.9	--
Cyanide	µg/L	9.5	1/Discharge	Composite	ND < 2.5	U*
Lead	µg/L	5.2	1/Discharge	Composite	0.83	J (DNQ)
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	UJ (Q)
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	3.2	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	10	1/Discharge	Composite	0.24	*
Perchlorate	µg/L	6.0	1/Semiannual	ANR	ANR	ANR
Sulfate	mg/L	250	1/Discharge	Composite	4.3	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	57.3	*
Total Dissolved Solids	mg/L	850	1/Discharge	Composite	74	*
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/6/2020 07:50 - 4/7/2020 09:10		
				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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/6/2020 07:50 - 4/7/2020 09:10		
				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(p)						
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	3.2	*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(p)}						
Aluminum, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Discharge	Composite	ND < 0.50	U
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	2.7	--
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

4/6/2020 07:50 - 4/7/2020 09:10						
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	0.24	*
Nitrite - N	mg/L	-	Additional/Discharge	Composite	ND < 0.025	U*
Selenium, dissolved	µg/L	-	Additional/Discharge	Composite	0.5	J (DNQ)
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/13/2020 09:15 - 4/14/2020 09:45		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	64.33	1/Discharge	Meas	0.0922081	*
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	7.79	*
PRIORITY POLLUTANTS						
Antimony	µg/L	6.0	1/Discharge	Composite	ND < 1.2	U (B)
Cadmium	µg/L	4.0	1/Discharge	Composite	ND < 0.25	U
Copper	µg/L	13	1/Discharge	Composite	3.8	--
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	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	ANR	ANR	ANR
Chloride	mg/L	150	1/Discharge	Composite	5.0	*
Chronic Toxicity	Pass or Fail and % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Fluoride	mg/L	1.6	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	10	1/Discharge	Composite	ND < 0.055	U*
Perchlorate	µg/L	6.0	1/Semiannual	ANR	ANR	ANR
Sulfate	mg/L	250	1/Discharge	Composite	6.5	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	54.2	*
Total Dissolved Solids	mg/L	850	1/Discharge	Composite	120	*
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/13/2020 09:15 - 4/14/2020 09:45		
				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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/13/2020 09:15 - 4/14/2020 09:45		
				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(p)						
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)(p)}						
Aluminum, dissolved	µg/L	-	Additional/Year	ANR	ANR	ANR
Antimony, dissolved	µg/L	-	Additional/Discharge	Composite	1.4	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	3.9	--
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

				4/13/2020 09:15 - 4/14/2020 09:45		
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	ND < 0.055	U*
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

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/7/2020 09:10 (Composite)			
					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	6.0E-07	1.6E-05	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	9.3E-07	9.9E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	9.9E-07	3.7E-06	UJ (*III)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	9.5E-07	5.9E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	5.8E-07	3.7E-06	U (B)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	1.1E-06	4.5E-06	J (DNQ)	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	5.7E-07	3.8E-06	U (B)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	9.2E-07	5.1E-06	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	5.1E-07	3.6E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	1.2E-06	3.0E-06	UJ (*III)	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	9.6E-07	3.6E-06	J (DNQ)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	5.5E-07	3.5E-06	J (DNQ)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	9.5E-07	3.1E-06	J (DNQ)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	1.4E-06	ND	U	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	4.3E-07	ND	U	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	1.4E-06	1.6E-04	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	1.6E-06	2.5E-05	U (B)	ND

TCDD TEQ w/out DNQ Values⁽⁴⁾	ND
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TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/14/2020 09:45 (Composite)			
					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	3.9E-07	1.7E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	3.1E-07	1.5E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	3.3E-07	7.4E-07	UJ (*III)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	4.4E-07	2.4E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	4.9E-07	8.0E-07	J (DNQ)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	4.3E-07	ND	U	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	5.3E-07	6.9E-07	J (DNQ)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	3.9E-07	8.6E-07	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	2.9E-07	7.4E-07	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	3.7E-07	8.7E-07	U (B)	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	3.3E-07	7.6E-07	UJ (*III)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	3.2E-07	3.7E-07	UJ (*III)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	3.6E-07	6.4E-07	UJ (*III)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	3.7E-07	1.0E-06	UJ (*III)	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	2.5E-07	ND	U	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	4.8E-07	1.2E-05	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	4.2E-07	2.4E-06	U (B)	ND

TCDD TEQ w/out DNQ Values⁽⁴⁾	ND
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TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.8E-08

OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/7/2020 09:10 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	-0.0913+/-0.730	1.46	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	1.72+/-0.674	0.902	U (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	0.49+/-0.327	NM	U
Strontium-90	pCi/L	8.0	1/Discharge	0.0975+/-0.774	1.35	UJ (*III)
Tritium	pCi/L	20,000	1/Discharge	623+/-220	284	J+ (B)
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	-4.92+/-14.5	18.0	U
Uranium	pCi/L	20	1/Discharge	0.0541+/-0.1137	0.154	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-110+/-164	262	U

**OUTFALL 009
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/14/2020 09:45 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	1.44+/-1.01	1.38	UJ (*III, B)
Gross Beta	pCi/L	50	1/Discharge	1.87+/-0.767	1.04	U (B)
Combined Radium-226 & Radium-228	pCi/L	5.0	1/Discharge	1.50+/-0.344	NM	J- (*III)
Strontium-90	pCi/L	8.0	1/Discharge	0.375+/-0.407	0.664	U
Tritium	pCi/L	20,000	1/Discharge	23.4+/-169	307	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	3.39+/-10.6	13.2	U
Uranium	pCi/L	20	1/Discharge	0.127+/-0.392	0.523	U
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	-32.1+/-159	207	U

**OUTFALL 009
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/6/2020 07:50 - 4/7/2020 09:10		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	64.33	1/Discharge	Meas	0.302007	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	8,048	1/Discharge	Grab	ND	U*
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	3.22	1/Discharge	Composite	ND	U
Cadmium	LBS/DAY	2.15	1/Discharge	Composite	ND	U
Copper	LBS/DAY	7	1/Discharge	Composite	0.0098	--
Cyanide	LBS/DAY	5.1	1/Discharge	Composite	ND	U*
Lead	LBS/DAY	2.8	1/Discharge	Composite	0.0021	J (DNQ)
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	ND	U
Thallium	LBS/DAY	1.1	1/Discharge	Composite	ND	UJ (Q)
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	8.1	*
Fluoride	LBS/DAY	858	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	5,365	1/Discharge	Composite	0.60	*
Perchlorate	LBS/DAY	3.22	1/Semiannual	ANR	ANR	ANR
Sulfate	LBS/DAY	134,128	1/Discharge	Composite	11	*
Total Dissolved Solids	LBS/DAY	456,034	1/Discharge	Composite	186	*

**OUTFALL 009
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/13/2020 09:15 - 4/14/2020 09:45		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	64.33	1/Discharge	Meas	0.0922081	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	8,048	1/Discharge	Grab	ND	U*
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	3.22	1/Discharge	Composite	ND	U (B)
Cadmium	LBS/DAY	2.15	1/Discharge	Composite	ND	U
Copper	LBS/DAY	7	1/Discharge	Composite	0.0029	--
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	ND	U
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	3.8	*
Fluoride	LBS/DAY	858	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	5,365	1/Discharge	Composite	ND	U*
Perchlorate	LBS/DAY	3.22	1/Semiannual	ANR	ANR	ANR
Sulfate	LBS/DAY	134,128	1/Discharge	Composite	5.0	*
Total Dissolved Solids	LBS/DAY	456,034	1/Discharge	Composite	92	*

**OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 12:30 - 4/10/2020 12:50		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Flow**	MGD	117.83	1/Discharge	Meas	1.37754	*
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	2.3	J (DNQ*)
pH (Field)	s.u.	6.5-8.5	1/Discharge	Grab	7.76	*
Total Suspended Solids [#]	mg/L	45	1/Discharge	Composite	1.3 ^(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 < 2.1	U*
alpha-BHC	µg/L	0.03	1/Discharge	Composite	ND < 0.0026	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 < 2.1	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	2.1	--
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	ND < 1.1	U*
Selenium	µg/L	(5) 8.2	1/Discharge	Composite	0.55 ^(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	5.9	*
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	0.086	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	0.15	*
Nitrate + Nitrite as Nitrogen (N)	mg/L	8	1/Discharge	Composite	0.15	*
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	88	*
Temperature (Field)	Deg F	86	1/Discharge	Grab	55.3	*
Total Dissolved Solids	mg/L	950	1/Discharge	Composite	270	*
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	ANR	ANR	ANR
1,2-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U*
1,2-Dichlorobenzene	µg/L	-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	µg/L	-	1/Year	Grab	ND < 0.25	U*
1,2-Diphenylhydrazine/Azobenzene	µg/L	-	1/Year	ANR	ANR	ANR

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 12:30 - 4/10/2020 12:50		
				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	ANR	ANR	ANR
1,4-Dichlorobenzene	µg/L	-	1/Year	Grab	ND < 0.25	U*
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	Composite	ND < 0.0042	U*
4,4'-DDE	µg/L	-	1/Year	Composite	ND < 0.0031	U*
4,4'-DDT	µg/L	-	1/Year	Composite	ND < 0.0042	U*
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	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	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	Grab	ND < 0.40	U*
Bromomethane	µg/L	-	1/Year	Grab	ND < 0.25	U*
Butyl benzylphthalate	µg/L	-	1/Year	ANR	ANR	ANR
Carbon tetrachloride	µg/L	-	1/Year	Grab	ND < 0.25	U*
Chlordane	µg/L	-	1/Year	Composite	ND < 0.083	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	ANR	ANR	ANR

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 12:30 - 4/10/2020 12:50		
				SAMPLE TYPE	RESULT	LABORATORY/ VALIDATION QUALIFIER
Chrysene	µg/L	-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	µg/L	-	1/Year	Grab	ND < 0.25	U*
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	Grab	ND < 0.25	U*
Dieldrin	µg/L	-	1/Year	Composite	ND < 0.0021	U*
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	Grab	ND < 0.25	U*
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	Grab	ND < 0.88	U*
Naphthalene	µg/L	-	1/Year	ANR	ANR	ANR
Naphthalene	µg/L	-	1/Year	Grab	ND < 0.40	U*
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	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	ANR	ANR	ANR
Vinyl chloride	µg/L	-	1/Year	Grab	ND < 0.25	U*
Xylenes (Total)	µg/L	-	1/Year	ANR	ANR	ANR
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS^(b)						
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	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	Grab	ND < 0.25	U*
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	12.95	*
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	Composite	91	*

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 12:30 - 4/10/2020 12:50		
				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	0.71	*
Vanadium	µg/L	-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS^{(2)(p)}						
Aluminum	µg/L	-	Additional	Composite	520	--
Aluminum, dissolved	µg/L	-	Additional	Composite	250	--
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	Composite	83	*
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	0.66	J (DNQ)
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	74	--

**OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	SAMPLE FREQUENCY	1998 WHO TEF	BEF GREAT LAKES WATER QUALITY INITIATIVE	UNITS	4/10/2020 12:50 (Composite)			
					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	5.0E-07	6.0E-06	U (B)	ND
1,2,3,4,6,7,8-HpCDF	1/Discharge	0.01	0.01	µg/L	4.8E-07	5.0E-06	U (B)	ND
1,2,3,4,7,8,9-HpCDF	1/Discharge	0.01	0.4	µg/L	5.2E-07	4.7E-06	J (DNQ)	ND
1,2,3,4,7,8-HxCDD	1/Discharge	0.1	0.3	µg/L	5.8E-07	5.5E-06	U (B)	ND
1,2,3,4,7,8-HxCDF	1/Discharge	0.1	0.08	µg/L	8.3E-07	3.1E-06	J (DNQ)	ND
1,2,3,6,7,8-HxCDD	1/Discharge	0.1	0.1	µg/L	5.8E-07	3.0E-06	UJ (*III)	ND
1,2,3,6,7,8-HxCDF	1/Discharge	0.1	0.2	µg/L	8.9E-07	2.9E-06	UJ (*III)	ND
1,2,3,7,8,9-HxCDD	1/Discharge	0.1	0.1	µg/L	5.3E-07	3.8E-06	U (B)	ND
1,2,3,7,8,9-HxCDF	1/Discharge	0.1	0.6	µg/L	5.1E-07	4.2E-06	U (B)	ND
1,2,3,7,8-PeCDD	1/Discharge	1.0	0.9	µg/L	4.9E-07	2.3E-06	U (B)	ND
1,2,3,7,8-PeCDF	1/Discharge	0.05	0.2	µg/L	4.5E-07	2.9E-06	J (DNQ)	ND
2,3,4,6,7,8-HxCDF	1/Discharge	0.1	0.7	µg/L	5.6E-07	3.1E-06	UJ (*III)	ND
2,3,4,7,8-PeCDF	1/Discharge	0.5	1.6	µg/L	4.7E-07	2.5E-06	J (DNQ)	ND
2,3,7,8-TCDD	1/Discharge	1.0	1.0	µg/L	4.6E-07	ND	UJ (*III)	ND
2,3,7,8-TCDF	1/Discharge	0.1	0.8	µg/L	7.4E-07	ND	U	ND
OCDD	1/Discharge	0.0001	0.01	µg/L	6.8E-07	2.9E-05	U (B)	ND
OCDF	1/Discharge	0.0001	0.02	µg/L	6.4E-07	1.4E-05	U (B)	ND

TCDD TEQ w/out DNQ Values ⁽⁴⁾	ND
--	----

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

OUTFALL 018
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/10/2020 12:50 (Composite)		
				RESULT	MDA	LABORATORY/ VALIDATION QUALIFIER
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15	1/Discharge	0.775+/-1.23	2.11	UJ (*III)
Gross Beta	pCi/L	50	1/Discharge	1.95+/-0.719	0.920	J+ (B)
Combined Radium-226 & Radium-228	pCi/L	5	1/Discharge	0.465+/-0.272	NM	UJ (*III, B)
Strontium-90	pCi/L	8	1/Discharge	0.284+/-0.387	0.643	U
Tritium	pCi/L	20,000	1/Discharge	194+/-178	283	U
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200	1/Discharge	2.76+/-2.34	3.59	U
Uranium	pCi/L	20	1/Discharge	0.337+/-0.167	0.117	U (B)
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-	1/Discharge	16.6+/-80.7	143	U

**OUTFALL 018
DISCHARGE MONITORING MASS SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	4/9/2020 12:30 - 4/10/2020 12:50		LABORATORY/ VALIDATION QUALIFIER
				SAMPLE TYPE	RESULT	
Flow**	MGD	117.83	1/Discharge	Meas	1.37754	*
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	26	J (DNQ*)
Total Suspended Solids [#]	LBS/DAY	44,222	1/Discharge	Composite	15 ^(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	0.0063 ^(f)	J (DNQ)
Silver	LBS/DAY	4.03	1/Year	ANR	ANR	ANR
TCDD TEQ_NoDNQ ^(d)	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	68	*
Chlorine, Total Residual (Field)	LBS/DAY	98.3	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	LBS/DAY	491.4	1/Discharge	Composite	0.99	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	1.7	*
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	7,862	1/Discharge	Composite	1.7	*
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	1,011	*
Total Dissolved Solids	LBS/DAY	933,567	1/Discharge	Composite	3,102	*

ARROYO SIMI
DISCHARGE MONITORING DATA SUMMARY TABLE

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

April 1 through June 30, 2020

					4/6/2020 08:35	
ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	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 < 0.082	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	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5	1/Quarter	Grab	8.10	*
Toxaphene	µg/L	0.0003	1/Quarter	Grab	ND < 0.25	U*
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-	1/Quarter	Grab	45	*
Priority Pollutants	NA	-	1/5 Years	ANR	ANR	ANR
Temperature (Field)	Deg F	-	1/Quarter	Grab	54.9	*
TCDD - Equivalents	µg/L	-	1/Year	ANR	ANR	ANR
Total Suspended Solids	mg/L	-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-	1/Quarter	Meas	0.9	*

**ARROYO SIMI, SEDIMENT
DISCHARGE MONITORING DATA SUMMARY TABLE**

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

April 1 through June 30, 2020

ANALYTE	UNITS	DAILY MAXIMUM PERMIT LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	5/21/2020 08:30	
					RESULT	LABORATORY/ VALIDATION QUALIFIER
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/g	0.002	1/Year	Grab	ND < 0.0015	U
4,4'-DDE	µg/g	0.0014	1/Year	Grab	ND < 0.0015	U
4,4'-DDT	µg/g	0.0003	1/Year	Grab	ND < 0.0015	U
Aroclor 1016	µg/g	0.12	1/Year	Grab	ND < 0.0045	U
Aroclor 1221	µg/g	0.12	1/Year	Grab	ND < 0.0057	U
Aroclor 1232	µg/g	0.12	1/Year	Grab	ND < 0.0099	U
Aroclor 1242	µg/g	0.12	1/Year	Grab	ND < 0.0041	U
Aroclor 1248	µg/g	0.12	1/Year	Grab	ND < 0.0041	U
Aroclor 1254	µg/g	0.12	1/Year	Grab	ND < 0.0041	U
Aroclor 1260	µg/g	0.12	1/Year	Grab	ND < 0.0061	U
Chlordane	µg/g	0.0033	1/Year	Grab	ND < 0.015	U
Dieldrin	µg/g	0.0002	1/Year	Grab	ND < 0.0015	U
Toxaphene	µg/g	0.0006	1/Year	Grab	ND < 0.050	U
POLLUTANTS WITHOUT LIMITS						
Bivalve Embryo Toxicity (Mytilus edulis)	% Normal/Alive	-	1/Year	Grab	100	--
Conductivity (Field)	umhos/cm	-	1/Year	Grab	1,190	*
Dissolved Oxygen (Field)	mg/L	-	1/Year	Grab	8.09	*
Percent Moisture	%	-	1/Year	Grab	19.6	*
pH (Field)	s.u.	-	1/Year	Grab	6.92	*
Sediment Toxicity (Eohaustorius estuarius)	% Survival	-	1/Year	Grab	100	--
Temperature (Field)	Deg F	-	1/Year	Grab	67.7	*
Total Ammonia	mg/kg	-	1/Year	Grab	4.86	J (DNQ)
Total Organic Carbon	mg/kg	-	1/Year	Grab	790	J (DNQ)
Water Velocity	ft/sec	-	1/Year	Meas	0.0	*
PARTICLE SIZE DISTRIBUTION						
Clay (<0.00391 mm)	%	-	1/Year	Grab	0.10	*
Coarse Sand (0.5 mm to 1 mm)	%	-	1/Year	Grab	36.16	*
Fine Sand (0.125 mm to 0.25 mm)	%	-	1/Year	Grab	0.77	*
Gravel (greater than 2mm)	%	-	1/Year	Grab	29.18	*
Medium Sand (0.25 mm to 0.5 mm)	%	-	1/Year	Grab	9.21	*
Silt (0.00391 mm to 0.0625 mm)	%	-	1/Year	Grab	0.24	*
Total Silt and Clay (0 mm to 0.0626 mm)	%	-	1/Year	Grab	0.34	*
Very Coarse Sand (1 mm to 2 mm)	%	-	1/Year	Grab	24.17	*
Very Fine Sand (0.0625 mm to 0.125 mm)	%	-	1/Year	Grab	0.16	*

APPENDIX D

**Second Quarter 2020 Summary of Permit Limit Exceedances
and/or Non-Compliance**

APPENDIX D

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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**

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

April 1 through June 30, 2020

DAILY MAXIMUM BENCHMARK EXCEEDANCES AND/OR NON-COMPLIANCE							
OUTFALL	SAMPLE DATE	SAMPLE TYPE	ANALYTE	DAILY MAXIMUM BENCHMARK LIMIT	DAILY MAX RESULT	UNITS	LABORATORY/ VALIDATION QUALIFIER
Outfall 001	04/10/2020	Comp	Iron	0.3	2.1	mg/L	--

APPENDIX E

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

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27	Outfall 009 – 440-264182-1 – April 07, 2020, MECx Data Validation Report
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29	Outfall 009 – 440-264182-2 – April 07, 2020, MECx Data Validation Report
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ANALYTICAL REPORT

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

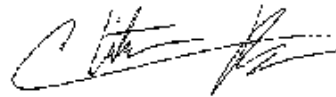
Laboratory Job ID: 440-264463-1

Client Project/Site: Quarterly Outfall 001 Grab

For:

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

Attn: Katherine Miller



Authorized for release by:
4/22/2020 12:32:23 PM

Christian Bondoc, Project Manager I
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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.

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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 12:32:23 PM



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Sample Summary

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

Job ID: 440-264463-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264463-1	Outfall001_20200409_Grab	Water	04/09/20 12:55	04/10/20 11:30	
440-264463-3	TB-20200410	Water	04/09/20 12:55	04/10/20 11:30	

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Case Narrative

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

Job ID: 440-264463-1

Job ID: 440-264463-1

Laboratory: Eurofins Calscience Irvine

Narrative

**Job Narrative
440-264463-1**

Comments

No additional comments.

Receipt

The samples were received on 4/10/2020 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

GC/MS VOA

Method 624.1: The following volatile sample was received and analyzed with significant headspace in the sample container(s): TB-20200410 (440-264463-3). 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 440-604637.

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 440-605782 and analytical batch 440-605871. 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 Results

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

Job ID: 440-264463-1

Client Sample ID: Outfall001_20200409_Grab

Lab Sample ID: 440-264463-1

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

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			04/11/20 02:15	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/11/20 02:15	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Benzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Bromomethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Chloroethane	ND		1.0	0.40	ug/L			04/11/20 02:15	1
Chloroform	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Chloromethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/11/20 02:15	1
Naphthalene	ND		1.0	0.40	ug/L			04/11/20 02:15	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Toluene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Trichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:15	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/11/20 02:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		60 - 140		04/11/20 02:15	1
Dibromofluoromethane (Surr)	95		60 - 140		04/11/20 02:15	1
Toluene-d8 (Surr)	107		60 - 140		04/11/20 02:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 09:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		60 - 140		04/13/20 09:00	1
Dibromofluoromethane (Surr)	108		60 - 140		04/13/20 09:00	1
Toluene-d8 (Surr)	103		60 - 140		04/13/20 09:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		04/21/20 06:08	04/21/20 11:20	1

Client Sample Results

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

Job ID: 440-264463-1

Client Sample ID: Outfall001_20200409_Grab

Lab Sample ID: 440-264463-1

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	130		1.0	1.0	umhos/cm			04/21/20 12:35	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			04/10/20 17:48	1

Client Sample ID: TB-20200410

Lab Sample ID: 440-264463-3

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

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			04/11/20 02:43	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/11/20 02:43	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Benzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Bromomethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Chloroethane	ND		1.0	0.40	ug/L			04/11/20 02:43	1
Chloroform	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Chloromethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/11/20 02:43	1
Naphthalene	ND		1.0	0.40	ug/L			04/11/20 02:43	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Toluene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Trichloroethene	ND		0.50	0.25	ug/L			04/11/20 02:43	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/11/20 02:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		60 - 140		04/11/20 02:43	1
Dibromofluoromethane (Surr)	95		60 - 140		04/11/20 02:43	1
Toluene-d8 (Surr)	102		60 - 140		04/11/20 02:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 09:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		60 - 140		04/13/20 09:24	1

Eurofins Calscience Irvine

Client Sample Results

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

Job ID: 440-264463-1

Client Sample ID: TB-20200410

Lab Sample ID: 440-264463-3

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Dibromofluoromethane (Surr)</i>	119		60 - 140		04/13/20 09:24	1
<i>Toluene-d8 (Surr)</i>	102		60 - 140		04/13/20 09:24	1

Method Summary

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

Job ID: 440-264463-1

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: Quarterly Outfall 001 Grab

Job ID: 440-264463-1

Client Sample ID: Outfall001_20200409_Grab

Lab Sample ID: 440-264463-1

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

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	RA	1	10 mL	10 mL	604735	04/13/20 09:00	OH1	TAL IRV
Total/NA	Analysis	624.1		1	10 mL	10 mL	604634	04/11/20 02:15	GMA	TAL IRV
Total/NA	Analysis	120.1		1			605665	04/21/20 12:35	XL	TAL IRV
Total/NA	Prep	1664A			955 mL	1000 mL	605782	04/21/20 06:08	L1A	TAL IRV
Total/NA	Analysis	1664A		1			605871	04/21/20 11:20	L1A	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	604637	04/10/20 17:48	HZ	TAL IRV

Client Sample ID: TB-20200410

Lab Sample ID: 440-264463-3

Date Collected: 04/09/20 12:55

Matrix: Water

Date Received: 04/10/20 11:30

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	RA	1	10 mL	10 mL	604735	04/13/20 09:24	OH1	TAL IRV
Total/NA	Analysis	624.1		1	10 mL	10 mL	604634	04/11/20 02:43	GMA	TAL IRV

Laboratory References:

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

QC Sample Results

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

Job ID: 440-264463-1

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

Lab Sample ID: MB 440-604634/4
Matrix: Water
Analysis Batch: 604634

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			04/10/20 18:52	1
1,1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/10/20 18:52	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Benzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Bromomethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chloroethane	ND		1.0	0.40	ug/L			04/10/20 18:52	1
Chloroform	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/10/20 18:52	1
Naphthalene	ND		1.0	0.40	ug/L			04/10/20 18:52	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Toluene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Trichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/10/20 18:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		60 - 140		04/10/20 18:52	1
Dibromofluoromethane (Surr)	96		60 - 140		04/10/20 18:52	1
Toluene-d8 (Surr)	102		60 - 140		04/10/20 18:52	1

Lab Sample ID: LCS 440-604634/1002
Matrix: Water
Analysis Batch: 604634

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	18.4		ug/L		73	69 - 151
1,1,1,2,2-Tetrachloroethane	25.0	30.3		ug/L		121	68 - 136
1,1,2-Trichloroethane	25.0	28.9		ug/L		116	75 - 136
1,1-Dichloroethane	25.0	25.2		ug/L		101	71 - 143
1,1-Dichloroethene	25.0	22.5		ug/L		90	19 - 212
1,2-Dichlorobenzene	25.0	25.9		ug/L		103	59 - 174

Eurofins Calscience Irvine

QC Sample Results

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

Job ID: 440-264463-1

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

Lab Sample ID: LCS 440-604634/1002

Matrix: Water

Analysis Batch: 604634

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	22.6		ug/L		90	72 - 137
1,2-Dichloropropane	25.0	27.1		ug/L		108	19 - 181
1,3-Dichlorobenzene	25.0	25.8		ug/L		103	75 - 144
1,4-Dichlorobenzene	25.0	25.8		ug/L		103	59 - 174
Benzene	25.0	27.5		ug/L		110	75 - 125
Bromomethane	25.0	23.0		ug/L		92	10 - 206
Carbon tetrachloride	25.0	17.9		ug/L		72	65 - 125
Chlorobenzene	25.0	25.0		ug/L		100	82 - 137
Dibromochloromethane	25.0	20.4		ug/L		82	69 - 133
Chloroethane	25.0	26.5		ug/L		106	42 - 202
Chloroform	25.0	21.1		ug/L		84	68 - 121
Chloromethane	25.0	28.2		ug/L		113	10 - 230
cis-1,2-Dichloroethene	25.0	24.2		ug/L		97	60 - 140
cis-1,3-Dichloropropene	25.0	26.9		ug/L		108	5 - 195
Bromodichloromethane	25.0	22.4		ug/L		89	50 - 140
Ethylbenzene	25.0	23.7		ug/L		95	75 - 134
Methylene Chloride	25.0	24.3		ug/L		97	10 - 205
Naphthalene	25.0	26.4		ug/L		106	60 - 140
Tetrachloroethene	25.0	22.7		ug/L		91	70 - 130
Toluene	25.0	25.9		ug/L		103	75 - 134
trans-1,2-Dichloroethene	25.0	24.6		ug/L		98	70 - 130
trans-1,3-Dichloropropene	25.0	26.8		ug/L		107	38 - 162
Trichloroethene	25.0	24.1		ug/L		96	75 - 138
Vinyl chloride	25.0	28.3		ug/L		113	10 - 218

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		60 - 140
Dibromofluoromethane (Surr)	94		60 - 140
Toluene-d8 (Surr)	102		60 - 140

Lab Sample ID: 440-264459-C-1 MS

Matrix: Water

Analysis Batch: 604634

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	7.70		ug/L		77	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	13.2		ug/L		132	46 - 157
1,1,2-Trichloroethane	ND		10.0	12.5		ug/L		125	52 - 150
1,1-Dichloroethane	ND		10.0	10.5		ug/L		105	59 - 155
1,1-Dichloroethene	ND		10.0	9.82		ug/L		98	10 - 234
1,2-Dichlorobenzene	ND		10.0	11.1		ug/L		111	18 - 190
1,2-Dichloroethane	ND		10.0	9.34		ug/L		93	49 - 155
1,2-Dichloropropane	ND		10.0	11.6		ug/L		116	10 - 210
1,3-Dichlorobenzene	ND		10.0	10.9		ug/L		109	59 - 156
1,4-Dichlorobenzene	ND		10.0	10.9		ug/L		109	18 - 190
Benzene	ND		10.0	11.7		ug/L		117	37 - 151
Bromomethane	ND		10.0	9.98		ug/L		100	10 - 242
Carbon tetrachloride	ND		10.0	7.36		ug/L		74	70 - 140

Eurofins Calscience Irvine

QC Sample Results

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

Job ID: 440-264463-1

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

Lab Sample ID: 440-264459-C-1 MS

Matrix: Water

Analysis Batch: 604634

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
Chlorobenzene	ND		10.0	10.9		ug/L		109	37 - 160
Dibromochloromethane	ND		10.0	8.39		ug/L		84	53 - 149
Chloroethane	ND		10.0	11.6		ug/L		116	14 - 230
Chloroform	ND		10.0	8.75		ug/L		88	51 - 138
Chloromethane	ND		10.0	12.1		ug/L		121	10 - 273
cis-1,2-Dichloroethene	ND		10.0	10.3		ug/L		103	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.2		ug/L		112	10 - 227
Bromodichloromethane	ND		10.0	9.29		ug/L		93	35 - 155
Ethylbenzene	ND		10.0	10.2		ug/L		102	37 - 162
Methylene Chloride	ND		10.0	10.1		ug/L		101	10 - 221
Naphthalene	ND		10.0	11.0		ug/L		110	60 - 140
Tetrachloroethene	ND		10.0	9.78		ug/L		98	64 - 148
Toluene	ND		10.0	11.3		ug/L		113	47 - 150
trans-1,2-Dichloroethene	ND		10.0	10.2		ug/L		102	54 - 156
trans-1,3-Dichloropropene	ND		10.0	10.9		ug/L		109	17 - 183
Trichloroethene	ND		10.0	10.4		ug/L		104	70 - 157
Vinyl chloride	ND		10.0	11.5		ug/L		115	10 - 251

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		60 - 140
Dibromofluoromethane (Surr)	92		60 - 140
Toluene-d8 (Surr)	105		60 - 140

Lab Sample ID: 440-264459-C-1 MSD

Matrix: Water

Analysis Batch: 604634

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	7.32		ug/L		73	52 - 162	5	36
1,1,2,2-Tetrachloroethane	ND		10.0	13.3		ug/L		133	46 - 157	1	61
1,1,2-Trichloroethane	ND		10.0	11.7		ug/L		117	52 - 150	7	45
1,1-Dichloroethane	ND		10.0	9.86		ug/L		99	59 - 155	7	40
1,1-Dichloroethene	ND		10.0	9.17		ug/L		92	10 - 234	7	32
1,2-Dichlorobenzene	ND		10.0	10.8		ug/L		108	18 - 190	3	57
1,2-Dichloroethane	ND		10.0	8.97		ug/L		90	49 - 155	4	49
1,2-Dichloropropane	ND		10.0	11.0		ug/L		110	10 - 210	5	55
1,3-Dichlorobenzene	ND		10.0	10.4		ug/L		104	59 - 156	4	43
1,4-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190	2	57
Benzene	ND		10.0	11.1		ug/L		111	37 - 151	5	61
Bromomethane	ND		10.0	9.33		ug/L		93	10 - 242	7	61
Carbon tetrachloride	ND		10.0	6.93	LN	ug/L		69	70 - 140	6	41
Chlorobenzene	ND		10.0	10.3		ug/L		103	37 - 160	5	53
Dibromochloromethane	ND		10.0	7.99		ug/L		80	53 - 149	5	50
Chloroethane	ND		10.0	10.6		ug/L		106	14 - 230	9	78
Chloroform	ND		10.0	8.22		ug/L		82	51 - 138	6	54
Chloromethane	ND		10.0	11.3		ug/L		113	10 - 273	7	60
cis-1,2-Dichloroethene	ND		10.0	9.58		ug/L		96	60 - 140	7	35
cis-1,3-Dichloropropene	ND		10.0	10.8		ug/L		108	10 - 227	3	58

Eurofins Calscience Irvine

QC Sample Results

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

Job ID: 440-264463-1

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

Lab Sample ID: 440-264459-C-1 MSD
Matrix: Water
Analysis Batch: 604634

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
Bromodichloromethane	ND		10.0	8.71		ug/L		87	35 - 155	6	56
Ethylbenzene	ND		10.0	9.84		ug/L		98	37 - 162	4	63
Methylene Chloride	ND		10.0	9.43		ug/L		94	10 - 221	7	28
Naphthalene	ND		10.0	11.3		ug/L		113	60 - 140	2	35
Tetrachloroethene	ND		10.0	9.61		ug/L		96	64 - 148	2	39
Toluene	ND		10.0	10.7		ug/L		107	47 - 150	5	41
trans-1,2-Dichloroethene	ND		10.0	9.52		ug/L		95	54 - 156	7	45
trans-1,3-Dichloropropene	ND		10.0	10.6		ug/L		106	17 - 183	3	86
Trichloroethene	ND		10.0	9.71		ug/L		97	70 - 157	7	48
Vinyl chloride	ND		10.0	11.1		ug/L		111	10 - 251	4	66

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		60 - 140
Dibromofluoromethane (Surr)	92		60 - 140
Toluene-d8 (Surr)	104		60 - 140

Lab Sample ID: MB 440-604735/4
Matrix: Water
Analysis Batch: 604735

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 08:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		60 - 140		04/13/20 08:36	1
Dibromofluoromethane (Surr)	112		60 - 140		04/13/20 08:36	1
Toluene-d8 (Surr)	116		60 - 140		04/13/20 08:36	1

Lab Sample ID: LCS 440-604735/1002
Matrix: Water
Analysis Batch: 604735

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	25.1		ug/L		100	57 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		60 - 140
Dibromofluoromethane (Surr)	104		60 - 140
Toluene-d8 (Surr)	98		60 - 140

Lab Sample ID: 440-264459-A-1 MS
Matrix: Water
Analysis Batch: 604735

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
Bromoform	ND		10.0	10.5		ug/L		105	45 - 169

QC Sample Results

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

Job ID: 440-264463-1

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

Lab Sample ID: 440-264459-A-1 MS
Matrix: Water
Analysis Batch: 604735

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

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	81		60 - 140
Dibromofluoromethane (Surr)	107		60 - 140
Toluene-d8 (Surr)	120		60 - 140

Lab Sample ID: 440-264459-A-1 MSD
Matrix: Water
Analysis Batch: 604735

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
Bromoform	ND		10.0	9.99		ug/L		100	45 - 169	5	42

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		60 - 140
Dibromofluoromethane (Surr)	105		60 - 140
Toluene-d8 (Surr)	102		60 - 140

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-605665/3
Matrix: Water
Analysis Batch: 605665

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			04/21/20 12:34	1

Lab Sample ID: LCS 440-605665/4
Matrix: Water
Analysis Batch: 605665

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	917		umhos/cm		97	90 - 110

Lab Sample ID: 440-264678-A-1 DU
Matrix: Water
Analysis Batch: 605665

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	110		110		umhos/cm		0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605782/1-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605782

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/21/20 06:08	04/21/20 11:20	1

QC Sample Results

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

Job ID: 440-264463-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 440-605782/2-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605782
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	32.3		mg/L		81	78 - 114

Lab Sample ID: LCSD 440-605782/3-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605782
%Rec.

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	34.0		mg/L		85	78 - 114	5	11



QC Association Summary

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

Job ID: 440-264463-1

GC/MS VOA

Analysis Batch: 604634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1	Outfall001_20200409_Grab	Total/NA	Water	624.1	
440-264463-3	TB-20200410	Total/NA	Water	624.1	
MB 440-604634/4	Method Blank	Total/NA	Water	624.1	
LCS 440-604634/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264459-C-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-264459-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

Analysis Batch: 604735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1 - RA	Outfall001_20200409_Grab	Total/NA	Water	624.1	
440-264463-3 - RA	TB-20200410	Total/NA	Water	624.1	
MB 440-604735/4	Method Blank	Total/NA	Water	624.1	
LCS 440-604735/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264459-A-1 MS	Matrix Spike	Total/NA	Water	624.1	
440-264459-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 604637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1	Outfall001_20200409_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 605665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1	Outfall001_20200409_Grab	Total/NA	Water	120.1	
MB 440-605665/3	Method Blank	Total/NA	Water	120.1	
LCS 440-605665/4	Lab Control Sample	Total/NA	Water	120.1	
440-264678-A-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 605782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1	Outfall001_20200409_Grab	Total/NA	Water	1664A	
MB 440-605782/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605782/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605782/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 605871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264463-1	Outfall001_20200409_Grab	Total/NA	Water	1664A	605782
MB 440-605782/1-A	Method Blank	Total/NA	Water	1664A	605782
LCS 440-605782/2-A	Lab Control Sample	Total/NA	Water	1664A	605782
LCSD 440-605782/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605782

Definitions/Glossary

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

Job ID: 440-264463-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
Project/Site: Quarterly Outfall 001 Grab

Job ID: 440-264463-1

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

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

TRAEF-98

R Q/S R R ANALYSIS REQUIRED

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2020 Quarterny Outfall 001, 002, 011, 018 Outfall 001 Grab</p>		<p>Field Readings (Include units) Time of Readings: <u>12:55</u> DO <u>8.54</u> mg/L pH <u>7.78</u> pH unit Temp <u>52.3</u> °C</p>		<p>Meter serial #</p>													
<p>Eurofins Calscience Irvine Contact Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520 288 8606, 520 904 8944 (cell)</p>		<p>Field readings QC Checked by: <i>[Signature]</i> Date/Time: <u>4-5-2020/12:55</u></p>		<p>Comments <i>4/10/20</i></p>													
<p>Sampler: Dan Smith</p>		<p>Field Manager Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Oil & Grease (E1694-HEM)</p>		<p>Conductivity (SM2510B / E120 1)</p>													
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	VOCs + 1,1,2-Trichloro-1,2,2-tetrafluoroethane (Freon 113) (E624)	Settable Solids (E160.5 (SM2540F))									
Outfall 001	Outfall001_20200410_Grab	4/10/2020 <i>12:55</i>	WM	1 L Glass Amber	2	HCl	15	No	X										
			WM	40 mL VOA	3	HCl	20	No											
			WM	1 L Poly	1	None	70	No											
			WM	500 mL Poly	1	None	75	No											
			WM	1 L Glass Amber	2	HCl	15	No											
			WM	40 mL VOA	3	HCl	20	No	H										
			WM	500 mL Poly	1	None	75	No											
Trip Blank	TB-20200410	4/10/2020 <i>12:55</i>	WMQ	40 mL VOA	2	HCl	20	No	X										



440-264463 Chain of Custody

Legend: R=Routine, Q=Quarterly, S=Semi-Annual

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>[Signature]</i>	4-10-2020/09:00	EC-FRC	<i>[Signature]</i>	4-10-20 9:00	EC-FRC
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>[Signature]</i>	4-10-20 11:30	EC-FRC	<i>[Signature]</i>	4/10/20 130	EC 12V

Turn-around time: (Check)
 24 Hour: ___ 72 Hour: ___ 10 Day: ___ X
 48 Hour: ___ 5 Day: ___ Normal
 Sample integrity: (Check)
 Intact: ___ On Ice: 0.8/0.8
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV: ___ All Level IV: ___ X



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264463-1

Login Number: 264463

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264510-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

29 May 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: 440-264510-1

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_20200410_COMP	440-264510-1	N/A	WM	4/10/20 9:30 AM	E1613B, E200.7, E200.8	II
OUTFALL001_20200410_COMP_F	440-264510-3	N/A	WM	4/10/20 9:30 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) 440-264510-1:

- The laboratories received the samples in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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- Sacramento 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 upon receipt at TA-Sacramento.
- Strikethroughs on the original COC were initialed but not dated.



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

L. Calvin of MEC^x reviewed the SDG on June 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 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,7,8-TCDF, OCDD and OCDF, and for all totals except PeCDF and TCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The result above the RL for OCDD but <10× the method blank concentration was also qualified as a nondetect (U). Totals PeCDD and TCDF in the sample matched the concentration of the qualified isomer (isomer 2,3,7,8-TCDF would have been qualified if retained) and were also qualified as nondetects (U). The result for total HxCDD (containing both qualified method blank isomers and a qualified EMPC isomer) was qualified as an estimated nondetect (UJ). The sample totals for HpCDD, HpCDF and HxCDF 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 at a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. The second-column confirmation analysis for isomer 2,3,7,8-TCDF did not confirm the initial result. As the confirmation column is more specific for the detection of 2,3,7,8-TCDF, the confirmation result was retained and the initial result rejected (R) as duplicate data. The confirmation result was subsequently qualified as an EMPC.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Total HxCDD in the sample (containing both qualified method blank isomers and a qualified EMPC isomer) was qualified as an estimated nondetect (UJ). The concentration of total TCDD in the sample matched the qualified isomer and was therefore also qualified as an estimated nondetect (UJ). Remaining totals HpCDF and HxCDF flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^x reviewed the SDG on May 29, 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_20200410_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. 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.

IV.3.2. INTERFERENCE CHECK SAMPLES:

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or $\pm 2 \times$ the reporting limit, whichever is greater. No non-spiked target analytes were present in the ICP-MS ICSA at greater than MDL; therefore, matrix interference was not suspected. Interferents in site samples were not summarized for ICP-AES analyses; therefore, interference was not evaluated for Method 200.7.

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 in this SDG (total and dissolved) for Method 200.7. Recoveries were within the QAPP control limits of 70-130% and RPDs were $\leq 20\%$. MS/MSD analyses were not performed on the samples in this SDG for Method 200.8.

IV.3.6. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.4. INTERNAL STANDARDS PERFORMANCE

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. 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.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:

IV.6.1. FIELD BLANKS AND EQUIPMENT BLANKS

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

IV.6.2. FIELD DUPLICATES

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402645101

Analysis Method E1613B

Sample Name OUTFALL001_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 9:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-264510-1

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	0.000039	0.00010	0.00000097	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00018	0.00010	0.0000014	ug/L	MB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000020	0.000051	0.00000083	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000026	0.000051	0.0000012	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000074	0.000051	0.0000010	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000070	0.000051	0.0000016	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000083	0.000051	0.00000094	ug/L	J,DXqMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000073	0.000051	0.0000018	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000063	0.000051	0.00000096	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000067	0.000051	0.0000011	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000054	0.000051	0.00000087	ug/L	J,DXqMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000064	0.000051	0.00000075	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000073	0.000051	0.00000084	ug/L	J,DXMB	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000062	0.000051	0.0000011	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000062	0.000051	0.00000071	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.0000017	0.000010	0.00000039	ug/L	J,DXMB	R	D
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.0000015	0.000010	0.0000011	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	0.0000038	0.000010	0.00000065	ug/L	J,DXq	UJ	*III
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000037	0.000051	0.00000083	ug/L	J,DXqMB	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000046	0.000051	0.0000012	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000031	0.000051	0.0000011	ug/L	J,DXqMB	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000020	0.000051	0.00000087	ug/L	J,DXqMB	UJ	B, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.000013	0.000051	0.00000071	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000073	0.000051	0.00000084	ug/L	J,DXMB	U	B
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.0000017	0.000010	0.00000039	ug/L	J,DXMB	U	B

Analysis Method E1613B

Total Tetrachlorodibenzo-p-dioxin N 41903-57-5 0.0000038 0.000010 0.00000065 ug/L J,DXq **UJ** ***III**
(TCDD)

Analysis Method E200.7

Sample Name OUTFALL001_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 9:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-264510-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	T	7439-89-6	2100	100	50	ug/L			
Zinc	T	7440-66-6	15	20	12	ug/L	J,DX	J	DNQ

Sample Name OUTFALL001_20200410_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 9:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-264510-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	D	7439-89-6	0.20	0.10	0.050	mg/L			
Zinc	D	7440-66-6	16	20	12	ug/L	J,DX	J	DNQ

Analysis Method E200.8

Sample Name OUTFALL001_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 9:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-264510-1

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	3.8	2.0	0.50	ug/L			
Lead	T	7439-92-1	1.6	1.0	0.50	ug/L			
Selenium	T	7782-49-2	ND	2.0	0.50	ug/L	U	U	

Sample Name OUTFALL001_20200410_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 9:30:00 AM **Validation Level:** 9

Lab Sample Name: 440-264510-3

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	U	
Copper	D	7440-50-8	1.8	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	1.2	2.0	0.50	ug/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: 440-264510-1

Client Project/Site: Quarterly 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:
6/18/2020 4:53:36 PM

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

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results through
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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 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.

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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
6/18/2020 4:53:36 PM



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Sample Summary

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

Job ID: 440-264510-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264510-1	Outfall001_20200410_Comp	Water	04/10/20 09:30	04/10/20 16:45	
440-264510-3	Outfall001_20200410_Comp_F	Water	04/10/20 09:30	04/10/20 16:45	

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Case Narrative

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

Job ID: 440-264510-1

Job ID: 440-264510-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264510-1

Comments

Revised to report Mn for total and dissolved.

Receipt

The samples were received on 4/10/2020 4:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.7° C, 2.6° C and 4.8° C.

GC/MS Semi VOA

Method 625.1: Surrogate Phenol-d5 recovery for the following sample was outside control limits: (440-264517-M-1-A). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Low recovery is possibly due to less than optimal extraction conditions. Data is reported with a possible low bias.

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 440-604707 and analytical batch 440-604795. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-604707/5-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 and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall001_20200410_Comp (440-264510-1), (CCV 320-373674/2), (LCS 320-372899/2-A) and (MB 320-372899/1-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_20200410_Comp_F (440-264510-3). This sample was filtered and preserved upon receipt to the laboratory.

04/11/20 by CDH/HZ
2.5mL of HNO3
HNO3 Lot # 0000234822

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.

Case Narrative

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

Job ID: 440-264510-1

Job ID: 440-264510-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

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_20200410_Comp (440-264510-1) were received in a wide-mouth amber glass bottle.

Prep Batch: 372899

Method: 1613 (Waste Water)

Matrix: Water

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.

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Client Sample Results

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

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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		04/13/20 08:58	04/15/20 11:41	1
Bis(2-ethylhexyl) phthalate	ND		5.5	2.2	ug/L		04/13/20 08:58	04/15/20 11:41	1
N-Nitrosodimethylamine	ND		5.5	0.33	ug/L		04/13/20 08:58	04/15/20 11:41	1
Pentachlorophenol	ND		5.5	1.1	ug/L		04/13/20 08:58	04/15/20 11:41	1
2,4-Dinitrotoluene	ND		5.5	2.2	ug/L		04/13/20 08:58	04/15/20 11:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	77		60 - 120	04/13/20 08:58	04/15/20 11:41	1
2-Fluorobiphenyl	72		51 - 120	04/13/20 08:58	04/15/20 11:41	1
2-Fluorophenol	83		43 - 120	04/13/20 08:58	04/15/20 11:41	1
Nitrobenzene-d5	85		53 - 150	04/13/20 08:58	04/15/20 11:41	1
Terphenyl-d14	59		12 - 142	04/13/20 08:58	04/15/20 11:41	1
Phenol-d5	70		45 - 150	04/13/20 08:58	04/15/20 11:41	1

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0053	0.0026	ug/L		04/13/20 05:29	04/14/20 14:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	54		10 - 104	04/13/20 05:29	04/14/20 14:51	1
DCB Decachlorobiphenyl (Surr)	71		18 - 134	04/13/20 05:29	04/14/20 14:51	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.0		0.50	0.25	mg/L			04/11/20 00:00	1
Nitrate as N	0.13		0.11	0.055	mg/L			04/11/20 00:00	1
Nitrite as N	ND		0.15	0.025	mg/L			04/11/20 00:00	1
Sulfate	5.9		0.50	0.25	mg/L			04/11/20 00:00	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			04/14/20 11:39	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			04/14/20 10:37	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.000038	J,DX q	0.000010	0.000006	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,7,8-PeCDD	0.000073	J,DX MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,7,8-PeCDF	0.000064	J,DX	0.000051	0.000007	ug/L		04/16/20 12:05	04/20/20 18:12	1
2,3,4,7,8-PeCDF	0.000062	J,DX	0.000051	0.000007	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,4,7,8-HxCDD	0.000083	J,DX q MB	0.000051	0.000009	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,6,7,8-HxCDD	0.000063	J,DX q	0.000051	0.000009	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,7,8,9-HxCDD	0.000054	J,DX q MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1

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Client Sample Results

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

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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	0.0000070	J,DX	0.000051	0.000016	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,6,7,8-HxCDF	0.0000073	J,DX	0.000051	0.000018	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,7,8,9-HxCDF	0.0000067	J,DX MB	0.000051	0.000011	ug/L		04/16/20 12:05	04/20/20 18:12	1
2,3,4,6,7,8-HxCDF	0.0000062	J,DX q	0.000051	0.000011	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,4,6,7,8-HpCDD	0.000026	J,DX MB	0.000051	0.000012	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,4,6,7,8-HpCDF	0.000020	J,DX MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1
1,2,3,4,7,8,9-HpCDF	0.0000074	J,DX q	0.000051	0.000010	ug/L		04/16/20 12:05	04/20/20 18:12	1
OCDD	0.00018	MB	0.00010	0.000014	ug/L		04/16/20 12:05	04/20/20 18:12	1
OCDF	0.000039	J,DX MB	0.00010	0.000009	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total TCDD	0.0000038	J,DX q	0.000010	0.000006	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total TCDF	0.0000017	J,DX MB	0.000010	0.000003	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total PeCDD	0.0000073	J,DX MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total PeCDF	0.000013	J,DX	0.000051	0.000007	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total HxCDD	0.000020	J,DX q MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total HxCDF	0.000031	J,DX q MB	0.000051	0.000011	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total HpCDD	0.000046	J,DX MB	0.000051	0.000012	ug/L		04/16/20 12:05	04/20/20 18:12	1
Total HpCDF	0.000037	J,DX q MB	0.000051	0.000008	ug/L		04/16/20 12:05	04/20/20 18:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	55		25 - 164	04/16/20 12:05	04/20/20 18:12	1
13C-2,3,7,8-TCDF	55		24 - 169	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,7,8-PeCDD	45		25 - 181	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,7,8-PeCDF	45		24 - 185	04/16/20 12:05	04/20/20 18:12	1
13C-2,3,4,7,8-PeCDF	50		21 - 178	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,4,7,8-HxCDD	50		32 - 141	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,4,7,8-HxCDF	52		26 - 152	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,6,7,8-HxCDF	50		26 - 123	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,7,8,9-HxCDF	50		29 - 147	04/16/20 12:05	04/20/20 18:12	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,4,6,7,8-HpCDF	56		28 - 143	04/16/20 12:05	04/20/20 18:12	1
13C-1,2,3,4,7,8,9-HpCDF	61		26 - 138	04/16/20 12:05	04/20/20 18:12	1
13C-OCDD	54		17 - 157	04/16/20 12:05	04/20/20 18:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	84		35 - 197	04/16/20 12:05	04/20/20 18:12	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	0.0000015	J,DX q	0.000010	0.000011	ug/L		04/16/20 12:05	04/21/20 14:23	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C-2,3,7,8-TCDF	53		24 - 169	04/16/20 12:05	04/21/20 14:23	1			

Client Sample Results

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

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197	04/16/20 12:05	04/21/20 14:23	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	15	J,DX	20	12	ug/L		04/14/20 09:31	04/14/20 15:54	1
Iron	2100		100	50	ug/L		04/14/20 09:31	04/14/20 15:54	1
Manganese	37		20	15	ug/L		04/14/20 09:31	04/14/20 15:54	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		04/16/20 09:22	04/16/20 15:51	1
Copper	3.8		2.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:51	1
Lead	1.6		1.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:51	1
Selenium	ND		2.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:51	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		04/13/20 13:07	04/13/20 17:18	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	44		0.33	0.17	mg/L			04/29/20 12:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	51		1.0	0.40	NTU			04/10/20 19:22	10
Total Dissolved Solids	110		10	5.0	mg/L			04/16/20 10:31	1
Total Suspended Solids	22		1.4	0.71	mg/L			04/16/20 12:59	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/20/20 14:49	1
Methylene Blue Active Substances	0.074	J,DX	0.10	0.050	mg/L			04/11/20 11:05	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			04/12/20 08:14	1

Client Sample ID: Outfall001_20200410_Comp_F

Lab Sample ID: 440-264510-3

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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		04/13/20 05:29	04/14/20 15:06	1
Toxaphene	ND		0.52	0.25	ug/L		04/13/20 05:29	04/14/20 15:06	1
4,4'-DDD	ND		0.0052	0.0041	ug/L		04/13/20 05:29	04/14/20 15:06	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		04/13/20 05:29	04/14/20 15:06	1
4,4'-DDT	ND		0.010	0.0041	ug/L		04/13/20 05:29	04/14/20 15:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	62		10 - 104	04/13/20 05:29	04/14/20 15:06	1

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		04/13/20 05:29	04/13/20 15:43	1

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Client Sample Results

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

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp_F

Lab Sample ID: 440-264510-3

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1221	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1
Aroclor 1232	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1
Aroclor 1242	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1
Aroclor 1248	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1
Aroclor 1254	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1
Aroclor 1260	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	107		18 - 134	04/13/20 05:29	04/13/20 15:43	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	16	J,DX	20	12	ug/L		04/13/20 14:58	04/13/20 19:25	1
Iron	0.20		0.10	0.050	mg/L		04/13/20 14:58	04/13/20 19:25	1
Manganese	ND		0.020	0.015	mg/L		04/13/20 14:58	04/13/20 19:25	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		04/13/20 15:02	04/13/20 15:39	1
Copper	1.8	J,DX	2.0	0.50	ug/L		04/13/20 15:02	04/13/20 15:39	1
Lead	ND		1.0	0.50	ug/L		04/13/20 15:02	04/13/20 15:39	1
Selenium	1.2	J,DX	2.0	0.50	ug/L		04/13/20 15:02	04/13/20 15:39	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		04/13/20 16:56	04/13/20 20:06	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	41		0.33	0.17	mg/L			04/15/20 00:02	1

Method Summary

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

Job ID: 440-264510-1

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
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 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	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

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: Quarterly Outfall 001 Comp

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			915 mL	2.0 mL	604752	04/13/20 08:58	NAM	TAL IRV
Total/NA	Analysis	625.1		1			605078	04/15/20 11:41	L1B	TAL IRV
Total/NA	Prep	608			945 mL	2 mL	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604824	04/14/20 14:51	D1D	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	604533	04/11/20 00:00	NTN	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	604534	04/11/20 00:00	NTN	TAL IRV
Total/NA	Analysis	314.0		1			604910	04/14/20 11:39	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			604940	04/14/20 10:37	TLN	TAL IRV
Total/NA	Prep	1613B			981.9 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B		1			373674	04/20/20 18:12	ALM	TAL SAC
Total/NA	Prep	1613B	RA		981.9 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B	RA	1			373924	04/21/20 14:23	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	604924	04/14/20 09:31	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605112	04/14/20 15:54	VS	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605317	04/16/20 09:22	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			605400	04/16/20 15:51	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	604651	04/13/20 13:07	DB	TAL IRV
Total/NA	Analysis	245.1		1			604855	04/13/20 17:18	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			606968	04/29/20 12:47	B1H	TAL IRV
Total/NA	Analysis	180.1		10			604643	04/10/20 19:22	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605339	04/16/20 10:31	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	700 mL	1000 mL	605370	04/16/20 12:59	XL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	605119	04/15/20 09:51	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			605374	04/16/20 13:39	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605752	04/20/20 14:49	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	604672	04/11/20 11:05	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	604686	04/12/20 08:14	KYP	TAL IRV

Client Sample ID: Outfall001_20200410_Comp_F

Lab Sample ID: 440-264510-3

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604824	04/14/20 15:06	D1D	TAL IRV
Total/NA	Prep	608			965 mL	2 mL	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604795	04/13/20 15:43	JM	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604667	04/11/20 10:07	A1S	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604811	04/13/20 14:58	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			604849	04/13/20 19:25	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604667	04/11/20 10:07	A1S	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604812	04/13/20 15:02	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604819	04/13/20 15:39	MQP	TAL IRV

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Lab Chronicle

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

Job ID: 440-264510-1

Client Sample ID: Outfall001_20200410_Comp_F

Lab Sample ID: 440-264510-3

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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	604794	04/13/20 12:41	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	604830	04/13/20 16:56	DB	TAL IRV
Dissolved	Analysis	245.1		1			604853	04/13/20 20:06	MEM	TAL IRV
Dissolved	Analysis	SM 2340B		1			603739	04/15/20 00:02	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

QC Sample Results

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

Job ID: 440-264510-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-604752/1-A
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		04/13/20 08:58	04/15/20 09:40	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		04/13/20 08:58	04/15/20 09:40	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		04/13/20 08:58	04/15/20 09:40	1
Pentachlorophenol	ND		5.0	1.0	ug/L		04/13/20 08:58	04/15/20 09:40	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		04/13/20 08:58	04/15/20 09:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		60 - 120	04/13/20 08:58	04/15/20 09:40	1
2-Fluorobiphenyl	73		51 - 120	04/13/20 08:58	04/15/20 09:40	1
2-Fluorophenol	89		43 - 120	04/13/20 08:58	04/15/20 09:40	1
Nitrobenzene-d5	85		53 - 150	04/13/20 08:58	04/15/20 09:40	1
Terphenyl-d14	116		12 - 142	04/13/20 08:58	04/15/20 09:40	1
Phenol-d5	83		45 - 150	04/13/20 08:58	04/15/20 09:40	1

Lab Sample ID: LCS 440-604752/2-A
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	15.0	12.3		ug/L		82	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	14.5		ug/L		97	29 - 137
N-Nitrosodimethylamine	15.0	13.4		ug/L		89	60 - 140
Pentachlorophenol	30.0	27.3		ug/L		91	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	88		60 - 120
2-Fluorobiphenyl	74		51 - 120
2-Fluorophenol	89		43 - 120
Nitrobenzene-d5	91		53 - 150
Terphenyl-d14	113		12 - 142
Phenol-d5	82		45 - 150

Lab Sample ID: 440-264517-I-1-A MSD
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2,4,6-Trichlorophenol	ND		16.0	13.6		ug/L		85	37 - 144	5	58
Bis(2-ethylhexyl) phthalate	ND		16.0	16.0		ug/L		100	8 - 158	3	82
N-Nitrosodimethylamine	ND		16.0	14.3		ug/L		89	60 - 140	8	35
Pentachlorophenol	ND		32.1	33.4		ug/L		104	14 - 176	5	86

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	87		60 - 120
2-Fluorobiphenyl	69		51 - 120
2-Fluorophenol	82		43 - 120
Nitrobenzene-d5	87		53 - 150

QC Sample Results

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

Job ID: 440-264510-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-264517-I-1-A MSD
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604752

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14	114		12 - 142
Phenol-d5	71		45 - 150

Lab Sample ID: 440-264517-K-1-A MS
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	ND		16.0	13.0		ug/L		81	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.0	15.4		ug/L		96	8 - 158
N-Nitrosodimethylamine	ND		16.0	13.2		ug/L		82	60 - 140
Pentachlorophenol	ND		32.1	31.7		ug/L		99	14 - 176

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	83		60 - 120
2-Fluorobiphenyl	67		51 - 120
2-Fluorophenol	81		43 - 120
Nitrobenzene-d5	85		53 - 150
Terphenyl-d14	108		12 - 142
Phenol-d5	74		45 - 150

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-604707/1-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0050	0.0025	ug/L		04/13/20 05:29	04/14/20 13:36	1
Chlordane (technical)	ND		0.10	0.080	ug/L		04/13/20 05:29	04/14/20 13:36	1
Toxaphene	ND		0.50	0.24	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/13/20 05:29	04/14/20 13:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	89		18 - 134	04/13/20 05:29	04/14/20 13:36	1
Tetrachloro-m-xylene	64		10 - 104	04/13/20 05:29	04/14/20 13:36	1

Lab Sample ID: LCS 440-604707/2-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aldrin	0.400	0.281		ug/L		70	42 - 140
alpha-BHC	0.400	0.254		ug/L		64	37 - 140
beta-BHC	0.400	0.271		ug/L		68	17 - 147
delta-BHC	0.400	0.275		ug/L		69	19 - 140

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QC Sample Results

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

Job ID: 440-264510-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 440-604707/2-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	
Dieldrin	0.400	0.293		ug/L		73	36 - 146	
Endosulfan I	0.400	0.276		ug/L		69	45 - 153	
Endosulfan II	0.400	0.292		ug/L		73	10 - 202	
Endosulfan sulfate	0.400	0.290		ug/L		73	26 - 144	
Endrin	0.400	0.272		ug/L		68	30 - 147	
Endrin aldehyde	0.400	0.276		ug/L		69	60 - 140	
gamma-BHC (Lindane)	0.400	0.274		ug/L		69	32 - 140	
Heptachlor	0.400	0.269		ug/L		67	34 - 140	
Heptachlor epoxide	0.400	0.281		ug/L		70	37 - 142	
4,4'-DDD	0.400	0.322		ug/L		80	31 - 141	
4,4'-DDE	0.400	0.298		ug/L		75	30 - 145	
4,4'-DDT	0.400	0.310		ug/L		78	25 - 160	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	96		18 - 134
Tetrachloro-m-xylene	72		10 - 104

Lab Sample ID: 440-264517-H-1-B MSD
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits			
Aldrin	ND		0.415	0.251		ug/L		61	42 - 140	4	35	
alpha-BHC	ND		0.415	0.242		ug/L		58	37 - 140	4	36	
beta-BHC	ND		0.415	0.238		ug/L		57	17 - 147	4	44	
delta-BHC	ND		0.415	0.252		ug/L		61	19 - 140	4	52	
Dieldrin	ND		0.415	0.267		ug/L		64	36 - 146	3	49	
Endosulfan I	ND		0.415	0.257		ug/L		62	45 - 153	4	28	
Endosulfan II	ND		0.415	0.263		ug/L		64	10 - 202	3	53	
Endosulfan sulfate	ND		0.415	0.275		ug/L		66	26 - 144	3	38	
Endrin	ND		0.415	0.277		ug/L		67	30 - 147	3	48	
Endrin aldehyde	ND		0.415	0.252		ug/L		61	60 - 140	3	30	
gamma-BHC (Lindane)	ND		0.415	0.252		ug/L		61	32 - 140	4	39	
Heptachlor	ND		0.415	0.264		ug/L		64	34 - 140	4	43	
Heptachlor epoxide	ND		0.415	0.263		ug/L		63	37 - 142	4	26	
4,4'-DDD	ND		0.415	0.288		ug/L		69	31 - 141	3	39	
4,4'-DDE	ND		0.415	0.257		ug/L		62	30 - 145	4	35	
4,4'-DDT	ND		0.415	0.280		ug/L		67	25 - 160	4	42	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	90		18 - 134
Tetrachloro-m-xylene	68		10 - 104

QC Sample Results

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

Job ID: 440-264510-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-264517-J-1-A MS
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604707
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Aldrin	ND		0.408	0.242		ug/L		59	42 - 140
alpha-BHC	ND		0.408	0.233		ug/L		57	37 - 140
beta-BHC	ND		0.408	0.229		ug/L		56	17 - 147
delta-BHC	ND		0.408	0.243		ug/L		59	19 - 140
Dieldrin	ND		0.408	0.258		ug/L		63	36 - 146
Endosulfan I	ND		0.408	0.247		ug/L		61	45 - 153
Endosulfan II	ND		0.408	0.254		ug/L		62	10 - 202
Endosulfan sulfate	ND		0.408	0.266		ug/L		65	26 - 144
Endrin	ND		0.408	0.270		ug/L		66	30 - 147
Endrin aldehyde	ND		0.408	0.245		ug/L		60	60 - 140
gamma-BHC (Lindane)	ND		0.408	0.243		ug/L		60	32 - 140
Heptachlor	ND		0.408	0.253		ug/L		62	34 - 140
Heptachlor epoxide	ND		0.408	0.253		ug/L		62	37 - 142
4,4'-DDD	ND		0.408	0.279		ug/L		68	31 - 141
4,4'-DDE	ND		0.408	0.248		ug/L		61	30 - 145
4,4'-DDT	ND		0.408	0.269		ug/L		66	25 - 160

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	89		18 - 134
Tetrachloro-m-xylene	67		10 - 104

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-604707/1-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1221	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1232	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1242	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1248	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1254	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1260	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	80		18 - 134	04/13/20 05:29	04/13/20 14:46	1

Lab Sample ID: LCS 440-604707/5-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor 1016	4.00	3.02		ug/L		75	50 - 140
Aroclor 1260	4.00	3.33		ug/L		83	8 - 140

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QC Sample Results

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

Job ID: 440-264510-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCS 440-604707/5-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	97		18 - 134

Lab Sample ID: LCSD 440-604707/6-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Aroclor 1016	4.00	2.96		ug/L		74	50 - 140	2		36
Aroclor 1260	4.00	3.27		ug/L		82	8 - 140	2		38

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	93		18 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604533/6
Matrix: Water
Analysis Batch: 604533

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate as N	ND		0.11	0.055	mg/L			04/10/20 10:00	1
Nitrite as N	ND		0.15	0.025	mg/L			04/10/20 10:00	1

Lab Sample ID: LCS 440-604533/5
Matrix: Water
Analysis Batch: 604533

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Nitrate as N	1.13	1.07		mg/L		95	90 - 110	
Nitrite as N	1.52	1.51		mg/L		99	90 - 110	

Lab Sample ID: 440-264517-A-1 MS
Matrix: Water
Analysis Batch: 604533

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	RPD
Nitrate as N	ND		5.65	5.34		mg/L		95	80 - 120	
Nitrite as N	ND		7.61	7.03		mg/L		92	80 - 120	

Lab Sample ID: 440-264517-A-1 MSD
Matrix: Water
Analysis Batch: 604533

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.		RPD	Limit
									Limits	RPD		
Nitrate as N	ND		5.65	5.33		mg/L		94	80 - 120	0		20
Nitrite as N	ND		7.61	7.01		mg/L		92	80 - 120	0		20

QC Sample Results

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

Job ID: 440-264510-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-604534/6
Matrix: Water
Analysis Batch: 604534

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			04/10/20 10:00	1
Sulfate	ND		0.50	0.25	mg/L			04/10/20 10:00	1

Lab Sample ID: LCS 440-604534/5
Matrix: Water
Analysis Batch: 604534

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
Sulfate	5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: 440-264517-A-1 MS
Matrix: Water
Analysis Batch: 604534

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	5.9		25.0	28.9		mg/L		92	80 - 120
Sulfate	88		25.0	115		mg/L		110	80 - 120

Lab Sample ID: 440-264517-A-1 MSD
Matrix: Water
Analysis Batch: 604534

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	5.9		25.0	28.8		mg/L		92	80 - 120	0	20
Sulfate	88		25.0	115		mg/L		110	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-604910/6
Matrix: Water
Analysis Batch: 604910

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			04/14/20 10:38	1

Lab Sample ID: LCS 440-604910/5
Matrix: Water
Analysis Batch: 604910

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	24.5		ug/L		98	85 - 115

Lab Sample ID: MRL 440-604910/4
Matrix: Water
Analysis Batch: 604910

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

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QC Sample Results

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

Job ID: 440-264510-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: MRL 440-604910/8
Matrix: Water
Analysis Batch: 604910

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	3.86	J,DX	ug/L		97	75 - 125

Lab Sample ID: 440-264510-1 MS
Matrix: Water
Analysis Batch: 604910

Client Sample ID: Outfall001_20200410_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	25.5		ug/L		102	80 - 120

Lab Sample ID: 440-264510-1 MSD
Matrix: Water
Analysis Batch: 604910

Client Sample ID: Outfall001_20200410_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	0	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDD	0.00000189	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDD	0.000000710	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDD	0.00000730	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDF	0.00000720	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000006	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDD	0.0000663	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1

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QC Sample Results

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

Job ID: 440-264510-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
OCDF	0.0000257	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDF	0.000000636	J,DX	0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDD	0.00000260	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDD	0.0000130	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDF	0.0000152	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,7,8-TCDF	72		24 - 169	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,7,8-PeCDF	72		21 - 178	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDD	70		28 - 130	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDD	72		23 - 140	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8,9-HpCDF	79		26 - 138	04/16/20 12:05	04/20/20 16:41	1
13C-OCDD	73		17 - 157	04/16/20 12:05	04/20/20 16:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	86		35 - 197	04/16/20 12:05	04/20/20 16:41	1

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	0.000200	0.000199		ug/L		99	67 - 158
2,3,7,8-TCDF	0.000200	0.000207	MB	ug/L		104	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00105	MB	ug/L		105	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00106		ug/L		106	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000992		ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000959	MB	ug/L		96	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00107		ug/L		107	76 - 134

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QC Sample Results

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

Job ID: 440-264510-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000915		ug/L		91	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00101		ug/L		101	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00103	MB	ug/L		103	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	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	0.000964		ug/L		96	78 - 138
OCDD	0.00200	0.00199	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00217	MB	ug/L		108	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	60		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	63		25 - 163
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	68		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	67		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	84		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF - RA	ND		0.000010	0.0000007	ug/L		04/16/20 12:05	04/21/20 13:45	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,7,8-TCDF - RA	67		24 - 169	04/16/20 12:05	04/21/20 13:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD - RA	85		35 - 197	04/16/20 12:05	04/21/20 13:45	1

QC Sample Results

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

Job ID: 440-264510-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-604924/1-A
Matrix: Water
Analysis Batch: 605112

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604924

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		04/14/20 09:31	04/14/20 15:49	1
Iron	ND		100	50	ug/L		04/14/20 09:31	04/14/20 15:49	1
Manganese	ND		20	15	ug/L		04/14/20 09:31	04/14/20 15:49	1

Lab Sample ID: LCS 440-604924/2-A
Matrix: Water
Analysis Batch: 605112

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	1000	1000		ug/L		100	85 - 115
Iron	1000	938		ug/L		94	85 - 115
Manganese	1000	984		ug/L		98	85 - 115

Lab Sample ID: 440-264510-1 MS
Matrix: Water
Analysis Batch: 605112

Client Sample ID: Outfall001_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604924

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	15	J,DX	1000	1010		ug/L		100	70 - 130
Iron	2100		1000	3270		ug/L		114	70 - 130
Manganese	37		1000	1020		ug/L		98	70 - 130

Lab Sample ID: 440-264510-1 MSD
Matrix: Water
Analysis Batch: 605112

Client Sample ID: Outfall001_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Zinc	15	J,DX	1000	1030		ug/L		102	70 - 130	2	20
Iron	2100		1000	3350		ug/L		122	70 - 130	2	20
Manganese	37		1000	1040		ug/L		100	70 - 130	2	20

Lab Sample ID: MB 440-604667/1-B
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		04/13/20 14:57	04/13/20 19:10	1
Iron	ND		0.10	0.050	mg/L		04/13/20 14:57	04/13/20 19:10	1
Manganese	ND		0.020	0.015	mg/L		04/13/20 14:57	04/13/20 19:10	1

Lab Sample ID: LCS 440-604667/2-B
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	494		ug/L		99	85 - 115
Iron	0.500	0.488		mg/L		98	85 - 115
Manganese	0.500	0.492		mg/L		98	85 - 115

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QC Sample Results

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

Job ID: 440-264510-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-264517-A-3-E MS
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Zinc	74		500	503		ug/L		86	70 - 130
Iron	ND		0.500	0.477		mg/L		95	70 - 130
Manganese	ND		0.500	0.477		mg/L		95	70 - 130

Lab Sample ID: 440-264517-A-3-F MSD
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Zinc	74		500	497		ug/L		85	70 - 130	1	20
Iron	ND		0.500	0.478		mg/L		96	70 - 130	0	20
Manganese	ND		0.500	0.477		mg/L		95	70 - 130	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-605317/1-A
Matrix: Water
Analysis Batch: 605400

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		04/16/20 09:22	04/16/20 15:05	1
Copper	ND		2.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:05	1
Lead	ND		1.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:05	1
Selenium	ND		2.0	0.50	ug/L		04/16/20 09:22	04/16/20 15:05	1

Lab Sample ID: LCS 440-605317/2-A
Matrix: Water
Analysis Batch: 605400

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605317

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	77.3		ug/L		97	85 - 115
Copper	80.0	77.9		ug/L		97	85 - 115
Lead	80.0	75.9		ug/L		95	85 - 115
Selenium	80.0	79.1		ug/L		99	85 - 115

Lab Sample ID: 440-264736-I-2-F MS
Matrix: Water
Analysis Batch: 605400

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605317

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	78.5		ug/L		98	70 - 130
Copper	2.7		80.0	78.1		ug/L		94	70 - 130
Lead	ND		80.0	76.9		ug/L		96	70 - 130
Selenium	ND		80.0	75.0		ug/L		94	70 - 130

QC Sample Results

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

Job ID: 440-264510-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264736-I-2-G MSD
Matrix: Water
Analysis Batch: 605400

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605317

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Cadmium	ND		80.0	83.9		ug/L		105		70 - 130	7	20
Copper	2.7		80.0	84.7		ug/L		103		70 - 130	8	20
Lead	ND		80.0	84.7		ug/L		106		70 - 130	10	20
Selenium	ND		80.0	79.0		ug/L		99		70 - 130	5	20

Lab Sample ID: MB 440-604667/1-C
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604812

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Cadmium	ND		1.0	0.25	ug/L		04/13/20 15:01	04/13/20 15:27		1
Copper	ND		2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27		1
Lead	ND		1.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27		1
Selenium	ND		2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27		1

Lab Sample ID: LCS 440-604667/2-C
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
Cadmium	80.0	71.5		ug/L		89		85 - 115
Copper	80.0	72.5		ug/L		91		85 - 115
Lead	80.0	71.8		ug/L		90		85 - 115
Selenium	80.0	70.3		ug/L		88		85 - 115

Lab Sample ID: 440-264517-A-3-H MS
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Cadmium	ND		80.0	70.0		ug/L		88		70 - 130
Copper	2.0		80.0	74.4		ug/L		91		70 - 130
Lead	ND		80.0	71.4		ug/L		89		70 - 130
Selenium	0.66	J,DX	80.0	72.2		ug/L		89		70 - 130

Lab Sample ID: 440-264517-A-3-I MSD
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Cadmium	ND		80.0	68.1		ug/L		85		70 - 130	3	20
Copper	2.0		80.0	72.1		ug/L		88		70 - 130	3	20
Lead	ND		80.0	69.9		ug/L		87		70 - 130	2	20
Selenium	0.66	J,DX	80.0	65.8		ug/L		81		70 - 130	9	20

QC Sample Results

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

Job ID: 440-264510-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604651/1-A
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/13/20 13:07	04/13/20 17:07	1

Lab Sample ID: LCS 440-604651/2-A
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.82		ug/L		95	85 - 115

Lab Sample ID: 440-264517-G-1-A MS
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604651

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.89		ug/L		97	75 - 125

Lab Sample ID: 440-264517-G-1-B MSD
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604651

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	4.01		ug/L		100	75 - 125	3	20

Lab Sample ID: MB 440-604794/1-B
Matrix: Water
Analysis Batch: 604853

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/13/20 16:56	04/13/20 19:55	1

Lab Sample ID: LCS 440-604794/2-B
Matrix: Water
Analysis Batch: 604853

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.78		ug/L		94	85 - 115

Lab Sample ID: 440-264517-B-3-E MS
Matrix: Water
Analysis Batch: 604853

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604830

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.81		ug/L		95	75 - 125

Lab Sample ID: 440-264517-B-3-F MSD
Matrix: Water
Analysis Batch: 604853

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604830

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	3.68		ug/L		92	75 - 125	3	20

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QC Sample Results

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

Job ID: 440-264510-1

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-604643/5
 Matrix: Water
 Analysis Batch: 604643

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			04/10/20 19:22	1

Lab Sample ID: 440-264517-A-1 DU
 Matrix: Water
 Analysis Batch: 604643

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.71		0.730		NTU		3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605339/1
 Matrix: Water
 Analysis Batch: 605339

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			04/16/20 10:31	1

Lab Sample ID: LCS 440-605339/2
 Matrix: Water
 Analysis Batch: 605339

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	996		mg/L		100	90 - 110

Lab Sample ID: 440-264449-A-3 DU
 Matrix: Water
 Analysis Batch: 605339

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	3000		2900		mg/L		3	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-605370/1
 Matrix: Water
 Analysis Batch: 605370

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			04/16/20 12:59	1

Lab Sample ID: LCS 440-605370/2
 Matrix: Water
 Analysis Batch: 605370

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	981		mg/L		98	85 - 115

QC Sample Results

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

Job ID: 440-264510-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 580-93979-B-1 DU
Matrix: Water
Analysis Batch: 605370

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	130		140		mg/L		4	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-605119/1-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1

Lab Sample ID: LCS 440-605119/2-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

Lab Sample ID: 440-264517-F-1-B MS
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	ND		100	69.3	LN	ug/L		69	75 - 125

Lab Sample ID: 440-264517-F-1-C MSD
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Cyanide, Total	ND		100	68.5	LN	ug/L		69	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605752/10
Matrix: Water
Analysis Batch: 605752

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			04/20/20 13:20	1

Lab Sample ID: LCS 440-605752/11
Matrix: Water
Analysis Batch: 605752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Ammonia (as N)	5.00	4.980		mg/L		100	90 - 110

QC Sample Results

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

Job ID: 440-264510-1

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: MRL 440-605752/9
Matrix: Water
Analysis Batch: 605752

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	0.1720	J,DX	mg/L	-	86	50 - 150

Lab Sample ID: 440-264517-F-1 MS
Matrix: Water
Analysis Batch: 605752

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	5.270		mg/L	-	105	90 - 110

Lab Sample ID: 440-264517-F-1 MSD
Matrix: Water
Analysis Batch: 605752

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	5.450		mg/L	-	109	90 - 110	3	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-604672/4
Matrix: Water
Analysis Batch: 604672

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	-		04/11/20 11:04	1

Lab Sample ID: LCS 440-604672/5
Matrix: Water
Analysis Batch: 604672

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	0.263		mg/L	-	105	90 - 110

Lab Sample ID: MRL 440-604672/3
Matrix: Water
Analysis Batch: 604672

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	0.122		mg/L	-	122	50 - 150

Lab Sample ID: 440-264517-B-1 MS
Matrix: Water
Analysis Batch: 604672

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	0.086	J,DX	0.250	0.349		mg/L	-	105	50 - 125

QC Sample Results

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

Job ID: 440-264510-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: 440-264517-B-1 MSD
Matrix: Water
Analysis Batch: 604672

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	0.086	J,DX	0.250	0.320		mg/L		94	50 - 125	9	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-604686/3
Matrix: Water
Analysis Batch: 604686

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			04/12/20 08:14	1

Lab Sample ID: LCS 440-604686/7
Matrix: Water
Analysis Batch: 604686

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	193		mg/L		97	85 - 115

Lab Sample ID: LCSD 440-604686/8
Matrix: Water
Analysis Batch: 604686

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	3	20

Lab Sample ID: LCSD 440-604686/9
Matrix: Water
Analysis Batch: 604686

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	5	20

Lab Sample ID: 440-264510-1 DU
Matrix: Water
Analysis Batch: 604686

Client Sample ID: Outfall001_20200410_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

QC Association Summary

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

Job ID: 440-264510-1

GC/MS Semi VOA

Prep Batch: 604752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	625	
MB 440-604752/1-A	Method Blank	Total/NA	Water	625	
LCS 440-604752/2-A	Lab Control Sample	Total/NA	Water	625	
440-264517-I-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625	
440-264517-K-1-A MS	Matrix Spike	Total/NA	Water	625	

Analysis Batch: 605078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	625.1	604752
MB 440-604752/1-A	Method Blank	Total/NA	Water	625.1	604752
LCS 440-604752/2-A	Lab Control Sample	Total/NA	Water	625.1	604752
440-264517-I-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	625.1	604752
440-264517-K-1-A MS	Matrix Spike	Total/NA	Water	625.1	604752

GC Semi VOA

Prep Batch: 604707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	608	
440-264510-3	Outfall001_20200410_Comp_F	Total/NA	Water	608	
MB 440-604707/1-A	Method Blank	Total/NA	Water	608	
LCS 440-604707/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-604707/5-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-604707/6-A	Lab Control Sample Dup	Total/NA	Water	608	
440-264517-H-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608	
440-264517-J-1-A MS	Matrix Spike	Total/NA	Water	608	

Analysis Batch: 604795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Total/NA	Water	608.3	604707
MB 440-604707/1-A	Method Blank	Total/NA	Water	608.3	604707
LCS 440-604707/5-A	Lab Control Sample	Total/NA	Water	608.3	604707
LCS 440-604707/6-A	Lab Control Sample Dup	Total/NA	Water	608.3	604707

Analysis Batch: 604824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	608.3	604707
440-264510-3	Outfall001_20200410_Comp_F	Total/NA	Water	608.3	604707
MB 440-604707/1-A	Method Blank	Total/NA	Water	608.3	604707
LCS 440-604707/2-A	Lab Control Sample	Total/NA	Water	608.3	604707
440-264517-H-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	604707
440-264517-J-1-A MS	Matrix Spike	Total/NA	Water	608.3	604707

HPLC/IC

Analysis Batch: 604533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	300.0	
MB 440-604533/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604533/5	Lab Control Sample	Total/NA	Water	300.0	
440-264517-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264517-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

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QC Association Summary

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

Job ID: 440-264510-1

HPLC/IC

Analysis Batch: 604534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	300.0	
MB 440-604534/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604534/5	Lab Control Sample	Total/NA	Water	300.0	
440-264517-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264517-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 604910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	314.0	
MB 440-604910/6	Method Blank	Total/NA	Water	314.0	
LCS 440-604910/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604910/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604910/8	Lab Control Sample	Total/NA	Water	314.0	
440-264510-1 MS	Outfall001_20200410_Comp	Total/NA	Water	314.0	
440-264510-1 MSD	Outfall001_20200410_Comp	Total/NA	Water	314.0	

Analysis Batch: 604940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 372899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	1613B	
440-264510-1 - RA	Outfall001_20200410_Comp	Total/NA	Water	1613B	
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 373674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	372899
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	372899

Analysis Batch: 373924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1 - RA	Outfall001_20200410_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	372899

Metals

Analysis Batch: 603739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	SM 2340B	

Prep Batch: 604651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	245.1	
MB 440-604651/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-604651/2-A	Lab Control Sample	Total/NA	Water	245.1	

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QC Association Summary

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

Job ID: 440-264510-1

Metals (Continued)

Prep Batch: 604651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-G-1-A MS	Matrix Spike	Total/NA	Water	245.1	
440-264517-G-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 604667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604667/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604667/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264517-A-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264517-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-264517-A-3-H MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264517-A-3-I MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 604794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604794/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264517-B-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264517-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 604811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	200.2	604667
MB 440-604667/1-B	Method Blank	Dissolved	Water	200.2	604667
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	200.2	604667
440-264517-A-3-E MS	Matrix Spike	Dissolved	Water	200.2	604667
440-264517-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	604667

Prep Batch: 604812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	200.2	604667
MB 440-604667/1-C	Method Blank	Dissolved	Water	200.2	604667
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	200.2	604667
440-264517-A-3-H MS	Matrix Spike	Dissolved	Water	200.2	604667
440-264517-A-3-I MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	604667

Analysis Batch: 604819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	200.8	604812
MB 440-604667/1-C	Method Blank	Dissolved	Water	200.8	604812
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	200.8	604812
440-264517-A-3-H MS	Matrix Spike	Dissolved	Water	200.8	604812
440-264517-A-3-I MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	604812

Prep Batch: 604830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	245.1	604794
MB 440-604794/1-B	Method Blank	Dissolved	Water	245.1	604794

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QC Association Summary

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

Job ID: 440-264510-1

Metals (Continued)

Prep Batch: 604830 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	245.1	604794
440-264517-B-3-E MS	Matrix Spike	Dissolved	Water	245.1	604794
440-264517-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	604794

Analysis Batch: 604849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	200.7 Rev 4.4	604811
MB 440-604667/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	604811
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	604811
440-264517-A-3-E MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	604811
440-264517-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	604811

Analysis Batch: 604853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-3	Outfall001_20200410_Comp_F	Dissolved	Water	245.1	604830
MB 440-604794/1-B	Method Blank	Dissolved	Water	245.1	604830
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	245.1	604830
440-264517-B-3-E MS	Matrix Spike	Dissolved	Water	245.1	604830
440-264517-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	604830

Analysis Batch: 604855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	245.1	604651
MB 440-604651/1-A	Method Blank	Total/NA	Water	245.1	604651
LCS 440-604651/2-A	Lab Control Sample	Total/NA	Water	245.1	604651
440-264517-G-1-A MS	Matrix Spike	Total/NA	Water	245.1	604651
440-264517-G-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	604651

Prep Batch: 604924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total Recoverable	Water	200.2	
MB 440-604924/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604924/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264510-1 MS	Outfall001_20200410_Comp	Total Recoverable	Water	200.2	
440-264510-1 MSD	Outfall001_20200410_Comp	Total Recoverable	Water	200.2	

Analysis Batch: 605112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604924
MB 440-604924/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	604924
LCS 440-604924/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	604924
440-264510-1 MS	Outfall001_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604924
440-264510-1 MSD	Outfall001_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604924

Prep Batch: 605317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total Recoverable	Water	200.2	
MB 440-605317/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605317/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264736-I-2-F MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264736-I-2-G MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Eurofins Calscience Irvine

QC Association Summary

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

Job ID: 440-264510-1

Metals

Analysis Batch: 605400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total Recoverable	Water	200.8	605317
MB 440-605317/1-A	Method Blank	Total Recoverable	Water	200.8	605317
LCS 440-605317/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605317
440-264736-I-2-F MS	Matrix Spike	Total Recoverable	Water	200.8	605317
440-264736-I-2-G MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	605317

Analysis Batch: 606968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 604643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	180.1	
MB 440-604643/5	Method Blank	Total/NA	Water	180.1	
440-264517-A-1 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 604672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM 5540C	
MB 440-604672/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-604672/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-604672/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-264517-B-1 MS	Matrix Spike	Total/NA	Water	SM 5540C	
440-264517-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 604686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM5210B	
USB 440-604686/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-604686/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-604686/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-604686/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-264510-1 DU	Outfall001_20200410_Comp	Total/NA	Water	SM5210B	

Prep Batch: 605119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	Distill/CN	
MB 440-605119/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 605339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM 2540C	
MB 440-605339/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605339/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264449-A-3 DU	Duplicate	Total/NA	Water	SM 2540C	

QC Association Summary

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

Job ID: 440-264510-1

General Chemistry

Analysis Batch: 605370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM 2540D	
MB 440-605370/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605370/2	Lab Control Sample	Total/NA	Water	SM 2540D	
580-93979-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 605374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM 4500 CN E	605119
MB 440-605119/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	605119
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	605119

Analysis Batch: 605752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605752/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605752/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605752/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

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

Job ID: 440-264510-1

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
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

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

Job ID: 440-264510-1

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	06-07-20
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	07-01-21
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-31-22
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-21
New Jersey	NELAP	CA005	05-03-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
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	04-16-21
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.



April 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.:	Outfall001_20200410_Comp (440-264510-1)
DATE RECEIVED:	13 April - 2020
ABC LAB. NO.:	CSE0420.079

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00%

TST RESULT

GROWTH = PASS % EFFECT = -12.55 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 28 Apr-20 14:11 (p 1 of 1)
 Test Code/ID: CSE0420.079 / 11-1590-4424

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Batch ID: 14-8642-0690	Test Type: Cell Growth	Analyst:			
Start Date: 13 Apr-20 13:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 17 Apr-20 11:30	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age:		
Sample ID: 18-6792-6786	Code: CSE0420.079	Project: Boeing-SSFL NPDES			
Sample Date: 10 Apr-20 09:30	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 13 Apr-20 12:15	CAS (PC):	Station: Outfall001_20200410_Comp			
Sample Age: 75h (1.3 °C)	Client: Eurofins Calscience				

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
14-9129-1166	Cell Density	TST-Welch's t Test	<1.0E-37	100% passed cell density	1

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
14-9129-1166	Cell Density	Control CV	0.05421	<<	0.2	Yes	Passes Criteria
14-9129-1166	Cell Density	Control Resp	1.17E+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	1.166E+6	1.113E+6	1.219E+6	1.057E+6	1.242E+6	2.235E+4	6.322E+4	5.42%	0.00%
100		8	1.312E+6	1.264E+6	1.361E+6	1.247E+6	1.407E+6	2.067E+4	5.846E+4	4.45%	-12.55%

Cell Density Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	N	1.204E+6	1.211E+6	1.122E+6	1.242E+6	1.201E+6	1.108E+6	1.184E+6	1.057E+6	
100		1.250E+6	1.249E+6	1.329E+6	1.334E+6	1.247E+6	1.407E+6	1.354E+6	1.330E+6	

CETIS Analytical Report

Report Date: 28 Apr-20 14:12 (p 1 of 2)
 Test Code/ID: CSE0420.079 / 11-1590-4424

Selenastrum Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Analysis ID: 14-9129-1166	Endpoint: Cell Density	CETIS Version: CETISv1.9.5	
Analyzed: 20 Apr-20 15:44	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1	
Batch ID: 14-8642-0690	Test Type: Cell Growth	Analyst:	
Start Date: 13 Apr-20 13:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	
Ending Date: 17 Apr-20 11:30	Species: Selenastrum capricornutum	Brine: Not Applicable	
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age:
Sample ID: 18-6792-6786	Code: CSE0420.079	Project: Boeing-SSFL NPDES	
Sample Date: 10 Apr-20 09:30	Material: Sample Water	Source: Bioassay Report	
Receipt Date: 13 Apr-20 12:15	CAS (PC):	Station: Outfall001_20200410_Comp	
Sample Age: 75h (1.3 °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*	16.46	0.6938	13	CDF	<1.0E-37	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.05421	<<	0.2	Yes	Passes Criteria
Control Resp	1.17E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8.570E+10	8.570E+10	1	23.12	2.8E-04	Significant Effect
Error	5.19E+10	3.707E+09	14			
Total	1.376E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.1232	8.862	0.7308	Equal Variances
	Mod Levene Equality of Variance Test	0.04654	8.862	0.8323	Equal Variances
	Variance Ratio F Test	1.169	8.885	0.8417	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.7367	3.878	0.0546	Normal Distribution
	D'Agostino Skewness Test	0.5578	2.576	0.5770	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2355	0.2471	0.0180	Normal Distribution
	Shapiro-Wilk W Normality Test	0.925	0.8408	0.2031	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.166E+6	1.113E+6	1.219E+6	1.192E+6	1.057E+6	1.242E+6	2.235E+4	5.42%	0.00%
100		8	1.312E+6	1.264E+6	1.361E+6	1.330E+6	1.247E+6	1.407E+6	2.067E+4	4.45%	-12.55%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.204E+6	1.211E+6	1.122E+6	1.242E+6	1.201E+6	1.108E+6	1.184E+6	1.057E+6
100		1.250E+6	1.249E+6	1.329E+6	1.334E+6	1.247E+6	1.407E+6	1.354E+6	1.330E+6

CETIS Analytical Report

Report Date: 28 Apr-20 14:12 (p 2 of 2)
Test Code/ID: CSE0420.079 / 11-1590-4424

Selenastrum Growth Test

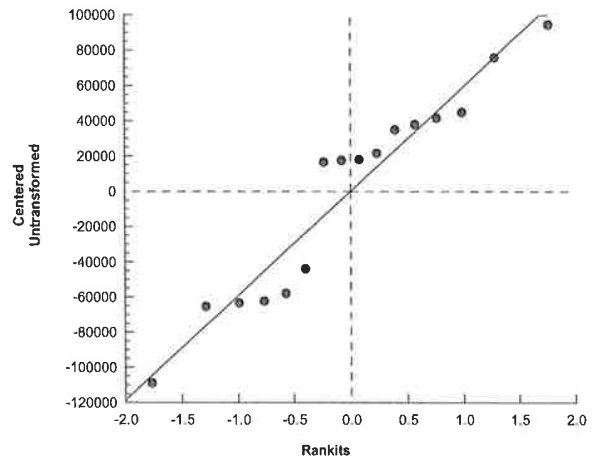
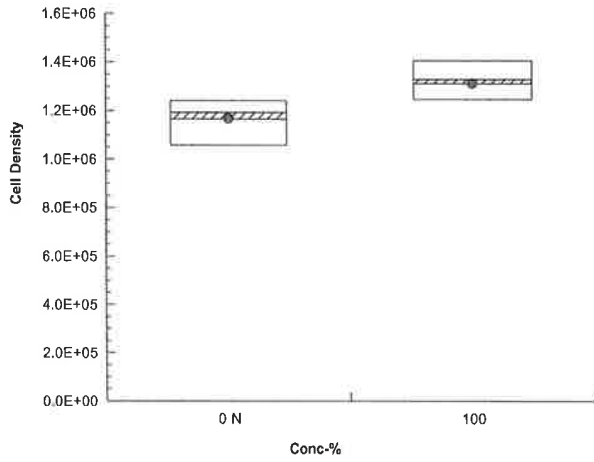
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-9129-1166
Analyzed: 20 Apr-20 15:44

Endpoint: Cell Density
Analysis: Parametric Bioequivalence-Two Sample

CETIS Version: CETISv1.9.5
Status Level: 1

Graphics



CETIS Measurement Report

Report Date: 28 Apr-20 14:11 (p 1 of 2)
 Test Code/ID: CSE0420.079 / 11-1590-4424

Selenastrum Growth Test				Aquatic Bioassay & Consulting Labs, Inc.							
Batch ID:	14-8642-0690	Test Type:	Cell Growth	Analyst:							
Start Date:	13 Apr-20 13:00	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water						
Ending Date:	17 Apr-20 11:30	Species:	Selenastrum capricornutum	Brine:	Not Applicable						
Test Length:	94h	Taxon:	Chlorophyta	Source:	Aquatic Biosystems, CO Age:						
Sample ID:	18-6792-6786	Code:	CSE0420.079	Project:	Boeing-SSFL NPDES						
Sample Date:	10 Apr-20 09:30	Material:	Sample Water	Source:	Bioassay Report						
Receipt Date:	13 Apr-20 12:15	CAS (PC):		Station:	Outfall001_20200410_Comp						
Sample Age:	75h (1.3 °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	63			63	63	0	0	0.0%	0
100		1	52			52	52	0	0	0.0%	0
Overall		2	57.5	-12.38	127.4	52	63	5.5	7.778	13.53%	0 (0%)
Conductivity-µmhos											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	447.4	422.7	472.1	429	479	8.914	19.93	4.46%	0
100		5	249.6	229.1	270.1	234	275	7.366	16.47	6.6%	0
Overall		10	348.5	272.9	424.1	234	479	33.41	105.7	30.32%	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	120			120	120	0	0	0.0%	0
100		1	48			48	48	0	0	0.0%	0
Overall		2	84	-373.4	541.4	48	120	36	50.91	60.61%	0 (0%)
pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.78	7.618	7.942	7.7	8	0.05831	0.1304	1.68%	0
100		5	7.9	7.668	8.132	7.7	8.1	0.08367	0.1871	2.37%	0
Overall		10	7.84	7.722	7.958	7.7	8.1	0.05207	0.1647	2.10%	0 (0%)
Temperature-°C											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.36	23.94	24.78	24	24.8	0.1503	0.3362	1.38%	0
100		5	24.36	23.94	24.78	24	24.8	0.1503	0.3362	1.38%	0
Overall		10	24.36	24.13	24.59	24	24.8	0.1002	0.3169	1.30%	0 (0%)

CETIS Measurement Report

Report Date: 28 Apr-20 14:11 (p 2 of 2)
 Test Code/ID: CSE0420.079 / 11-1590-4424

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				52					
Conductivity-µmhos									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		429					
100				234					
0	N	2		435					
100				238					
0	N	3		454					
100				245					
0	N	4		479					
100				256					
0	N	5		440					
100				275					
Hardness (CaCO3)-mg/L									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		120					
100				48					
pH-Units									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.8					
100				8.1					
0	N	2		7.7					
100				7.7					
0	N	3		7.7					
100				7.8					
0	N	4		7.7					
100				7.8					
0	N	5		8					
100				8.1					
Temperature-°C									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		24					
100				24					
0	N	2		24.6					
100				24.6					
0	N	3		24.3					
100				24.3					
0	N	4		24.8					
100				24.8					
0	N	5		24.1					
100				24.1					





Enclina Caltechusa (NY)

CHAIN OF CUSTODY FORM

Client Name/Address:
 Haley & Abulch
 5331 Mission Center Rd Suite 300
 San Diego, CA 92108

Enclina Caltechusa (NY) Contact: CHRYSTAL SP-030
 17481 Denton Ave Suite #100
 Irvine CA 92614
 Tel: 956-206-3210

Project Name: KERNVILLE WATER
 3-ENG-SSTL-HPDES
 Period: 2020
 Gannett Company (NY) Inc. 102, 101, 011
 C/O: 524
 Camp

Project Address: KERNVILLE WATER
 620 2881 8806 520 SCA 0844 1281
 Gannett Company (NY) Inc. 102, 101, 011
 C/O: 524
 Camp

Sample ID: D01 S01
Sample Location: [Blank]

Sample Location	Sample ID	Sample Description	Sample Matrix		# of Containers	Matrix	Bios. #	MSWD	Total Dissolved Metals (E200.7), Zn (E200.8), Cu, Pb, Cd, Se	Cyanide (SM4500-CHE (E305.2))	Gross Alpha (E200.5), Gross Beta (E900.5), Tritium (H-3) (E900.6), Sr-90 (E900.7), Total Combined Radium-226 (E900.8) or E900.11 & Radium-228 (E900.9), Uranium (E900.10, H-40, Cs-137 (E901.0) or E901.1)	Chlorine Fluoride - Selenium (EPA-621-6-02-01) ABC Labs in Ventura, CA	Total Dissolved Metals: Mercury (E249.1)	Pesticides: Chlordane, 4,4'-DDE, 4,4'-DDE, 4,4'-DDT, Dieldrin, Toxaphene + PCBs (E900)	Total Recoverable Metals (E900.7), As, Cd, Cu, Ni, Pb, Se	Total Dissolved Metals (E900.7), As, Cd, Cu, Ni, Pb, Se	Comments	
			Volume (L)	Weight (g)														
Quadrant 2, Section 1, Core J	10930		1.0	1.0	1	None	200	NS										
Quadrant 2, Section 1, Core K	10930		1.0	1.0	1	None	200	NS										

Requested By: [Signature] **Date:** 4-10-2020 **Company:** CHRYSTAL SP-030

Requested By: [Signature] **Date:** 4-13-2020 **Company:** CHRYSTAL SP-030

Signature: [Signature] **Date:** 4-10-2020 **Time:** 14:45

Signature: [Signature] **Date:** 4/13/20 **Time:** 12:15

* Chronic Toxicity hand-delivered by mailer Dominick (CHS) to ABC Labs in Ventura, CA on 4-13-2020

B19 599-0702

Eurofima Calacanda Irvine

CHAIN OF CUSTODY FORM

Client Name/Address:
 Haley & Alstich
 5553 Mission Center Rd Suite 300
 San Diego, CA 92108

Eurofima Calacanda Irvine Contact: Christian Sordeac
 17451 Country Ave Suite #100
 Irvine CA 92617
 Tel: 949 259-3216

Project Name/Manager: KCMORC MILK
 520 289 2896 520 394 2944 (Cell)
 Field Manager: Mark Dominick
 970 224 5003 818 599 0703 (Cell)

Quantity: 2500 (01, 02, 04, 08)
 Outfall: 001
 Comp:

Validation: This report is valid only if the Chain of Custody is completed and the data is signed by the analyst and the analyst's supervisor.
 If you are not the analyst, please do not sign this report.
 Signature: *Don Smith*

Sample ID	Sampling Location	Storage Method	Container Type	# of Containers	Preservative	Batch #	MS/ASP	Total Recoverable Metals (E200) (Pb, Zn, Cd, Cu, Ni, Cr, Se)	TCDD (and all congeners) (E1613B)	PCDD (2,3,7,8-TCDF) (E403) (SM5210B, SOU0040)	Surfactants (M145) (SM5500C) (25 U)	Chl, SGA, Nitro-N, Nitro-N, NOM (202-N), Perchlorate (E300)	Turbidity, TDS (SM2540C) (E100)	TSS (100) (SM2540B)	Ammonia-N (5502)	alpha-BHC (5818)	2,4,6-TCF, 2,4-Dichloroacetic Acid, ethylene glycol dimethyl ether, NDMA, POP (SM500A) (205)	Total Recoverable Metals - Mercury (E245) H	Total Recoverable Metals (E200) (Pb, Zn, Cd, Cu, Ni, Cr, Se)	Comments
01401001	01401001	10/930	1 L Glass Amber	2	H2O2	110	MS	X	X	X	X	X	X	X	X	X	X	X	X	45 hours holding time (H); MS at 100°F in 200 mL TBS
01401002	01401002	10/930	1 L Glass Amber	2	H2O2	110	MS	X	X	X	X	X	X	X	X	X	X	X	X	
01401003	01401003	10/930	1 L Glass Amber	2	H2O2	110	MS	X	X	X	X	X	X	X	X	X	X	X	X	
01401004	01401004	10/930	1 L Glass Amber	2	H2O2	110	MS	X	X	X	X	X	X	X	X	X	X	X	X	
01401005	01401005	10/930	1 L Glass Amber	2	H2O2	110	MS	X	X	X	X	X	X	X	X	X	X	X	X	

Requested by: *Don Smith*
Collected by: *Don Smith*
Released by: *Mark Dominick*
Signature: *Don Smith*
Date: 4-10-2020/14:45
Time: 4-13-2020/12:15

Chronic toxicity hand-delivered by Mark Dominick (H:A) to ABC Labs in Ventura, CA on 4-13-2020

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CHRONIC SELENASTRUM GROWTH BIOASSAY

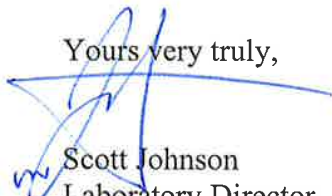
DATE: 9 April - 2020

STANDARD TOXICANT: Cadmium Chloride

NOEC = 80.00 ug/l

IC25 = 120.00 ug/l
IC50 = 164.20 ug/l

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 16 Apr-20 14:49 (p 1 of 1)
 Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-6997-9852	Test Type: Cell Growth	Analyst:
Start Date: 09 Apr-20 11:08	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Apr-20 13:00	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 2h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age:
Sample ID: 00-5873-8955	Code: SEL040920	Project: REF TOX
Sample Date: 09 Apr-20 11:08	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
04-2863-7215	Cell Density	Dunnett Multiple Comparison Test	80	140	105.8		9.8%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	TU	S
14-7680-6462	Cell Density	Linear Interpolation (ICPIN)	IC5	84.95	64.4	91.34		1
			IC10	93.72	83.68	101.3		
			IC15	102.5	92.89	111.3		
			IC20	111.3	101.5	121.2		
			IC25	120	110.1	131.4		
			IC40	146.4	133.1	156.6		
			IC50	164.2	154.1	171.1		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
04-2863-7215	Cell Density	Control CV	0.04446	<<	0.2	Yes	Passes Criteria
14-7680-6462	Cell Density	Control CV	0.04446	<<	0.2	Yes	Passes Criteria
04-2863-7215	Cell Density	Control Resp	1.17E+6	1000000	>>	Yes	Passes Criteria
14-7680-6462	Cell Density	Control Resp	1.17E+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	1.170E+6	1.087E+6	1.253E+6	1.106E+6	1.217E+6	2.600E+4	5.201E+4	4.45%	0.00%
20		4	1.226E+6	1.101E+6	1.351E+6	1.151E+6	1.333E+6	3.931E+4	7.862E+4	6.41%	-4.79%
40		4	1.364E+6	1.196E+6	1.531E+6	1.289E+6	1.519E+6	5.267E+4	1.053E+5	7.72%	-16.58%
80		4	1.226E+6	1.170E+6	1.282E+6	1.185E+6	1.266E+6	1.763E+4	3.526E+4	2.88%	-4.79%
140		4	7.972E+5	6.922E+5	9.023E+5	7.360E+5	8.700E+5	3.300E+4	6.601E+4	8.28%	31.84%
180		4	5.150E+5	4.503E+5	5.797E+5	4.570E+5	5.500E+5	2.034E+4	4.069E+4	7.90%	55.97%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.106E+6	1.149E+6	1.217E+6	1.207E+6
20		1.333E+6	1.188E+6	1.231E+6	1.151E+6
40		1.289E+6	1.519E+6	1.337E+6	1.310E+6
80		1.185E+6	1.266E+6	1.211E+6	1.241E+6
140		7.360E+5	8.700E+5	8.360E+5	7.470E+5
180		5.190E+5	5.340E+5	5.500E+5	4.570E+5

CETIS Analytical Report

Report Date: 16 Apr-20 14:49 (p 1 of 2)
 Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 04-2863-7215	Endpoint: Cell Density	CETIS Version: CETISv1.9.5				
Analyzed: 16 Apr-20 14:48	Analysis: Parametric-Control vs Treatments	Status Level: 1				
Batch ID: 20-6997-9852	Test Type: Cell Growth	Analyst:				
Start Date: 09 Apr-20 11:08	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water				
Ending Date: 13 Apr-20 13:00	Species: Selenastrum capricornutum	Brine: Not Applicable				
Test Length: 4d 2h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age:			
Sample ID: 00-5873-8955	Code: SEL040920	Project: REF TOX				
Sample Date: 09 Apr-20 11:08	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		9.80%

Dunnnett Multiple Comparison Test									
Control	vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		20	-1.175	2.407	1E+05	6	CDF	0.9894	Non-Significant Effect
		40	-4.072	2.407	1E+05	6	CDF	1.0000	Non-Significant Effect
		80	-1.175	2.407	1E+05	6	CDF	0.9894	Non-Significant Effect
		140*	7.818	2.407	1E+05	6	CDF	2.8E-05	Significant Effect
		180*	13.74	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	0.04446	<<	0.2	Yes	Passes Criteria
Control Resp	1.17E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.099E+12	4.197E+11	5	92.45	<1.0E-37	Significant Effect
Error	8.172E+10	4.54E+09	18			
Total	2.180E+12		23			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Bartlett Equality of Variance Test	4.41	15.09	0.4921	Equal Variances	
	Levene Equality of Variance Test	1.376	4.248	0.2796	Equal Variances	
	Mod Levene Equality of Variance Test	0.5037	4.248	0.7696	Equal Variances	
Distribution	Anderson-Darling A2 Normality Test	0.5313	3.878	0.1783	Normal Distribution	
	D'Agostino Kurtosis Test	0.7557	2.576	0.4498	Normal Distribution	
	D'Agostino Skewness Test	1.772	2.576	0.0763	Normal Distribution	
	D'Agostino-Pearson K2 Omnibus Test	3.712	9.21	0.1563	Normal Distribution	
	Kolmogorov-Smirnov D Test	0.1117	0.2056	0.6278	Normal Distribution	
	Shapiro-Wilk W Normality Test	0.9306	0.884	0.1004	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	1.170E+6	1.087E+6	1.253E+6	1.178E+6	1.106E+6	1.217E+6	2.600E+4	4.45%	0.00%
20		4	1.226E+6	1.101E+6	1.351E+6	1.210E+6	1.151E+6	1.333E+6	3.931E+4	6.41%	-4.79%
40		4	1.364E+6	1.196E+6	1.531E+6	1.324E+6	1.289E+6	1.519E+6	5.267E+4	7.72%	-16.58%
80		4	1.226E+6	1.170E+6	1.282E+6	1.226E+6	1.185E+6	1.266E+6	1.763E+4	2.88%	-4.79%
140		4	7.972E+5	6.922E+5	9.023E+5	7.915E+5	7.360E+5	8.700E+5	3.300E+4	8.28%	31.84%
180		4	5.150E+5	4.503E+5	5.797E+5	5.265E+5	4.570E+5	5.500E+5	2.034E+4	7.90%	55.97%

CETIS Analytical Report

Report Date: 16 Apr-20 14:49 (p 2 of 2)
 Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

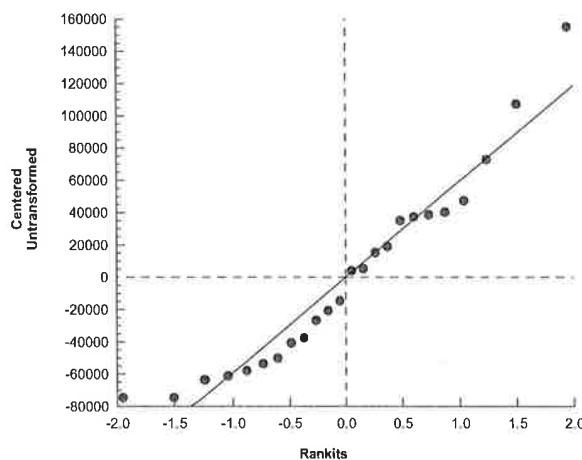
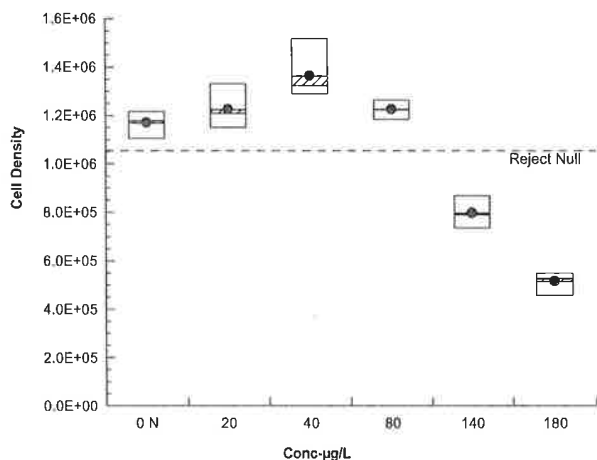
Analysis ID: 04-2863-7215 Endpoint: Cell Density
 Analyzed: 16 Apr-20 14:48 Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.9.5
 Status Level: 1

Cell Density Detail

Conc- μ g/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.106E+6	1.149E+6	1.217E+6	1.207E+6
20		1.333E+6	1.188E+6	1.231E+6	1.151E+6
40		1.289E+6	1.519E+6	1.337E+6	1.310E+6
80		1.185E+6	1.266E+6	1.211E+6	1.241E+6
140		7.360E+5	8.700E+5	8.360E+5	7.470E+5
180		5.190E+5	5.340E+5	5.500E+5	4.570E+5

Graphics



CETIS Analytical Report

Report Date: 16 Apr-20 14:49 (p 1 of 2)
 Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Analysis ID: 14-7680-6462	Endpoint: Cell Density	CETIS Version: CETISv1.9.5	
Analyzed: 16 Apr-20 14:48	Analysis: Linear Interpolation (ICPIN)	Status Level: 1	
Batch ID: 20-6997-9852	Test Type: Cell Growth	Analyst:	
Start Date: 09 Apr-20 11:08	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	
Ending Date: 13 Apr-20 13:00	Species: Selenastrum capricornutum	Brine: Not Applicable	
Test Length: 4d 2h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age:
Sample ID: 00-5873-8955	Code: SEL040920	Project: REF TOX	
Sample Date: 09 Apr-20 11:08	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	0.04446	<<	0.2	Yes	Passes Criteria
Control Resp	1.17E+6	1000000	>>	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC5	84.95	64.4	91.34
IC10	93.72	83.68	101.3
IC15	102.5	92.89	111.3
IC20	111.3	101.5	121.2
IC25	120	110.1	131.4
IC40	146.4	133.1	156.6
IC50	164.2	154.1	171.1

Cell Density Summary			Calculated Variate							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	Mean	%Effect	
0	N	4	1.170E+6	1.106E+6	1.217E+6	5.201E+4	4.45%	0.0%	1253000	0.0%	
20		4	1.226E+6	1.151E+6	1.333E+6	7.862E+4	6.41%	-4.79%	1253000	0.0%	
40		4	1.364E+6	1.289E+6	1.519E+6	1.053E+5	7.73%	-16.58%	1253000	0.0%	
80		4	1.226E+6	1.185E+6	1.266E+6	3.526E+4	2.88%	-4.79%	1226000	2.18%	
140		4	7.972E+5	7.360E+5	8.700E+5	6.601E+4	8.28%	31.84%	797200	36.38%	
180		4	5.150E+5	4.570E+5	5.500E+5	4.069E+4	7.90%	55.97%	515000	58.9%	

Cell Density Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.106E+6	1.149E+6	1.217E+6	1.207E+6
20		1.333E+6	1.188E+6	1.231E+6	1.151E+6
40		1.289E+6	1.519E+6	1.337E+6	1.310E+6
80		1.185E+6	1.266E+6	1.211E+6	1.241E+6
140		7.360E+5	8.700E+5	8.360E+5	7.470E+5
180		5.190E+5	5.340E+5	5.500E+5	4.570E+5

CETIS Analytical Report

Report Date: 16 Apr-20 14:49 (p 2 of 2)
Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test

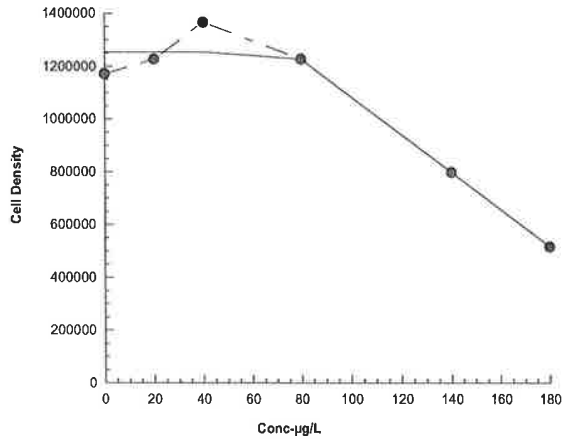
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-7680-6462
Analyzed: 16 Apr-20 14:48

Endpoint: Cell Density
Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.9.5
Status Level: 1

Graphics



CETIS Measurement Report

Report Date: 16 Apr-20 14:49 (p 1 of 4)
 Test Code/ID: SEL040920 / 11-2985-9083

Selenastrum Growth Test												Aquatic Bioassay & Consulting Labs, Inc.											
Batch ID: 20-6997-9852				Test Type: Cell Growth				Analyst:															
Start Date: 09 Apr-20 11:08				Protocol: EPA/821/R-02-013 (2002)				Diluent: Laboratory Water															
Ending Date: 13 Apr-20 13:00				Species: Selenastrum capricornutum				Brine: Not Applicable															
Test Length: 4d 2h				Taxon: Chlorophyta				Source: Aquatic Biosystems, CO				Age:											
Sample ID: 00-5873-8955				Code: SEL040920				Project: REF TOX															
Sample Date: 09 Apr-20 11:08				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	60			60	60	0	0	0.0%	0												
20		1	60			60	60	0	0	0.0%	0												
40		1	66			66	66	0	0	0.0%	0												
80		1	55			55	55	0	0	0.0%	0												
140		1	56			56	56	0	0	0.0%	0												
180		1	54			54	54	0	0	0.0%	0												
Overall		6	58.5	53.82	63.18	54	66	1.821	4.461	7.63%	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	437.2	426.7	447.7	423	445	3.774	8.438	1.93%	0												
20		5	428	412.6	443.4	413	438	5.541	12.39	2.9%	0												
40		5	412.4	408.8	416	408	416	1.288	2.881	0.7%	0												
80		5	395.8	391.8	399.8	392	400	1.428	3.194	0.81%	0												
140		5	375.8	373.4	378.2	373	378	0.8602	1.924	0.51%	0												
180		5	367.8	363.1	372.5	362	372	1.685	3.768	1.03%	0												
Overall		30	402.8	392.9	412.8	362	445	4.867	26.66	6.62%	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	115			115	115	0	0	0.0%	0												
20		1	85			85	85	0	0	0.0%	0												
40		1	105			105	105	0	0	0.0%	0												
80		1	92			92	92	0	0	0.0%	0												
140		1	96			96	96	0	0	0.0%	0												
180		1	90			90	90	0	0	0.0%	0												
Overall		6	97.17	85.61	108.7	85	115	4.498	11.02	11.34%	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	7.96	7.818	8.102	7.8	8.1	0.05099	0.114	1.43%	0												
20		5	7.98	7.684	8.276	7.7	8.3	0.1068	0.2387	2.99%	0												
40		5	8	7.737	8.263	7.8	8.3	0.09487	0.2121	2.65%	0												
80		5	8	7.824	8.176	7.8	8.2	0.06325	0.1414	1.77%	0												
140		5	8.02	7.836	8.204	7.8	8.2	0.06633	0.1483	1.85%	0												
180		5	7.98	7.776	8.184	7.8	8.2	0.07348	0.1643	2.06%	0												
Overall		30	7.99	7.93	8.05	7.7	8.3	0.0293	0.1605	2.01%	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	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
20		5	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
40		5	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
80		5	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
140		5	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
180		5	24.16	23.78	24.54	24	24.7	0.1364	0.3049	1.26%	0												
Overall		30	24.16	24.06	24.26	24	24.7	0.05065	0.2774	1.15%	0 (0%)												

CETIS Measurement Report

Report Date: 16 Apr-20 14:49 (p 2 of 4)
 Test Code/ID: SEL040920 / 11-2985-9083

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		60					
20				60					
40				66					
80				55					
140				56					
180				54					
Conductivity-µmhos									
Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		423					
20				413					
40				408					
80				394					
140				373					
180				362					
0	N	2		437					
20				416					
40				413					
80				395					
140				377					
180				368					
0	N	3		440					
20				437					
40				412					
80				392					
140				375					
180				367					
0	N	4		445					
20				438					
40				413					
80				398					
140				378					
180				372					
0	N	5		441					
20				436					
40				416					
80				400					
140				376					
180				370					
Hardness (CaCO3)-mg/L									
Conc-µg/L	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		115					
20				85					
40				105					
80				92					
140				96					
180				90					



CETIS Measurement Report

Report Date: 16 Apr-20 14:49 (p 3 of 4)
 Test Code/ID: SEL040920 / 11-2985-9083

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		7.8						
20				7.8						
40				7.8						
80				7.8						
140				7.8						
180				7.8						
0	N	2		7.9						
20				7.7						
40				7.8						
80				8						
140				8.1						
180				8.2						
0	N	3		8						
20				8.1						
40				8.1						
80				8						
140				8						
180				7.9						
0	N	4		8.1						
20				8.3						
40				8.3						
80				8.2						
140				8.2						
180				8.1						
0	N	5		8						
20				8						
40				8						
80				8						
140				8						
180				7.9						





CETIS Measurement Report

Report Date: 16 Apr-20 14:49 (p 4 of 4)
 Test Code/ID: SEL040920 / 11-2985-9083

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						
20			24							
40			24							
80			24							
140			24							
180			24							
0	N	2		24						
20			24							
40			24							
80			24							
140			24							
180			24							
0	N	3		24						
20			24							
40			24							
80			24							
140			24							
180			24							
0	N	4		24.7						
20			24.7							
40			24.7							
80			24.7							
140			24.7							
180			24.7							
0	N	5		24.1						
20			24.1							
40			24.1							
80			24.1							
140			24.1							
180			24.1							

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Analyst:  QA: 

CHAIN OF CUSTODY FORM

Client Name/Address
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108
 Eurofins Calsciencia Irvine Contact: Christian Bondoc
 17461 Darian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project
 Boeing-SSEL NPPDES
 Permit 2020
 Quarterly Outfall (001, 002, 011, 018)
 Outfall 001
 Comp

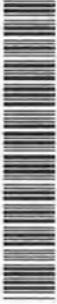
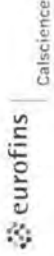
Project Manager: Kathrine Miller
 520 289 8606, 520 304 6944 (cell)
 Field Manager: Mark Dominek
 978 234 5033, 818 598 0702 (cell)

TestAmerica's services under this CCF shall be performed in accordance with the TCOs within Blanket Service Agreement 2019-22-TestAmerica by and between Haley & Aldrich, Inc. At standards and affiliates, and TestAmerica Laboratories Inc.
 Sampler: Dan Smith

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MMSD	Total Dissolved Metals (E200) Zn, Cu, Pb, Cd, Se	Cyanide (SM4500-CNE/ E395 2)	Gross Alpha(E900 0), Gross Beta(E900 0), Tritium (H-3) (E900 0), Sr-90 (E905 0), Total Combined Radium 226 (E903 0 or E903 1) & Radium 228 (E904 0), Uranium (E906 0), K40, CS-137 (E901 0 or E901 1)	Chromic Toxicity - Selenium (EPA-821-R-02-013)	Total Dissolved Metals Mercury (E245 1)	Pesticides: Chlordane, 4'-DDD, 4-DDD, 4-DDE, DDT, Dieldrin, Toxaphene + PCBs only (E908)	Comments		
Outfall 001	Outfall001_20200410_Comp_F	4/10/2020 10:30	WM	1L Poly	1	None	150	No							Chlordane, DDD, DDE, DDT, dieldrin, PCBs, toxaphene at CPO01, 002, 011, or 018 Sample received DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures		
				600 mL Poly	1	HNO ₃	80	No									
Outfall 001	Outfall001_20200410_Comp	4/10/2020 10:30	WM	1L Glass Amber	2	None	250	No				X			Unfilled and unpreserved samples. Separate RAD into another work order. Analyze duplicate, not MMSD. Only test if first or second rain events of the year.		
				boric acid vials	1	None	320	No					X				
				500 mL Poly	1	NaOH	220	No									
				2.5 Gall Cubic	1	None	225	No									
				1 L Glass Amber	1	None	230	No									

Requisitioned By: Dan Dominek
 Date/Time: 4-10-2020 11:4
 Company: EC-IRV
 Requisitioned By: Dan Dominek
 Date/Time: 4-8/4-8 2:0/2:6 1:7/1:7
 Company: EC-IRV
 Requisitioned By: Dan Dominek
 Date/Time: 4-10-2020 14:45
 Company: EC-IRV
 Turn-around time (Check): 24 Hour (), 72 Hour (), 48 Hour (), 10 Day (), Normal ()
 Sample Integrity (Check): In tact (), On Ice (),
 Store samples for 6 months (),
 Data Requirements (Check): No Level IV (), All Level IV ()
 Legend: C=Conditional, EP=Expert Panel, Re=Routine, QRSW=Quarterly Receiving Water
 2019-2020 Rainy Season
 Version 5

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Bondoc, Christian M	Carrier Tracking No(s): 440-154963.1
Client Contact: Shipping/Receiving		E-Mail: christian.bondoc@testamericainc.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California	
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605		Job #: 440-264510-1	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2SO4 E - NaHSO4 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice J - DI Water U - Acetone K - EDTA V - MCAA W - pH 4.5 L - EDA Z - other (specify) Other:	
Project Name: Boeing NPDES SSFL outfalls		Analysis Requested:	
Site: 44009879		Total Number of Containers	
SSOW#:		1613B/1613B_Sox_Sep_P Standard List w/Totals	
Due Date Requested: 4/22/2020		Field Filtered Sample (Yes or No)	
TAT Requested (days):		Perform MS/MSD (Yes or No)	
PO #:		X	
WO #:		X	
Sample Date		Sample Time	
4/10/20		09:30 Pacific	
Sample Type (C=Comp, G=grab)		Matrix (W=Water, S=solid, O=onwater, BT=Issue, A=Air)	
Preservation Code:		Water	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:	
Outfall001_20200410_Comp (440-264510-1)		See OAS, Boeing .wlu to zero, ug/L, Use Boeing glassware.	
<p>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/test/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.</p>			
<p>Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p>			
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>			
<p>Special Instructions/QC Requirements:</p>			
Empty Kit, Relinquished by:		Method of Shipment:	
Date/Time: 4/3/20 1700		Date/Time: 04/14/20 9:30	
Relinquished by:		Received by:	
Date/Time:		Date/Time:	
Relinquished by:		Received by:	
Date/Time:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 1.10C	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264510-1

Login Number: 264510

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264510-1

Login Number: 264510

List Number: 2

Creator: Nuval, Mark-Anthony M

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/14/20 02:03 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.	N/A	
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	1.1C
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: Quarterly Outfall 001 Comp

Job ID: 440-264510-1

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)
440-264510-1	Outfall001_20200410_Comp	55	55	45	45	50	50	51	52
440-264510-1 - RA	Outfall001_20200410_Comp		53						
MB 320-372899/1-A	Method Blank	76	72	65	64	72	70	70	72
MB 320-372899/1-A - RA	Method Blank		67						

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)
440-264510-1	Outfall001_20200410_Comp	50	50	50	56	56	61	54
440-264510-1 - RA	Outfall001_20200410_Comp							
MB 320-372899/1-A	Method Blank	69	68	67	72	72	79	73
MB 320-372899/1-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 320-372899/2-A	Lab Control Sample	69	64	59	60	64	62	63	64

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 320-372899/2-A	Lab Control Sample	61	63	63	68	66	75	67

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: Quarterly Outfall 001 Comp

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

Job ID: 440-264510-1

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440-264510 Field Sheet

Job: _____

Tracking #: 1540 4107 8033

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:

Cooler ID:

Temp Observed: 1.1 °C Corrected: 1.1 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PK Date: 04/14/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: MAN Date: 04/14/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WZOC

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264510-2

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

5 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.:** 1272.003H.01**Sample Delivery Group:** 440-264510-2**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
OUTFALL001_20200410_COMP	440-264510-1	N/A	WM	4/10/20 9:30 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A-01-R
OUTFALL001_20200410_COMP	440-264510-2	N/A	WM	4/10/20 9:30 AM	RADIUM



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) 440-264510-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- The sample containers were received improperly preserved at TA-SL. The appropriate containers were preserved to $\text{pH} \leq 2$ upon receipt.
- Field and laboratory personnel signed and dated the COCs with the following exception. The COC for TA-SL was not signed and dated for receipt.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.
- Strikethroughs on the original (TA-Irv) COC were initialed but not dated.



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

M. Hilchey of MEC^X reviewed the SDG on June 5, 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 A-01-R*, 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 were less than 20%; therefore, the results for gross alpha was qualified as estimated with low potential bias (UJ). All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits.

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 gross alpha and gross beta. RERs met laboratory control limits.

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

Matrix spike and matrix spike duplicate (MS/MSD) analyses were performed on the sample from this SDG for gross alpha, gross beta, radium-226, radium-228 and strontium-90. Recoveries and RERs were within the laboratory control limits. MS/MSD analyses were not performed on the sample in this SDG for the remaining methods.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. Reported nondetects are valid to the MDC. The sample was prepared at a reduced aliquot due to matrix issues for Methods 903.0, 904.0 and 905.

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: 4402645102

Analysis Method E900

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	0.935	0.827	3.00	1.24	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	1.54	0.630	4.00	0.816	pCi/L		J+	B

Analysis Method E901.1

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	-2.27	15.2	20.0	15.4	pCi/L	U	U	
Potassium-40	13966-00-2	8.98	159	222	222	pCi/L	U	U	

Analysis Method E903.0

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.173	0.136	1.00	0.197	pCi/L	U	U	

Analysis Method E904.0

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.0276	0.408	1.00	0.735	pCi/L	U	U	

Analysis Method E905.0

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	-0.163	0.393	3.00	0.725	pCi/L	U	U	

Analysis Method E906.0

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	-40.1	149	500	273	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.250	0.250	1.00	0.297	pCi/L	U	U	

Analysis Method RADIUM

Sample Name Outfall001_20200410_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 9:30:00 AM Validation Level: 9

Lab Sample Name: 440-264510-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.735	0.429			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: 440-264510-2

Client Project/Site: Quarterly Outfall 001 Comp

For:

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

Attn: Katherine Miller



Authorized for release by:
5/12/2020 4:25:42 PM

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

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results through
TotalAccess

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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.

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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
5/12/2020 4:25:42 PM



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Sample Summary

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

Job ID: 440-264510-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264510-1	Outfall001_20200410_Comp	Water	04/10/20 09:30	04/10/20 16:45	

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Case Narrative

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

Job ID: 440-264510-2

Job ID: 440-264510-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264510-2

Receipt

The samples were received on 4/10/2020 4:45 PM; the samples arrived in good condition, properly preserved, and where required, on ice. The temperatures of the 3 coolers at receipt time were 1.7°C, 2.6°C and 4.8°C

Department Alpha Spectroscopy

Method A01R_U: Uranium Prep Batch 160-468046:

The following samples have matrix observations: Outfall001_20200410_Comp (440-264510-1). 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

Method A01R_U: 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.

Outfall001_20200410_Comp (440-264510-1), (LCS 160-468046/2-A), (MB 160-468046/1-A), (440-263721-S-1-J), (440-263721-M-1-I MS) and (440-263721-M-1-J MSD)

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

Department Gamma Spectroscopy

Method 901.1_Cs: Gamma Prep Batch 160-468154

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

Case Narrative

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

Job ID: 440-264510-2

Job ID: 440-264510-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Ac-227

Th-227 Bi-211

Th-227 Pb-211

Bi-214 Ra-226

Outfall001_20200410_Comp (440-264510-1), (LCS 160-468154/2-A), (MB 160-468154/1-A), (440-264517-R-1-F) and (440-264517-R-1-G DU

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

Department Gas Flow Proportional Counter

Method 900.0: Gross Alpha/Beta <PrepAnalyticalBatch>

The following samples had additional volume added to reach target mass and efficiency <CommaMerge>. The total sample volume is reflected in the initial amount field

Method 900.0: Gross Alpha/Beta Prep Batch 160-468961

The matrix spike duplicate recovery (MSD, 57%) was outside the lower control limit (60%). Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limit

Method 900.0: Gross Alpha/Beta Prep Batch 160-468961

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_20200410_Comp (440-264510-1), (LCS 160-468961/2-A), (LCSB 160-468961/3-A), (MB 160-468961/1-A), (440-264517-R-1-I), (440-264517-R-1-N DU), (440-264517-R-1-J MS), (440-264517-R-1-L MSBT), (440-264517-R-1-M MSBTD) and (440-264517-R-1-K MS

Method 903.0: Radium 226 Prep Batch 160-467982:

The following samples were prepared at a reduced aliquot due to yellow discoloration: Outfall001_20200410_Comp (440-264510-

Method 903.0: Radium-226 Prep Batch 160-467982

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_20200410_Comp (440-264510-1), (LCS 160-467982/1-A), (MB 160-467982/23-A), (440-264517-R-1-A), (440-264517-M-1-B MS) and (440-264517-M-1-C MSD

Method 904.0: Radium 228 Prep Batch 160-468070:

The following samples were prepared at a reduced aliquot due to yellow discoloration: Outfall001_20200410_Comp (440-264510-

Method 904.0: Radium-228 Prep Batch 160-468070

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_20200410_Comp (440-264510-1), (LCS 160-468070/1-A), (MB 160-468070/23-A), (440-264517-R-1-E), (440-264517-M-1-F MS) and (440-264517-M-1-G MSD

Case Narrative

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

Job ID: 440-264510-2

Job ID: 440-264510-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Method 905_Sr90: Strontium 90 Prep Batch 160-468677:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall001_20200410_Comp (440-264510-1). Samples 440-264370-1, 440-264510-1, 440-264517-1, 440-264517-1 MS, 440-264517-1 MSD, 440-264634-1, and 440-264783-1 all have a yellow discoloration. Sample 310-179946-1 has brown discoloration and heavy sediment

Method 905_Sr90: Sr-90 Prep Batch 160-468677

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_20200410_Comp (440-264510-1), (LCS 160-468677/1-A), (MB 160-468677/22-A), (440-264517-R-1-H), (440-264517-M-1-H MS) and (440-264517-M-1-I MS)

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

Department Liquid Scintillation Counter

Method 906.0: LSC Tritium Prep Batch 160-468476

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_20200410_Comp (440-264510-1), (LCS 160-468476/2-A), (MB 160-468476/1-A), (160-37864-A-1-A), (160-37864-A-1-B DU), (440-264162-L-1-A), (440-264162-L-1-B MS) and (440-264162-K-1-T MSD)

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: Quarterly Outfall 001 Comp

Job ID: 440-264510-2

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.935	U	0.820	0.827	3.00	1.24	pCi/L	04/27/20 07:57	05/01/20 11:49	1
Gross Beta	1.54		0.611	0.630	4.00	0.816	pCi/L	04/27/20 07:57	05/01/20 11:49	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-2.27	U	15.2	15.2	20.0	15.4	pCi/L	04/19/20 14:22	04/21/20 08:33	1
Potassium-40	8.98	U	159	159		222	pCi/L	04/19/20 14:22	04/21/20 08:33	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.173	U	0.135	0.136	1.00	0.197	pCi/L	04/16/20 13:59	05/12/20 06:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	59.8		40 - 110					04/16/20 13:59	05/12/20 06:30	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.0276	U	0.408	0.408	1.00	0.735	pCi/L	04/19/20 16:36	04/30/20 07:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	59.8		40 - 110					04/19/20 16:36	04/30/20 07:45	1
Y Carrier	94.6		40 - 110					04/19/20 16:36	04/30/20 07:45	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.163	U	0.393	0.393	3.00	0.725	pCi/L	04/23/20 09:24	05/06/20 09:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	81.0		40 - 110					04/23/20 09:24	05/06/20 09:27	1
Y Carrier	93.5		40 - 110					04/23/20 09:24	05/06/20 09:27	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-40.1	U	149	149	500	273	pCi/L	04/22/20 04:26	04/22/20 21:52	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.250	U	0.249	0.250	1.00	0.297	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

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

Job ID: 440-264510-2

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	62.5		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

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

Job ID: 440-264510-2

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: Quarterly Outfall 001 Comp

Job ID: 440-264510-2

Client Sample ID: Outfall001_20200410_Comp

Lab Sample ID: 440-264510-1

Date Collected: 04/10/20 09:30

Matrix: Water

Date Received: 04/10/20 16:45

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 mL	1.0 g	468961	04/27/20 07:57	RJD	TAL SL
Total/NA	Analysis	900.0		1			469304	05/01/20 11:49	AJD	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	468154	04/19/20 14:22	MLG	TAL SL
Total/NA	Analysis	901.1		1			468184	04/21/20 08:33	KLS	TAL SL
Total/NA	Prep	PrecSep-21			749.78 mL	1.0 g	467982	04/16/20 13:59	RBR	TAL SL
Total/NA	Analysis	903.0		1			470197	05/12/20 06:30	KLS	TAL SL
Total/NA	Prep	PrecSep_0			749.78 mL	1.0 g	468070	04/19/20 16:36	MNH	TAL SL
Total/NA	Analysis	904.0		1			469237	04/30/20 07:45	KRR	TAL SL
Total/NA	Prep	PrecSep-7			500.36 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469750	05/06/20 09:27	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.2 mL	1.0 g	468476	04/22/20 04:26	NMN	TAL SL
Total/NA	Analysis	906.0		1			468623	04/22/20 21:52	JS	TAL SL
Total/NA	Prep	ExtChrom			249.74 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468772	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

QC Sample Results

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

Job ID: 440-264510-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-468961/1-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468961

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.03693	U	0.429	0.429	3.00	0.907	pCi/L	04/27/20 07:57	05/01/20 11:47	1
Gross Beta	-0.2609	U	0.442	0.443	4.00	0.850	pCi/L	04/27/20 07:57	05/01/20 11:47	1

Lab Sample ID: LCS 160-468961/2-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	39.96		6.22	3.00	1.69	pCi/L	81	75 - 125

Lab Sample ID: LCSB 160-468961/3-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	76.62		8.19	4.00	0.852	pCi/L	91	75 - 125

Lab Sample ID: 440-264517-R-1-J MS
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	0.775	U	49.4	31.18		5.42	3.00	2.19	pCi/L	62	60 - 140

Lab Sample ID: 440-264517-R-1-K MSD
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER Limit
						Uncert. (2σ+/-)					Limits	0.19	1
Gross Alpha	0.775	U	49.5	29.21	F1	5.12	3.00	2.13	pCi/L	57	60 - 140	0.19	1

Lab Sample ID: 440-264517-R-1-L MSBT
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	1.95		84.1	80.47		8.58	4.00	0.892	pCi/L	93	60 - 140

QC Sample Results

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

Job ID: 440-264510-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-264517-R-1-M MSBTD
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample	Sample	Spike Added	MSBTD	MSBTD	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					Limits		Limit
Gross Beta	1.95		84.2	85.21		9.05	4.00	0.965	pCi/L	99	60 - 140	0.27	1

Lab Sample ID: 440-264517-R-1-N DU
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual		Result	Qual					Uncert. (2σ+/-)
Gross Alpha	0.775	U	-0.3564	U	1.20	3.00	2.47	pCi/L		0.47
Gross Beta	1.95		2.274		0.719	4.00	0.853	pCi/L		0.22

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-468154/1-A
Matrix: Water
Analysis Batch: 468184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468154

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier		Uncert. (2σ+/-)						
Cesium-137	9.865	U	9.03	9.08	20.0	10.3	pCi/L	04/19/20 14:22	04/21/20 07:26	1
Potassium-40	-10.82	U	156	156		222	pCi/L	04/19/20 14:22	04/21/20 07:26	1

Lab Sample ID: LCS 160-468154/2-A
Matrix: Water
Analysis Batch: 468186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.
		Result	Qual	Uncert. (2σ+/-)					Limits
Americium-241	136000	126300		14600		415	pCi/L	93	90 - 111
Cesium-137	43700	43710		4380	20.0	106	pCi/L	100	90 - 111
Cobalt-60	26200	25510		2530		64.4	pCi/L	97	89 - 110

Lab Sample ID: 440-264517-R-1-G DU
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual		Result	Qual					Uncert. (2σ+/-)
Cesium-137	2.76	U	2.790	U	5.70	20.0	7.42	pCi/L		0
Potassium-40	16.6	U	-35.24	U	119		175	pCi/L		0.26

QC Sample Results

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

Job ID: 440-264510-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467982/23-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467982

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05167	U	0.0787	0.0788	1.00	0.135	pCi/L	04/16/20 13:59	05/12/20 06:30	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					04/16/20 13:59	05/12/20 06:30	1

Lab Sample ID: LCS 160-467982/1-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.36		1.07	1.00	0.101	pCi/L	91	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.0		40 - 110						

Lab Sample ID: 440-264517-M-1-B MS
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
						Uncert. (2σ+/-)					
Radium-226	0.136		15.1	14.73		1.53	1.00	0.124	pCi/L	96	75 - 138
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	82.3		40 - 110								

Lab Sample ID: 440-264517-M-1-C MSD
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
						Uncert. (2σ+/-)							
Radium-226	0.136		15.1	14.06		1.45	1.00	0.101	pCi/L	92	75 - 138	0.22	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	95.4		40 - 110										

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-468070/23-A
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468070

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.3732		0.242	0.244	1.00	0.372	pCi/L	04/19/20 16:36	04/30/20 07:45	1

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QC Sample Results

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

Job ID: 440-264510-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	87.2		40 - 110	04/19/20 16:36	04/30/20 07:45	1
Y Carrier	91.2		40 - 110	04/19/20 16:36	04/30/20 07:45	1

Lab Sample ID: LCS 160-468070/1-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Ba Carrier	97.0		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-264517-M-1-F MS
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	MS MS		Limits
	%Yield	Qualifier	
Ba Carrier	82.3		40 - 110
Y Carrier	92.0		40 - 110

Lab Sample ID: 440-264517-M-1-G MSD
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Ba Carrier	95.4		40 - 110
Y Carrier	85.6		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1

QC Sample Results

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

Job ID: 440-264510-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Sr Carrier	93.4		40 - 110	04/23/20 09:24	05/06/20 09:25	1
Y Carrier	92.0		40 - 110	04/23/20 09:24	05/06/20 09:25	1

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Sr Carrier	91.7		40 - 110
Y Carrier	85.6		40 - 110

Lab Sample ID: 440-264517-M-1-H MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	MS MS		Limits
	%Yield	Qualifier	
Sr Carrier	88.8		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-264517-M-1-I MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Sr Carrier	87.6		40 - 110
Y Carrier	92.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-468476/1-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468476

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

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QC Sample Results

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

Job ID: 440-264510-2

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-468476/2-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	2470	2384		380	500	277	pCi/L	96	75 - 114

Lab Sample ID: 440-264162-K-1-T MSD
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	14.9	U	2460	2655		404	500	276	pCi/L	107	67 - 130	0.74	1

Lab Sample ID: 440-264162-L-1-B MS
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	14.9	U	2470	2096		353	500	277	pCi/L	84	67 - 130

Lab Sample ID: 160-37864-A-1-B DU
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	66.7	U	77.93	U	156	500	261	pCi/L	0.04	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

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QC Sample Results

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

Job ID: 440-264510-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

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

<i>Tracer</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	81.2		30 - 110

Lab Sample ID: 440-263721-M-1-I MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468046

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	
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	

<i>Tracer</i>	<i>MS MS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	65.3		30 - 110

Lab Sample ID: 440-263721-M-1-J MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468046

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec. Limits</i>		<i>RER</i>	<i>Limit</i>
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	

<i>Tracer</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	65.1		30 - 110

QC Association Summary

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

Job ID: 440-264510-2

Rad

Prep Batch: 467982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	PrecSep-21	
MB 160-467982/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467982/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264517-M-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-264517-M-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_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-M-1-I MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263721-M-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 468070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	PrecSep_0	
MB 160-468070/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-468070/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264517-M-1-F MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-264517-M-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 468154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-468154/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-468154/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264517-R-1-G DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-468476/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-468476/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264162-K-1-T MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
440-264162-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-37864-A-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-M-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264517-M-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 468961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264510-1	Outfall001_20200410_Comp	Total/NA	Water	Evaporation	
MB 160-468961/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-468961/2-A	Lab Control Sample	Total/NA	Water	Evaporation	

Eurofins Calscience Irvine

QC Association Summary

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

Job ID: 440-264510-2

Rad (Continued)

Prep Batch: 468961 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSB 160-468961/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264517-R-1-J MS	Matrix Spike	Total/NA	Water	Evaporation	
440-264517-R-1-K MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-264517-R-1-L MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-264517-R-1-M MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
440-264517-R-1-N DU	Duplicate	Total/NA	Water	Evaporation	

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Definitions/Glossary

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

Job ID: 440-264510-2

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control 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)
MQL	Method Quantitation Limit
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: Quarterly Outfall 001 Comp

Job ID: 440-264510-2

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
Alaska (UST)	State	20-001	05-06-22
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

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5933 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2020 Quarterly Outfall 001, 002, 011, 018 Outfall 001 Comp		ANALYSIS REQUIRED												Comments						
Eurofins Calceance Irvine Contact: Christian Bondoc 17461 Derran 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)		Total Recoverable Metals (E200 & E207) Zn (E200 & Cu, Pb, Cd, Se)	TCDD (and all congeners) (E1639)	BCDS (20 degrees C) (E405 1 (SM5210B, BODcalc))	Surfactants (MBS) (SM540C/E425 1)	Ch. SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (100 2 (SM2540D))	Armonia-N (350 2)	alpha-BHC (E608)	2,4,6-TCP, 2,4-Dinitrochlore Benz-ethylhexylphthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)								
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	M/MSMD	Total Recoverable Metals (E200 & E207) Zn (E200 & Cu, Pb, Cd, Se)	TCDD (and all congeners) (E1639)	BCDS (20 degrees C) (E405 1 (SM5210B, BODcalc))	Surfactants (MBS) (SM540C/E425 1)	Ch. SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (100 2 (SM2540D))	Armonia-N (350 2)	alpha-BHC (E608)	2,4,6-TCP, 2,4-Dinitrochlore Benz-ethylhexylphthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals Mercury (E245 1)	48 hours Holding Time NO3 & NO2	48 hours Holding Time for Turbidity	
Outfall 001	Outfall001_20200410_Comp	4/10/2020 10:30	WM	500 mL Poly	1	HNO3	90	No	X	X	X	X	X	X	X	X	X	X	X			
			WM	1L Glass Amber	2	None	110	No														
			WM	1L Poly	1	None	115	No														
			WM	500 mL Poly	2	None	120	No														
			WM	500 mL Poly	2	None	130	No														
			WM	500 mL Poly	1	None	150	No														
			WM	500 mL Poly	1	H2SO4	180	No														
			WM	1L Glass Amber	2	None	170	No														
			WM	1L Glass Amber	2	None	180	No														
			WM	1L Poly	1	None	185	No														
			WM	1L Glass Amber	2	None	110	No														
			WM	500 mL Poly	2	None	120	No														
			WM	500 mL Poly	2	None	130	No														
			WM	1L Glass Amber	2	None	170	No														
			WM	1L Glass Amber	2	None	180	No														



440-264510 Chain of Custody

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Relinquished By: Mark Dominick Date/Time: 4-10-20 16:45 Company: EC-ILLU

Received By: EC-ILLU Date/Time: 4-10-20 14:45 Company: EC-ILLU

Relinquished By: [Signature] Date/Time: 4-10-20 16:45 Company: EC-ILLU

Received By: [Signature] Date/Time: 4/10/20 1045 Company: EC-ILLU

Legend: C=Conditional, EP=Expert Panel, Re-Routine
 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 Date Requirements (Check) No Level IV ___ All Level IV ___ X

Chain of Custody Record



Calscience



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Bondoc, Christian M	Bondoc, Christian M		440-154958-1
Shipping/Receiving		Phone:	E-Mail:	State of Origin:	Page:
Company:		christian.bondoc@testamericainc.com	christian.bondoc@testamericainc.com	California	Page 1 of 1
TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #:	
Address:		State Program - California		440-264510-1	
13715 Rider Trail North,		Due Date Requested:		Preservation Codes:	
City:		4/22/2020		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - EDA Z - other (specify)	
Earth City		TAT Requested (days):		Other:	
State, Zip:		PO #:			
MO, 63045		WO #:			
Phone:		Project #:			
314-298-8566(Tel) 314-298-8757(Fax)		44009879			
Email:		SSOW#:			
Project Name:		Sample Date		Sample Time	
Boeing NPDES SSFL outfalls		4/10/20		09:30 Pacific	
Site:		Sample Type (C=Comp, G=grab)		Matrix (Water, Sewage, Solid, Onwastefoil, BT-Tissue, Air/Air)	
				Water	
		Sample Date		Preservation Code:	
		Sample Date		Field Filtered Sample (Yes or No)	
				X	
		Sample Date		Perform MS/MSD (Yes or No)	
				X	
		Sample Date		A01R_U/E/Chrom_Actin Total Uranium	
				X	
		Sample Date		901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	
				X	
		Sample Date		900.0/Evaporation Gross Alpha/Beta	
				X	
		Sample Date		903.0/PreSep_21 Radium-226	
				X	
		Sample Date		904.0/PreSep_0 Radium-228	
				X	
		Sample Date		905.5/90/PreSep_7 Strontium-90	
				X	
		Sample Date		906.0/LSC_Dist_Susp Tritium	
				X	
		Sample Date		Total Number of Containers	
				2	
		Sample Date		Special Instructions/Note:	
				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 our 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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: A. Kennedy Date/Time: 4/13/20 1700 Company: EC-IRV 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: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____



CONDITION UPON RECEIPT FORM

Client: ETA Irvine

Initiated by: LAM Date: 4/14/2020 Time: 09:19 Shipper: FedEx Package Quantity: 5

**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 7910	192152620	0.1	
2.	1540 4107 7909	192152631	0.7	
3.	1540 4107 7920	181311317	0.5	
4.	1540 4107 7894	181311325	0.2	
5.	1540 4107 7931	181311317	0.3	
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	<input type="radio"/> Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>HC904495</u>
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	<input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> 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:

Containers were rec'd improperly preserved.

pH Adjustment (if needed)

Date/Time of Preservation: 4/14/2020 16:30

Initial pH and pH strip lot#: HC904495

Preservative and lot#: HNO₃ / 244827

Final pH and pH strip lot#: HC904495

Amount of Preservative: 6mL

Sample Labels Applied By: DK

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: 440-264510-2

Login Number: 264510

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264510-2

Login Number: 264510

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/14/20 07:38 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: Quarterly Outfall 001 Comp

Job ID: 440-264510-2

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)	
440-264510-1	Outfall001_20200410_Comp	59.8	
440-264517-M-1-B MS	Matrix Spike	82.3	
440-264517-M-1-C MSD	Matrix Spike Duplicate	95.4	
LCS 160-467982/1-A	Lab Control Sample	97.0	
MB 160-467982/23-A	Method Blank	87.2	
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)
440-264510-1	Outfall001_20200410_Comp	59.8	94.6
440-264517-M-1-F MS	Matrix Spike	82.3	92.0
440-264517-M-1-G MSD	Matrix Spike Duplicate	95.4	85.6
LCS 160-468070/1-A	Lab Control Sample	97.0	93.5
MB 160-468070/23-A	Method Blank	87.2	91.2
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)
440-264510-1	Outfall001_20200410_Comp	81.0	93.5
440-264517-M-1-H MS	Matrix Spike	88.8	90.8
440-264517-M-1-I MSD	Matrix Spike Duplicate	87.6	92.7
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6
MB 160-468677/22-A	Method Blank	93.4	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	uranium-235 (30-110)	
440-263721-M-1-I MS	Matrix Spike	65.3	
440-263721-M-1-J MSD	Matrix Spike Duplicate	65.1	
440-264510-1	Outfall001_20200410_Comp	62.5	
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: Quarterly Outfall 001 Comp

Job ID: 440-264510-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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440-264510 Field Sheet

Job: _____

Tracking #: 1540 4107 8033

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:

Cooler ID:

Temp Observed: 1.1 °C Corrected: 1.1 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PK Date: 04/14/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: MAN Date: 04/14/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WZOC

ANALYTICAL REPORT

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

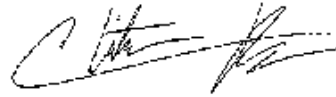
Laboratory Job ID: 440-264082-1

Client Project/Site: Quarterly Outfall 002 Grab

For:

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

Attn: Katherine Miller



Authorized for release by:
4/17/2020 9:26:31 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.

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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 9:26:31 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264082-1	Outfall002_20200406_Grab	Water	04/06/20 07:20	04/06/20 14:40	
440-264082-3	TB-20200406	Water	04/06/20 07:20	04/06/20 14:40	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Job ID: 440-264082-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264082-1

Comments

No additional comments.

Receipt

The samples were received on 4/6/2020 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° 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 440-604027.

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 440-604371 and analytical batch 440-604415. 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 Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Client Sample ID: Outfall002_20200406_Grab

Lab Sample ID: 440-264082-1

Date Collected: 04/06/20 07:20

Matrix: Water

Date Received: 04/06/20 14:40

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			04/07/20 08:34	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/07/20 08:34	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Benzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Bromoform	ND		1.0	0.40	ug/L			04/07/20 08:34	1
Bromomethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Chloroethane	ND		1.0	0.40	ug/L			04/07/20 08:34	1
Chloroform	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Chloromethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
cis-1,2-Dichloroethene	0.36	J,DX	0.50	0.25	ug/L			04/07/20 08:34	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/07/20 08:34	1
Naphthalene	ND		1.0	0.40	ug/L			04/07/20 08:34	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Toluene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Trichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:34	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/07/20 08:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		60 - 140		04/07/20 08:34	1
Dibromofluoromethane (Surr)	105		60 - 140		04/07/20 08:34	1
Toluene-d8 (Surr)	105		60 - 140		04/07/20 08:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.4	mg/L		04/09/20 09:52	04/09/20 13:03	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	660		1.0	1.0	umhos/cm			04/16/20 14:51	1
Settleable Solids	0.10		0.10	0.10	mL/L/Hr			04/07/20 13:12	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Client Sample ID: TB-20200406

Lab Sample ID: 440-264082-3

Date Collected: 04/06/20 07:20

Matrix: Water

Date Received: 04/06/20 14:40

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			04/07/20 09:58	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/07/20 09:58	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Benzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Bromoform	ND		1.0	0.40	ug/L			04/07/20 09:58	1
Bromomethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Chloroethane	ND		1.0	0.40	ug/L			04/07/20 09:58	1
Chloroform	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Chloromethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/07/20 09:58	1
Naphthalene	ND		1.0	0.40	ug/L			04/07/20 09:58	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Toluene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Trichloroethene	ND		0.50	0.25	ug/L			04/07/20 09:58	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/07/20 09:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		60 - 140		04/07/20 09:58	1
Dibromofluoromethane (Surr)	102		60 - 140		04/07/20 09:58	1
Toluene-d8 (Surr)	104		60 - 140		04/07/20 09:58	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Client Sample ID: Outfall002_20200406_Grab

Lab Sample ID: 440-264082-1

Date Collected: 04/06/20 07:20

Matrix: Water

Date Received: 04/06/20 14:40

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	603948	04/07/20 08:34	TCN	TAL IRV
Total/NA	Analysis	120.1		1			605382	04/16/20 14:51	XL	TAL IRV
Total/NA	Prep	1664A			970 mL	1000 mL	604371	04/09/20 09:52	JC1	TAL IRV
Total/NA	Analysis	1664A		1			604415	04/09/20 13:03	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	604027	04/07/20 13:12	ST	TAL IRV

Client Sample ID: TB-20200406

Lab Sample ID: 440-264082-3

Date Collected: 04/06/20 07:20

Matrix: Water

Date Received: 04/06/20 14:40

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	603948	04/07/20 09:58	TCN	TAL IRV

Laboratory References:

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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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

Lab Sample ID: MB 440-603948/4
Matrix: Water
Analysis Batch: 603948

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			04/07/20 08:06	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/07/20 08:06	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Benzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Bromoform	ND		1.0	0.40	ug/L			04/07/20 08:06	1
Bromomethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Chloroethane	ND		1.0	0.40	ug/L			04/07/20 08:06	1
Chloroform	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Chloromethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/07/20 08:06	1
Naphthalene	ND		1.0	0.40	ug/L			04/07/20 08:06	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Toluene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Trichloroethene	ND		0.50	0.25	ug/L			04/07/20 08:06	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/07/20 08:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140		04/07/20 08:06	1
Dibromofluoromethane (Surr)	105		60 - 140		04/07/20 08:06	1
Toluene-d8 (Surr)	104		60 - 140		04/07/20 08:06	1

Lab Sample ID: LCS 440-603948/1002
Matrix: Water
Analysis Batch: 603948

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	27.3		ug/L		109	69 - 151
1,1,2,2-Tetrachloroethane	25.0	26.2		ug/L		105	68 - 136
1,1,2-Trichloroethane	25.0	25.0		ug/L		100	75 - 136
1,1-Dichloroethane	25.0	25.6		ug/L		102	71 - 143
1,1-Dichloroethene	25.0	26.3		ug/L		105	19 - 212

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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

Lab Sample ID: LCS 440-603948/1002

Matrix: Water

Analysis Batch: 603948

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	25.0	23.8		ug/L		95	59 - 174
1,2-Dichloroethane	25.0	25.1		ug/L		101	72 - 137
1,2-Dichloropropane	25.0	25.9		ug/L		104	19 - 181
1,3-Dichlorobenzene	25.0	23.9		ug/L		96	75 - 144
1,4-Dichlorobenzene	25.0	23.5		ug/L		94	59 - 174
Benzene	25.0	24.3		ug/L		97	75 - 125
Bromoform	25.0	23.6		ug/L		94	57 - 156
Bromomethane	25.0	29.9		ug/L		120	10 - 206
Carbon tetrachloride	25.0	28.6		ug/L		114	65 - 125
Chlorobenzene	25.0	22.5		ug/L		90	82 - 137
Dibromochloromethane	25.0	26.0		ug/L		104	69 - 133
Chloroethane	25.0	27.0		ug/L		108	42 - 202
Chloroform	25.0	25.4		ug/L		102	68 - 121
Chloromethane	25.0	33.9		ug/L		135	10 - 230
cis-1,2-Dichloroethene	25.0	25.2		ug/L		101	60 - 140
cis-1,3-Dichloropropene	25.0	25.3		ug/L		101	5 - 195
Bromodichloromethane	25.0	25.8		ug/L		103	50 - 140
Ethylbenzene	25.0	23.2		ug/L		93	75 - 134
Methylene Chloride	25.0	24.3		ug/L		97	10 - 205
Naphthalene	25.0	26.1		ug/L		105	60 - 140
Tetrachloroethene	25.0	26.7		ug/L		107	70 - 130
Toluene	25.0	22.7		ug/L		91	75 - 134
trans-1,2-Dichloroethene	25.0	24.9		ug/L		100	70 - 130
trans-1,3-Dichloropropene	25.0	25.4		ug/L		102	38 - 162
Trichloroethene	25.0	24.0		ug/L		96	75 - 138
Vinyl chloride	25.0	35.7		ug/L		143	10 - 218

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		60 - 140
Dibromofluoromethane (Surr)	106		60 - 140
Toluene-d8 (Surr)	99		60 - 140

Lab Sample ID: 440-264082-1 MS

Matrix: Water

Analysis Batch: 603948

Client Sample ID: Outfall002_20200406_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	10.6		ug/L		106	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	10.9		ug/L		109	46 - 157
1,1,2-Trichloroethane	ND		10.0	10.3		ug/L		103	52 - 150
1,1-Dichloroethane	ND		10.0	10.1		ug/L		101	59 - 155
1,1-Dichloroethene	ND		10.0	10.2		ug/L		102	10 - 234
1,2-Dichlorobenzene	ND		10.0	10.0		ug/L		100	18 - 190
1,2-Dichloroethane	ND		10.0	9.79		ug/L		98	49 - 155
1,2-Dichloropropane	ND		10.0	10.5		ug/L		105	10 - 210
1,3-Dichlorobenzene	ND		10.0	9.83		ug/L		98	59 - 156
1,4-Dichlorobenzene	ND		10.0	9.79		ug/L		98	18 - 190
Benzene	ND		10.0	10.1		ug/L		101	37 - 151

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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

Lab Sample ID: 440-264082-1 MS

Client Sample ID: Outfall002_20200406_Grab

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 603948

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	ND		10.0	9.07		ug/L		91	45 - 169
Bromomethane	ND		10.0	11.5		ug/L		115	10 - 242
Carbon tetrachloride	ND		10.0	10.7		ug/L		107	70 - 140
Chlorobenzene	ND		10.0	9.51		ug/L		95	37 - 160
Dibromochloromethane	ND		10.0	9.79		ug/L		98	53 - 149
Chloroethane	ND		10.0	11.0		ug/L		110	14 - 230
Chloroform	ND		10.0	10.3		ug/L		103	51 - 138
Chloromethane	ND		10.0	13.4		ug/L		134	10 - 273
cis-1,2-Dichloroethene	0.36	J,DX	10.0	10.7		ug/L		103	60 - 140
cis-1,3-Dichloropropene	ND		10.0	10.1		ug/L		101	10 - 227
Bromodichloromethane	ND		10.0	10.6		ug/L		106	35 - 155
Ethylbenzene	ND		10.0	9.72		ug/L		97	37 - 162
Methylene Chloride	ND		10.0	9.47		ug/L		95	10 - 221
Naphthalene	ND		10.0	10.3		ug/L		103	60 - 140
Tetrachloroethene	ND		10.0	11.2		ug/L		112	64 - 148
Toluene	ND		10.0	9.59		ug/L		96	47 - 150
trans-1,2-Dichloroethene	ND		10.0	9.65		ug/L		97	54 - 156
trans-1,3-Dichloropropene	ND		10.0	10.1		ug/L		101	17 - 183
Trichloroethene	ND		10.0	9.90		ug/L		99	70 - 157
Vinyl chloride	ND		10.0	12.0		ug/L		120	10 - 251

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		60 - 140
Dibromofluoromethane (Surr)	104		60 - 140
Toluene-d8 (Surr)	99		60 - 140

Lab Sample ID: 440-264082-1 MSD

Client Sample ID: Outfall002_20200406_Grab

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 603948

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	10.9		ug/L		109	52 - 162	2	36
1,1,2,2-Tetrachloroethane	ND		10.0	11.7		ug/L		117	46 - 157	7	61
1,1,2-Trichloroethane	ND		10.0	10.8		ug/L		108	52 - 150	4	45
1,1-Dichloroethane	ND		10.0	10.4		ug/L		104	59 - 155	3	40
1,1-Dichloroethene	ND		10.0	10.8		ug/L		108	10 - 234	5	32
1,2-Dichlorobenzene	ND		10.0	10.5		ug/L		105	18 - 190	5	57
1,2-Dichloroethane	ND		10.0	10.2		ug/L		102	49 - 155	4	49
1,2-Dichloropropane	ND		10.0	10.7		ug/L		107	10 - 210	2	55
1,3-Dichlorobenzene	ND		10.0	10.4		ug/L		104	59 - 156	6	43
1,4-Dichlorobenzene	ND		10.0	10.2		ug/L		102	18 - 190	4	57
Benzene	ND		10.0	10.5		ug/L		105	37 - 151	3	61
Bromoform	ND		10.0	9.76		ug/L		98	45 - 169	7	42
Bromomethane	ND		10.0	11.2		ug/L		112	10 - 242	3	61
Carbon tetrachloride	ND		10.0	10.9		ug/L		109	70 - 140	2	41
Chlorobenzene	ND		10.0	9.98		ug/L		100	37 - 160	5	53
Dibromochloromethane	ND		10.0	10.6		ug/L		106	53 - 149	8	50
Chloroethane	ND		10.0	11.2		ug/L		112	14 - 230	3	78

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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

Lab Sample ID: 440-264082-1 MSD
Matrix: Water
Analysis Batch: 603948

Client Sample ID: Outfall002_20200406_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroform	ND		10.0	10.7		ug/L		107	51 - 138	3	54
Chloromethane	ND		10.0	12.4		ug/L		124	10 - 273	8	60
cis-1,2-Dichloroethene	0.36	J,DX	10.0	11.0		ug/L		106	60 - 140	3	35
cis-1,3-Dichloropropene	ND		10.0	10.7		ug/L		107	10 - 227	5	58
Bromodichloromethane	ND		10.0	11.0		ug/L		110	35 - 155	4	56
Ethylbenzene	ND		10.0	10.4		ug/L		104	37 - 162	6	63
Methylene Chloride	ND		10.0	9.95		ug/L		100	10 - 221	5	28
Naphthalene	ND		10.0	11.7		ug/L		117	60 - 140	13	35
Tetrachloroethene	ND		10.0	11.7		ug/L		117	64 - 148	5	39
Toluene	ND		10.0	10.2		ug/L		102	47 - 150	6	41
trans-1,2-Dichloroethene	ND		10.0	10.2		ug/L		102	54 - 156	6	45
trans-1,3-Dichloropropene	ND		10.0	11.0		ug/L		110	17 - 183	8	86
Trichloroethene	ND		10.0	10.1		ug/L		101	70 - 157	2	48
Vinyl chloride	ND		10.0	12.3		ug/L		123	10 - 251	3	66

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		60 - 140
Dibromofluoromethane (Surr)	103		60 - 140
Toluene-d8 (Surr)	101		60 - 140

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-605382/3
Matrix: Water
Analysis Batch: 605382

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			04/16/20 14:51	1

Lab Sample ID: LCS 440-605382/4
Matrix: Water
Analysis Batch: 605382

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: 440-264336-A-1 DU
Matrix: Water
Analysis Batch: 605382

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	2900		2920		umhos/cm		0	5

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-604371/1-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/09/20 09:52	04/09/20 13:03	1

Lab Sample ID: LCS 440-604371/2-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	34.8		mg/L		87	78 - 114

Lab Sample ID: LCSD 440-604371/3-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604371

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	33.8		mg/L		84	78 - 114	3	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

GC/MS VOA

Analysis Batch: 603948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264082-1	Outfall002_20200406_Grab	Total/NA	Water	624.1	
440-264082-3	TB-20200406	Total/NA	Water	624.1	
MB 440-603948/4	Method Blank	Total/NA	Water	624.1	
LCS 440-603948/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264082-1 MS	Outfall002_20200406_Grab	Total/NA	Water	624.1	
440-264082-1 MSD	Outfall002_20200406_Grab	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 604027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264082-1	Outfall002_20200406_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 604371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264082-1	Outfall002_20200406_Grab	Total/NA	Water	1664A	
MB 440-604371/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-604371/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-604371/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 604415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264082-1	Outfall002_20200406_Grab	Total/NA	Water	1664A	604371
MB 440-604371/1-A	Method Blank	Total/NA	Water	1664A	604371
LCS 440-604371/2-A	Lab Control Sample	Total/NA	Water	1664A	604371
LCSD 440-604371/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	604371

Analysis Batch: 605382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264082-1	Outfall002_20200406_Grab	Total/NA	Water	120.1	
MB 440-605382/3	Method Blank	Total/NA	Water	120.1	
LCS 440-605382/4	Lab Control Sample	Total/NA	Water	120.1	
440-264336-A-1 DU	Duplicate	Total/NA	Water	120.1	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

Qualifiers

GC/MS 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.
α	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: Quarterly Outfall 002 Grab

Job ID: 440-264082-1

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

CHAIN OF CUSTODY FORM

Page 2 of 7
ms

TRAFLET 9B

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Dorian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2020 Quarterly Outfall (001, 002, 011, 018) Outfall 002 Grab		Field Readings (Include units) Time of Readings: 0720 DO: 15.46 mg/L pH: 7.58 Temp: 52.6 °C		Meter serial # Field readings QC by: <i>[Signature]</i> Checked Date/Time: 4/6/2020/0720							
Project Manager: Katherine Miller 520.289.8606, 520.904.8944 (cell)		Project Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		ANALYSIS REQUIRED VOCs + Freon 113 (E824) Setttable Solids (E1605 (SM2540F)) Conductivity (SM2510B / E120.1)		Comments							
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Oil & Grease (E1664A-HEM)	VOCs + Freon 113 (E824)	Settleable Solids (E1605 (SM2540F))	Conductivity (SM2510B / E120.1)	Field Readings
Outfall 002	Outfall002_20200406_Grab	4/6/2020 0720	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	9	HCl	20	Yes		X			
			WM	1 L Poly	1	None	70	No			X		
			WM	500 mL Poly	1	None	75	No				X	
			WM	1 L Glass Amber	2	HCl	15	No	H				
	Outfall002_20200406_Grab_Extra	4/6/2020 0720	WM	40 mL VOA	3	HCl	20	No	H				
			WM	500 mL Poly	1	None	75	No					
	Trip Blank TB-20200406	4/6/2020 0720	WC	40 mL VOA	2	HCl	20	No	X				



440-264082 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>William Rivera</i>	Date/Time 4/6/2020/1115	Company M.A	Received By <i>William Rivera</i>	Date/Time 4/6/20/1115	Company	Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour _____ 5 Day _____ Normal _____
Relinquished By <i>William Rivera</i>	Date/Time 4/6/20/1440	Company EC-IRV	Received By <i>William Rivera</i>	Date/Time 4/6/20/1440	Company	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

6-6/0-8; 1-0/1-0; 0.8/0.8; #89
00 4/16/20



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264082-1

Login Number: 264082

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264162-1

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

28 May 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: 440-264162-1

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
OUTFALL002_20200407_COMP	440-264162-1	N	WM	4/7/20 8:15 AM	E1613B, E200.7, E200.8	II
OUTFALL002_20200407_COMP_F	440-264162-3	N	WM	4/7/20 8:15 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) 440-264162-1:

- The laboratories received the samples in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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-Sacramento 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 upon receipt at TA-Sacramento.
- Strikethroughs on the COC were initialed but not dated.



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

L. Calvin of MEC^X reviewed the SDG on June 3, 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-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 qualified isomers of totals HpCDF and HxCDD matched the total concentrations; therefore, the totals were also qualified as nondetects (U). Totals HpCDD and HxCDF 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 at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. 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 at 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.

Isomers and total results previously qualified as method blank contamination were not further qualified as EMPCs. Total HxCDF flagged by the laboratory as including one or more EMPC peaks was qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^x reviewed the SDG on May 27, 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_20200407_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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 (total or dissolved) or calibration blanks.

IV.3.2. INTERFERENCE CHECK SAMPLES:

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or $\pm 2\times$ the reporting limit, whichever is greater. No non-spiked target analytes were present in the ICSAs at greater than MDL; 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 the sample (total and dissolved) in this SDG for both methods. Recoveries were within the QAPP control limits of 70-130%. RPDs were $\leq 20\%$.

IV.3.6. **SERIAL DILUTION**

Serial dilution analyses were not performed.

IV.4. **INTERNAL STANDARDS PERFORMANCE**

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. **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.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:

IV.6.1. **FIELD BLANKS AND EQUIPMENT BLANKS**

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

IV.6.2. **FIELD DUPLICATES**

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402641621

Analysis Method E1613B

Sample Name OUTFALL002_20200407_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/7/2020 8:15:00 AM **Validation Level:** 9

Lab Sample Name: 440-264162-1

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	0.00011	0.0000016	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000011	0.00011	0.0000014	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000020	0.000053	0.0000011	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000023	0.000053	0.00000040	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	ND	0.000053	0.0000012	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000016	0.000053	0.00000057	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000034	0.000053	0.0000010	ug/L	J,DXMBq	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000015	0.000053	0.00000059	ug/L	J,DXMBq	U	B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000053	0.0000011	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000022	0.000053	0.00000051	ug/L	J,DXMBq	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000027	0.000053	0.00000098	ug/L	J,DXMBq	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000053	0.00000093	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000053	0.0000013	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000017	0.000053	0.00000051	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000053	0.00000099	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000046	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.0000019	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000020	0.000053	0.0000011	ug/L	J,DXMBq	U	B
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000043	0.000053	0.00000040	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000070	0.000053	0.00000051	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000061	0.000053	0.00000098	ug/L	J,DXMBq	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000053	0.00000093	ug/L	U	U	
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000053	0.0000013	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000046	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.0000019	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	T	7439-89-6	66	100	50	ug/L	J,DX	J	DNQ
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL002_20200407_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-3

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	U	
Zinc	D	7440-66-6	ND	20	12	ug/L	U	U	

Analysis Method E200.8

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

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	1.1	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_20200407_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-3

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	U	
Copper	D	7440-50-8	1.0	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	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: 440-264162-1

Client Project/Site: Quarterly Outfall 002 Comp

For:

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

Attn: Katherine Miller



Authorized for release by:
4/24/2020 4:57:49 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.

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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
4/24/2020 4:57:49 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264162-1	Outfall002_20200407_Comp	Water	04/07/20 08:15	04/07/20 14:30	
440-264162-3	Outfall002_20200407_Comp_F	Water	04/07/20 08:15	04/07/20 14:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Job ID: 440-264162-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264162-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2020 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.7° C, 0.8° C, 0.8° C, 0.8° C, 2.2° C and 2.4° 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 440-604144 and analytical batch 440-604246. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-604144/8-A)

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

Dioxin

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_20200407_Comp_F (440-264162-3), Outfall002_20200407_Comp_F (440-264162-3[MS]) and Outfall002_20200407_Comp_F (440-264162-3[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

04/07/20

2.5mL of HNO3

HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for analytical batch 440-604342 contained Magnesium 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.

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: Samples Outfall002_20200407_Comp (440-264162-1) were provided in wide-mouth amber glass bottles.

preparation batch 320-371493

Method: 1613B_Sox_Sep_P / 1613B

Matrix: Aqueous

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Job ID: 440-264162-1 (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.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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		04/08/20 08:22	04/10/20 09:30	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.2	ug/L		04/08/20 08:22	04/10/20 09:30	1
N-Nitrosodimethylamine	ND		5.4	0.32	ug/L		04/08/20 08:22	04/10/20 09:30	1
Pentachlorophenol	ND		5.4	1.1	ug/L		04/08/20 08:22	04/10/20 09:30	1
2,4-Dinitrotoluene	ND		5.4	2.2	ug/L		04/08/20 08:22	04/10/20 09:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		60 - 120	04/08/20 08:22	04/10/20 09:30	1
2-Fluorobiphenyl	80		51 - 120	04/08/20 08:22	04/10/20 09:30	1
2-Fluorophenol	86		43 - 120	04/08/20 08:22	04/10/20 09:30	1
Nitrobenzene-d5	89		53 - 150	04/08/20 08:22	04/10/20 09:30	1
Terphenyl-d14	82		12 - 142	04/08/20 08:22	04/10/20 09:30	1
Phenol-d5	79		45 - 150	04/08/20 08:22	04/10/20 09:30	1

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0051	0.0026	ug/L		04/08/20 07:20	04/08/20 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	56		10 - 104	04/08/20 07:20	04/08/20 14:49	1
DCB Decachlorobiphenyl (Surr)	76		18 - 134	04/08/20 07:20	04/08/20 14:49	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28		10	5.0	mg/L			04/08/20 15:59	20
Nitrate as N	ND		0.11	0.055	mg/L			04/08/20 15:40	1
Nitrite as N	ND		0.15	0.025	mg/L			04/08/20 15:40	1
Sulfate	170		10	5.0	mg/L			04/08/20 15:59	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			04/08/20 11:49	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			04/09/20 10:24	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	0.0000019	ug/L		04/10/20 07:33	04/10/20 21:08	1
2,3,7,8-TCDF	ND		0.000011	0.0000004	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,7,8-PeCDD	ND		0.000053	0.0000013	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,7,8-PeCDF	ND		0.000053	0.0000009	ug/L		04/10/20 07:33	04/10/20 21:08	1
2,3,4,7,8-PeCDF	ND		0.000053	0.0000009	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,4,7,8-HxCDD	0.0000034	J,DX MB q	0.000053	0.0000010	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,6,7,8-HxCDD	ND		0.000053	0.0000011	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,7,8,9-HxCDD	0.0000027	J,DX MB q	0.000053	0.0000009	ug/L		04/10/20 07:33	04/10/20 21:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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	0.0000016	J,DX MB	0.000053	0.0000005	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,6,7,8-HxCDF	0.0000015	J,DX MB q	0.000053	0.0000005	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,7,8,9-HxCDF	0.0000022	J,DX MB q	0.000053	0.0000005	ug/L		04/10/20 07:33	04/10/20 21:08	1
2,3,4,6,7,8-HxCDF	0.0000017	J,DX	0.000053	0.0000005	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,4,6,7,8-HpCDD	0.0000023	J,DX MB	0.000053	0.0000004	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,4,6,7,8-HpCDF	0.0000020	J,DX MB q	0.000053	0.0000011	ug/L		04/10/20 07:33	04/10/20 21:08	1
1,2,3,4,7,8,9-HpCDF	ND		0.000053	0.0000012	ug/L		04/10/20 07:33	04/10/20 21:08	1
OCDD	0.0000011	J,DX MB	0.00011	0.0000014	ug/L		04/10/20 07:33	04/10/20 21:08	1
OCDF	0.0000054	J,DX MB q	0.00011	0.0000016	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total TCDD	ND		0.000011	0.0000019	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total TCDF	ND		0.000011	0.0000004	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total PeCDD	ND		0.000053	0.0000013	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total PeCDF	ND		0.000053	0.0000009	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total HxCDD	0.0000061	J,DX MB q	0.000053	0.0000009	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total HxCDF	0.0000070	J,DX MB q	0.000053	0.0000005	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total HpCDD	0.0000043	J,DX MB	0.000053	0.0000004	ug/L		04/10/20 07:33	04/10/20 21:08	1
Total HpCDF	0.0000020	J,DX MB q	0.000053	0.0000011	ug/L		04/10/20 07:33	04/10/20 21:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	57		25 - 164				04/10/20 07:33	04/10/20 21:08	1
13C-2,3,7,8-TCDF	70		24 - 169				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,7,8-PeCDD	58		25 - 181				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,7,8-PeCDF	62		24 - 185				04/10/20 07:33	04/10/20 21:08	1
13C-2,3,4,7,8-PeCDF	67		21 - 178				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,4,7,8-HxCDD	63		32 - 141				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,6,7,8-HxCDD	56		28 - 130				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,4,7,8-HxCDF	64		26 - 152				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,7,8,9-HxCDF	67		29 - 147				04/10/20 07:33	04/10/20 21:08	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143				04/10/20 07:33	04/10/20 21:08	1
13C-1,2,3,4,7,8,9-HpCDF	61		26 - 138				04/10/20 07:33	04/10/20 21:08	1
13C-OCDD	50		17 - 157				04/10/20 07:33	04/10/20 21:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	74		35 - 197				04/10/20 07:33	04/10/20 21:08	1

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		04/09/20 09:00	04/10/20 12:26	1
Iron	66	J,DX	100	50	ug/L		04/09/20 09:00	04/10/20 12:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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		04/08/20 09:14	04/08/20 16:21	1
Copper	1.1	J,DX	2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:21	1
Lead	ND		1.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:21	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:21	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		04/09/20 11:48	04/09/20 18:13	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	270		0.33	0.17	mg/L			04/16/20 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	2.0		0.10	0.040	NTU			04/08/20 16:47	1
Total Dissolved Solids	500		10	5.0	mg/L			04/14/20 10:00	1
Total Suspended Solids	1.8		1.0	0.50	mg/L			04/11/20 15:41	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:39	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/15/20 13:52	1
Methylene Blue Active Substances	0.099	J,DX	0.10	0.050	mg/L			04/08/20 16:06	1
Biochemical Oxygen Demand	3.3		2.0	2.0	mg/L			04/08/20 16:11	1

Client Sample ID: Outfall002_20200407_Comp_F

Lab Sample ID: 440-264162-3

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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		04/08/20 07:20	04/08/20 15:34	1
alpha-BHC	ND		0.0052	0.0026	ug/L		04/08/20 07:20	04/08/20 15:34	1
beta-BHC	ND		0.010	0.0042	ug/L		04/08/20 07:20	04/08/20 15:34	1
Chlordane (technical)	ND		0.10	0.083	ug/L		04/08/20 07:20	04/08/20 15:34	1
delta-BHC	ND		0.0052	0.0036	ug/L		04/08/20 07:20	04/08/20 15:34	1
Dieldrin	ND		0.0052	0.0021	ug/L		04/08/20 07:20	04/08/20 15:34	1
Endosulfan I	ND		0.0052	0.0031	ug/L		04/08/20 07:20	04/08/20 15:34	1
Endosulfan II	ND		0.0052	0.0021	ug/L		04/08/20 07:20	04/08/20 15:34	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		04/08/20 07:20	04/08/20 15:34	1
Endrin	ND		0.0052	0.0021	ug/L		04/08/20 07:20	04/08/20 15:34	1
Endrin aldehyde	ND		0.010	0.0021	ug/L		04/08/20 07:20	04/08/20 15:34	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		04/08/20 07:20	04/08/20 15:34	1
Heptachlor	ND		0.0094	0.0031	ug/L		04/08/20 07:20	04/08/20 15:34	1
Heptachlor epoxide	ND		0.0052	0.0026	ug/L		04/08/20 07:20	04/08/20 15:34	1
Toxaphene	ND		0.52	0.25	ug/L		04/08/20 07:20	04/08/20 15:34	1
4,4'-DDD	ND		0.0052	0.0042	ug/L		04/08/20 07:20	04/08/20 15:34	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		04/08/20 07:20	04/08/20 15:34	1
4,4'-DDT	ND		0.010	0.0042	ug/L		04/08/20 07:20	04/08/20 15:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	55		10 - 104	04/08/20 07:20	04/08/20 15:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp_F

Lab Sample ID: 440-264162-3

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1221	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1232	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1242	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1248	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1254	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1
Aroclor 1260	ND		0.52	0.26	ug/L		04/08/20 07:20	04/08/20 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	107		18 - 134	04/08/20 07:20	04/08/20 13:30	1

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		04/08/20 14:56	04/08/20 22:28	1
Iron	ND		0.10	0.050	mg/L		04/08/20 14:56	04/08/20 22:28	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		04/08/20 15:02	04/08/20 18:50	1
Copper	1.0	J,DX	2.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:50	1
Lead	ND		1.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:50	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:50	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		04/07/20 19:51	04/07/20 22:39	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	270		0.33	0.17	mg/L			04/10/20 18:04	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

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
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 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
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:

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: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			925 mL	2.0 mL	604162	04/08/20 08:22	NAM	TAL IRV
Total/NA	Analysis	625.1		1			604522	04/10/20 09:30	L1B	TAL IRV
Total/NA	Prep	608			975 mL	2 mL	604144	04/08/20 07:20	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604226	04/08/20 14:49	D1D	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	604174	04/08/20 15:40	NTN	TAL IRV
Total/NA	Analysis	300.0		20			604174	04/08/20 15:59	NTN	TAL IRV
Total/NA	Analysis	300.0		20			604175	04/08/20 15:59	NTN	TAL IRV
Total/NA	Analysis	314.0		1			604190	04/08/20 11:49	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			604380	04/09/20 10:24	TLN	TAL IRV
Total/NA	Prep	1613B			951.8 mL	20 uL	371493	04/10/20 07:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			371730	04/10/20 21:08	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	604209	04/09/20 09:00	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			604593	04/10/20 12:26	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	604188	04/08/20 09:14	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			604271	04/08/20 16:21	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	604401	04/09/20 11:48	EMS	TAL IRV
Total/NA	Analysis	245.1		1			604565	04/09/20 18:13	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			605378	04/16/20 13:51	LH	TAL IRV
Total/NA	Analysis	180.1		1			604270	04/08/20 16:47	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	604929	04/14/20 10:00	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	604678	04/11/20 15:41	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	604575	04/10/20 11:07	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			604615	04/10/20 15:39	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605184	04/15/20 13:52	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	604258	04/08/20 16:06	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	604202	04/08/20 16:11	MMP	TAL IRV

Client Sample ID: Outfall002_20200407_Comp_F

Lab Sample ID: 440-264162-3

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			960 mL	2 mL	604144	04/08/20 07:20	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604226	04/08/20 15:34	D1D	TAL IRV
Total/NA	Prep	608			960 mL	2 mL	604144	04/08/20 07:20	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604246	04/08/20 13:30	JM	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604093	04/07/20 18:52	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604251	04/08/20 14:56	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			604342	04/08/20 22:28	KE	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604093	04/07/20 18:52	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604252	04/08/20 15:02	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604292	04/08/20 18:50	P1R	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Client Sample ID: Outfall002_20200407_Comp_F

Lab Sample ID: 440-264162-3

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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	604089	04/07/20 18:34	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	604095	04/07/20 19:51	DB	TAL IRV
Dissolved	Analysis	245.1		1			604111	04/07/20 22:39	MEM	TAL IRV
Dissolved	Analysis	SM 2340B		1			603739	04/10/20 18:04	P1R	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

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-604162/1-A
Matrix: Water
Analysis Batch: 604522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604162

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		04/08/20 08:22	04/10/20 08:35	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		04/08/20 08:22	04/10/20 08:35	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		04/08/20 08:22	04/10/20 08:35	1
Pentachlorophenol	ND		5.0	1.0	ug/L		04/08/20 08:22	04/10/20 08:35	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		04/08/20 08:22	04/10/20 08:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	76		60 - 120	04/08/20 08:22	04/10/20 08:35	1
2-Fluorobiphenyl	80		51 - 120	04/08/20 08:22	04/10/20 08:35	1
2-Fluorophenol	92		43 - 120	04/08/20 08:22	04/10/20 08:35	1
Nitrobenzene-d5	75		53 - 150	04/08/20 08:22	04/10/20 08:35	1
Terphenyl-d14	95		12 - 142	04/08/20 08:22	04/10/20 08:35	1
Phenol-d5	79		45 - 150	04/08/20 08:22	04/10/20 08:35	1

Lab Sample ID: LCS 440-604162/2-A
Matrix: Water
Analysis Batch: 604522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604162

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	15.0	12.9		ug/L		86	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	13.1		ug/L		87	29 - 137
N-Nitrosodimethylamine	15.0	13.2		ug/L		88	60 - 140
Pentachlorophenol	30.0	27.9		ug/L		93	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	90		60 - 120
2-Fluorobiphenyl	81		51 - 120
2-Fluorophenol	89		43 - 120
Nitrobenzene-d5	91		53 - 150
Terphenyl-d14	97		12 - 142
Phenol-d5	89		45 - 150

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604522

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604162

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	ND		16.4	14.1		ug/L		86	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.4	13.8		ug/L		84	8 - 158
N-Nitrosodimethylamine	ND		16.4	14.3		ug/L		87	60 - 140
Pentachlorophenol	ND		32.8	32.4		ug/L		99	14 - 176

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	85		60 - 120
2-Fluorobiphenyl	76		51 - 120
2-Fluorophenol	87		43 - 120
Nitrobenzene-d5	91		53 - 150

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604522

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604162

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14	76		12 - 142
Phenol-d5	86		45 - 150

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604522

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604162

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	13.9		ug/L		85	37 - 144	1	58
Bis(2-ethylhexyl) phthalate	ND		16.3	13.5		ug/L		83	8 - 158	3	82
N-Nitrosodimethylamine	ND		16.3	13.2		ug/L		81	60 - 140	8	35
Pentachlorophenol	ND		32.6	32.3		ug/L		99	14 - 176	0	86

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	86		60 - 120
2-Fluorobiphenyl	73		51 - 120
2-Fluorophenol	83		43 - 120
Nitrobenzene-d5	87		53 - 150
Terphenyl-d14	74		12 - 142
Phenol-d5	82		45 - 150

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-604144/1-A
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		04/08/20 07:20	04/08/20 13:49	1
alpha-BHC	ND		0.0050	0.0025	ug/L		04/08/20 07:20	04/08/20 13:49	1
beta-BHC	ND		0.010	0.0040	ug/L		04/08/20 07:20	04/08/20 13:49	1
Chlordane (technical)	ND		0.10	0.080	ug/L		04/08/20 07:20	04/08/20 13:49	1
delta-BHC	ND		0.0050	0.0035	ug/L		04/08/20 07:20	04/08/20 13:49	1
Dieldrin	ND		0.0050	0.0020	ug/L		04/08/20 07:20	04/08/20 13:49	1
Endosulfan I	ND		0.0050	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
Endosulfan II	ND		0.0050	0.0020	ug/L		04/08/20 07:20	04/08/20 13:49	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
Endrin	ND		0.0050	0.0020	ug/L		04/08/20 07:20	04/08/20 13:49	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		04/08/20 07:20	04/08/20 13:49	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
Heptachlor	ND		0.0090	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		04/08/20 07:20	04/08/20 13:49	1
Toxaphene	ND		0.50	0.24	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/08/20 07:20	04/08/20 13:49	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 440-604144/1-A
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604144

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl (Surr)	96		18 - 134	04/08/20 07:20	04/08/20 13:49	1
Tetrachloro-m-xylene	70		10 - 104	04/08/20 07:20	04/08/20 13:49	1

Lab Sample ID: LCS 440-604144/2-A
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	
Aldrin	0.400	0.285		ug/L		71	42 - 140	
alpha-BHC	0.400	0.282		ug/L		71	37 - 140	
beta-BHC	0.400	0.296		ug/L		74	17 - 147	
delta-BHC	0.400	0.295		ug/L		74	19 - 140	
Dieldrin	0.400	0.318		ug/L		80	36 - 146	
Endosulfan I	0.400	0.301		ug/L		75	45 - 153	
Endosulfan II	0.400	0.311		ug/L		78	10 - 202	
Endosulfan sulfate	0.400	0.309		ug/L		77	26 - 144	
Endrin	0.400	0.292		ug/L		73	30 - 147	
Endrin aldehyde	0.400	0.299		ug/L		75	60 - 140	
gamma-BHC (Lindane)	0.400	0.295		ug/L		74	32 - 140	
Heptachlor	0.400	0.280		ug/L		70	34 - 140	
Heptachlor epoxide	0.400	0.304		ug/L		76	37 - 142	
4,4'-DDD	0.400	0.353		ug/L		88	31 - 141	
4,4'-DDE	0.400	0.318		ug/L		80	30 - 145	
4,4'-DDT	0.400	0.304		ug/L		76	25 - 160	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	98		18 - 134
Tetrachloro-m-xylene	76		10 - 104

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.	
									Limits	
alpha-BHC	ND		0.404	0.249		ug/L		62	37 - 140	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	71		10 - 104
DCB Decachlorobiphenyl (Surr)	89		18 - 134

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits			
alpha-BHC	ND		0.421	0.260		ug/L		62	37 - 140	4	36	

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604144

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	72		10 - 104
DCB Decachlorobiphenyl (Surr)	90		18 - 134

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-604144/1-A
Matrix: Water
Analysis Batch: 604246

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1221	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1232	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1242	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1248	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1254	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1
Aroclor 1260	ND		0.50	0.25	ug/L		04/08/20 07:20	04/08/20 13:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	103		18 - 134	04/08/20 07:20	04/08/20 13:56	1

Lab Sample ID: LCS 440-604144/8-A
Matrix: Water
Analysis Batch: 604246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor 1016	4.00	4.20		ug/L		105	50 - 140
Aroclor 1260	4.00	4.26		ug/L		106	8 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	110		18 - 134

Lab Sample ID: LCSD 440-604144/9-A
Matrix: Water
Analysis Batch: 604246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Aroclor 1016	4.00	3.73		ug/L		93	50 - 140	12	36
Aroclor 1260	4.00	3.92		ug/L		98	8 - 140	8	38

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	98		18 - 134

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604174/6
Matrix: Water
Analysis Batch: 604174

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			04/08/20 10:58	1
Nitrite as N	ND		0.15	0.025	mg/L			04/08/20 10:58	1

Lab Sample ID: LCS 440-604174/5
Matrix: Water
Analysis Batch: 604174

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	1.08		mg/L		96	90 - 110
Nitrite as N	1.52	1.52		mg/L		100	90 - 110

Lab Sample ID: MRL 440-604174/4
Matrix: Water
Analysis Batch: 604174

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.113	0.120		ug/mL		106	50 - 150
Nitrite as N	0.152	0.161		ug/mL		106	50 - 150

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604174

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	ND		22.6	22.6		mg/L		100	80 - 120
Nitrite as N	ND		30.4	30.5		mg/L		100	80 - 120

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604174

Client Sample ID: Outfall002_20200407_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	ND		22.6	22.1		mg/L		98	80 - 120	3	20
Nitrite as N	ND		30.4	30.4		mg/L		100	80 - 120	0	20

Lab Sample ID: MB 440-604175/6
Matrix: Water
Analysis Batch: 604175

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			04/08/20 10:58	1
Sulfate	ND		0.50	0.25	mg/L			04/08/20 10:58	1

Lab Sample ID: LCS 440-604175/5
Matrix: Water
Analysis Batch: 604175

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	4.82		mg/L		96	90 - 110
Sulfate	5.00	4.89		mg/L		98	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MRL 440-604175/4
 Matrix: Water
 Analysis Batch: 604175

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	0.500	0.545		ug/mL		109	50 - 150
Sulfate	0.500	0.512		ug/mL		102	50 - 150

Lab Sample ID: 440-264162-1 MS
 Matrix: Water
 Analysis Batch: 604175

Client Sample ID: Outfall002_20200407_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	28		100	127		mg/L		99	80 - 120
Sulfate	170		100	280		mg/L		105	80 - 120

Lab Sample ID: 440-264162-1 MSD
 Matrix: Water
 Analysis Batch: 604175

Client Sample ID: Outfall002_20200407_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	28		100	126		mg/L		98	80 - 120	1	20
Sulfate	170		100	281		mg/L		106	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-604190/6
 Matrix: Water
 Analysis Batch: 604190

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			04/08/20 10:48	1

Lab Sample ID: LCS 440-604190/5
 Matrix: Water
 Analysis Batch: 604190

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	23.4		ug/L		94	85 - 115

Lab Sample ID: MRL 440-604190/4
 Matrix: Water
 Analysis Batch: 604190

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	1.09	J,DX	ug/L		109	75 - 125

Lab Sample ID: MRL 440-604190/8
 Matrix: Water
 Analysis Batch: 604190

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 440-264162-1 MS
 Matrix: Water
 Analysis Batch: 604190

Client Sample ID: Outfall002_20200407_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	23.9		ug/L		95	80 - 120

Lab Sample ID: 440-264162-1 MSD
 Matrix: Water
 Analysis Batch: 604190

Client Sample ID: Outfall002_20200407_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	23.4		ug/L		94	80 - 120	2	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-371493/1-A
 Matrix: Water
 Analysis Batch: 371730

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 371493

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.000016	ug/L		04/10/20 07:33	04/10/20 19:32	1
2,3,7,8-TCDF	ND		0.000010	0.000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8-PeCDD	ND		0.000050	0.000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8-PeCDF	ND		0.000050	0.000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
2,3,4,7,8-PeCDF	ND		0.000050	0.000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8-HxCDD	0.0000284	J,DX	0.000050	0.000008	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8,9-HxCDD	0.0000216	J,DX q	0.000050	0.000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8-HxCDF	0.0000110	J,DX q	0.000050	0.000005	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,6,7,8-HxCDF	0.0000131	J,DX	0.000050	0.000005	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8,9-HxCDF	0.0000159	J,DX q	0.000050	0.000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,6,7,8-HpCDD	0.0000303	J,DX	0.000050	0.000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,6,7,8-HpCDF	0.0000362	J,DX	0.000050	0.000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
OCDD	0.0000240	J,DX	0.00010	0.000013	ug/L		04/10/20 07:33	04/10/20 19:32	1
OCDF	0.00000970	J,DX	0.00010	0.000013	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total TCDD	ND		0.000010	0.000016	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total TCDF	ND		0.000010	0.000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total PeCDD	ND		0.000050	0.000009	ug/L		04/10/20 07:33	04/10/20 19:32	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-371493/1-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371493

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PeCDF	ND		0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HxCDD	0.00000500	J,DX q	0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HxCDF	0.00000399	J,DX q	0.000050	0.0000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HpCDD	0.00000510	J,DX	0.000050	0.0000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HpCDF	0.00000362	J,DX	0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164	04/10/20 07:33	04/10/20 19:32	1
13C-2,3,7,8-TCDF	83		24 - 169	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8-PeCDD	70		25 - 181	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8-PeCDF	73		24 - 185	04/10/20 07:33	04/10/20 19:32	1
13C-2,3,4,7,8-PeCDF	77		21 - 178	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8-HxCDD	76		32 - 141	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,6,7,8-HxCDD	68		28 - 130	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,6,7,8-HxCDF	75		26 - 123	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8,9-HxCDF	80		29 - 147	04/10/20 07:33	04/10/20 19:32	1
13C-2,3,4,6,7,8-HxCDF	83		28 - 136	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143	04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8,9-HpCDF	82		26 - 138	04/10/20 07:33	04/10/20 19:32	1
13C-OCDD	64		17 - 157	04/10/20 07:33	04/10/20 19:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	78		35 - 197	04/10/20 07:33	04/10/20 19:32	1

Lab Sample ID: LCS 320-371493/2-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	0.000200	0.000232		ug/L		116	67 - 158
2,3,7,8-TCDF	0.000200	0.000266		ug/L		133	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00118		ug/L		118	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00126		ug/L		126	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00120		ug/L		120	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00107	MB	ug/L		107	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00118		ug/L		118	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00112	MB	ug/L		112	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00113	MB	ug/L		113	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00121	MB	ug/L		121	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	0.00120		ug/L		120	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00107	MB	ug/L		107	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00111	MB	ug/L		111	82 - 122

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-371493/2-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138
OCDD	0.00200	0.00222	MB	ug/L		111	78 - 144
OCDF	0.00200	0.00262	MB	ug/L		131	63 - 170
		LCS %Recovery	LCS Qualifier	Limits			
<i>Isotope Dilution</i>							
13C-2,3,7,8-TCDD		68		20 - 175			
13C-2,3,7,8-TCDF		77		22 - 152			
13C-1,2,3,7,8-PeCDD		65		21 - 227			
13C-1,2,3,7,8-PeCDF		70		21 - 192			
13C-2,3,4,7,8-PeCDF		75		13 - 328			
13C-1,2,3,4,7,8-HxCDD		71		21 - 193			
13C-1,2,3,6,7,8-HxCDD		63		25 - 163			
13C-1,2,3,4,7,8-HxCDF		71		19 - 202			
13C-1,2,3,6,7,8-HxCDF		66		21 - 159			
13C-1,2,3,7,8,9-HxCDF		74		17 - 205			
13C-2,3,4,6,7,8-HxCDF		74		22 - 176			
13C-1,2,3,4,6,7,8-HpCDD		61		26 - 166			
13C-1,2,3,4,6,7,8-HpCDF		64		21 - 158			
13C-1,2,3,4,7,8,9-HpCDF		69		20 - 186			
13C-OCDD		59		13 - 199			
		LCS %Recovery	LCS Qualifier	Limits			
<i>Surrogate</i>							
37Cl4-2,3,7,8-TCDD		78		31 - 191			

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-604209/1-A
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		04/09/20 09:00	04/10/20 11:26	1
Iron	ND		100	50	ug/L		04/09/20 09:00	04/10/20 11:26	1

Lab Sample ID: LCS 440-604209/2-A
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	512		ug/L		102	85 - 115
Iron	500	485		ug/L		97	85 - 115

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	ND		500	479		ug/L		96	70 - 130
Iron	66	J,DX	500	554		ug/L		98	70 - 130

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Zinc	ND		500	473		ug/L		95	70 - 130	1	20
Iron	66	J,DX	500	572		ug/L		101	70 - 130	3	20

Lab Sample ID: MB 440-604093/1-B
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604251

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Zinc	ND		20	12	ug/L		04/08/20 14:56	04/08/20 22:21	1
Iron	ND		0.10	0.050	mg/L		04/08/20 14:56	04/08/20 22:21	1

Lab Sample ID: LCS 440-604093/2-B
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Zinc	500	475		ug/L		95	85 - 115
Iron	0.500	0.461		mg/L		92	85 - 115

Lab Sample ID: 440-264162-3 MS
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				Limits
Zinc	ND		500	471		ug/L		94	70 - 130
Iron	ND		0.500	0.478		mg/L		96	70 - 130

Lab Sample ID: 440-264162-3 MSD
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Zinc	ND		500	490		ug/L		98	70 - 130	4	20
Iron	ND		0.500	0.507		mg/L		101	70 - 130	6	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-604188/1-A
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cadmium	ND		1.0	0.25	ug/L		04/08/20 09:14	04/08/20 16:10	1
Copper	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Lead	ND		1.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-604188/2-A
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	81.5		ug/L		102	85 - 115
Copper	80.0	83.6		ug/L		104	85 - 115
Lead	80.0	82.0		ug/L		103	85 - 115
Selenium	80.0	79.7		ug/L		100	85 - 115

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	79.6		ug/L		100	70 - 130
Copper	1.1	J,DX	80.0	81.8		ug/L		101	70 - 130
Lead	ND		80.0	79.4		ug/L		99	70 - 130
Selenium	ND		80.0	76.4		ug/L		95	70 - 130

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND		80.0	78.8		ug/L		98	70 - 130	1	20
Copper	1.1	J,DX	80.0	80.0		ug/L		99	70 - 130	2	20
Lead	ND		80.0	78.2		ug/L		98	70 - 130	1	20
Selenium	ND		80.0	77.3		ug/L		97	70 - 130	1	20

Lab Sample ID: MB 440-604093/1-C
Matrix: Water
Analysis Batch: 604292

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		04/08/20 15:02	04/08/20 18:46	1
Copper	ND		2.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:46	1
Lead	ND		1.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:46	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 15:02	04/08/20 18:46	1

Lab Sample ID: LCS 440-604093/2-C
Matrix: Water
Analysis Batch: 604292

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604252

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	78.9		ug/L		99	85 - 115
Copper	80.0	77.7		ug/L		97	85 - 115
Lead	80.0	78.3		ug/L		98	85 - 115
Selenium	80.0	76.6		ug/L		96	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264162-3 MS
Matrix: Water
Analysis Batch: 604292

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604252

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD
Cadmium	ND		80.0	75.9		ug/L		95	70 - 130	
Copper	1.0	J,DX	80.0	75.4		ug/L		93	70 - 130	
Lead	ND		80.0	74.5		ug/L		93	70 - 130	
Selenium	ND		80.0	74.4		ug/L		93	70 - 130	

Lab Sample ID: 440-264162-3 MSD
Matrix: Water
Analysis Batch: 604292

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604252

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Cadmium	ND		80.0	77.2		ug/L		97	70 - 130	2	20	
Copper	1.0	J,DX	80.0	77.4		ug/L		95	70 - 130	3	20	
Lead	ND		80.0	76.4		ug/L		95	70 - 130	3	20	
Selenium	ND		80.0	77.0		ug/L		96	70 - 130	4	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604401/1-A
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604401

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.10	ug/L		04/09/20 11:48	04/09/20 18:02	1

Lab Sample ID: LCS 440-604401/2-A
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604401

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Mercury	4.00	3.93		ug/L		98	85 - 115	

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604401

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD
Mercury	ND		4.00	3.74		ug/L		93	75 - 125	

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604401

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Mercury	ND		4.00	3.81		ug/L		95	75 - 125	2	20	

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: MB 440-604089/1-B
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604095

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/07/20 19:51	04/07/20 22:35	1

Lab Sample ID: LCS 440-604089/2-B
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604095

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.99		ug/L		100	85 - 115

Lab Sample ID: 440-264162-3 MS
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604095

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	4.09		ug/L		102	75 - 125

Lab Sample ID: 440-264162-3 MSD
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Outfall002_20200407_Comp_F
Prep Type: Dissolved
Prep Batch: 604095

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	4.10		ug/L		103	75 - 125	0	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-604270/5
Matrix: Water
Analysis Batch: 604270

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			04/08/20 16:47	1

Lab Sample ID: 440-264291-E-7 DU
Matrix: Water
Analysis Batch: 604270

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Turbidity	0.14		0.150		NTU		7	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-604929/1
Matrix: Water
Analysis Batch: 604929

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			04/14/20 10:00	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-604929/2
Matrix: Water
Analysis Batch: 604929

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: 440-264162-1 DU
Matrix: Water
Analysis Batch: 604929

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	500		512		mg/L		2	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-604678/1
Matrix: Water
Analysis Batch: 604678

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			04/11/20 15:41	1

Lab Sample ID: LCS 440-604678/2
Matrix: Water
Analysis Batch: 604678

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: 440-264314-A-2 DU
Matrix: Water
Analysis Batch: 604678

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	430		393		mg/L		8	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-604575/1-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:39	1

Lab Sample ID: LCS 440-604575/2-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	96.4		ug/L		96	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCSD 440-604575/3-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Cyanide, Total	100	102		ug/L		102	80 - 120	6	20

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Cyanide, Total	ND		100	102		ug/L		102	75 - 125		

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Cyanide, Total	ND		100	89.4		ug/L		89	75 - 125	13	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605184/10
Matrix: Water
Analysis Batch: 605184

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			04/15/20 12:02	1

Lab Sample ID: LCS 440-605184/11
Matrix: Water
Analysis Batch: 605184

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ammonia (as N)	5.00	5.070		mg/L		101	90 - 110		

Lab Sample ID: MRL 440-605184/9
Matrix: Water
Analysis Batch: 605184

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ammonia (as N)	0.200	0.2390		mg/L		120	50 - 150		

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 605184

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ammonia (as N)	ND		5.00	5.150		mg/L		103	90 - 110		

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 605184

Client Sample ID: Outfall002_20200407_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	5.120		mg/L		102	90 - 110	1	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-604258/4
Matrix: Water
Analysis Batch: 604258

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			04/08/20 16:06	1

Lab Sample ID: LCS 440-604258/5
Matrix: Water
Analysis Batch: 604258

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	0.245		mg/L		98	90 - 110

Lab Sample ID: MRL 440-604258/3
Matrix: Water
Analysis Batch: 604258

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	0.111		mg/L		111	50 - 150

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 604258

Client Sample ID: Outfall002_20200407_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	0.099	J,DX	0.250	0.343		mg/L		98	50 - 125

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 604258

Client Sample ID: Outfall002_20200407_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	0.099	J,DX	0.250	0.359		mg/L		104	50 - 125	5	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-604202/3
Matrix: Water
Analysis Batch: 604202

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			04/08/20 10:00	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-604202/7
Matrix: Water
Analysis Batch: 604202

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	202		mg/L		102	85 - 115

Lab Sample ID: LCSD 440-604202/8
Matrix: Water
Analysis Batch: 604202

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	206		mg/L		104	85 - 115	2	20

Lab Sample ID: LCSD 440-604202/9
Matrix: Water
Analysis Batch: 604202

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	205		mg/L		103	85 - 115	1	20

Lab Sample ID: 440-264274-B-1 DU
Matrix: Water
Analysis Batch: 604202

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	6.7		6.48		mg/L		4	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

GC/MS Semi VOA

Prep Batch: 604162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	625	
MB 440-604162/1-A	Method Blank	Total/NA	Water	625	
LCS 440-604162/2-A	Lab Control Sample	Total/NA	Water	625	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	625	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	625	

Analysis Batch: 604522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	625.1	604162
MB 440-604162/1-A	Method Blank	Total/NA	Water	625.1	604162
LCS 440-604162/2-A	Lab Control Sample	Total/NA	Water	625.1	604162
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	625.1	604162
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	625.1	604162

GC Semi VOA

Prep Batch: 604144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	608	
440-264162-3	Outfall002_20200407_Comp_F	Total/NA	Water	608	
MB 440-604144/1-A	Method Blank	Total/NA	Water	608	
LCS 440-604144/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-604144/8-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-604144/9-A	Lab Control Sample Dup	Total/NA	Water	608	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	608	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	608	

Analysis Batch: 604226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	608.3	604144
440-264162-3	Outfall002_20200407_Comp_F	Total/NA	Water	608.3	604144
MB 440-604144/1-A	Method Blank	Total/NA	Water	608.3	604144
LCS 440-604144/2-A	Lab Control Sample	Total/NA	Water	608.3	604144
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	608.3	604144
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	608.3	604144

Analysis Batch: 604246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Total/NA	Water	608.3	604144
MB 440-604144/1-A	Method Blank	Total/NA	Water	608.3	604144
LCS 440-604144/8-A	Lab Control Sample	Total/NA	Water	608.3	604144
LCSD 440-604144/9-A	Lab Control Sample Dup	Total/NA	Water	608.3	604144

HPLC/IC

Analysis Batch: 604174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	300.0	
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	300.0	
MB 440-604174/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604174/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 440-604174/4	Lab Control Sample	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

HPLC/IC (Continued)

Analysis Batch: 604174 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	300.0	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	300.0	

Analysis Batch: 604175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	300.0	
MB 440-604175/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604175/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 440-604175/4	Lab Control Sample	Total/NA	Water	300.0	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	300.0	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	300.0	

Analysis Batch: 604190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	314.0	
MB 440-604190/6	Method Blank	Total/NA	Water	314.0	
LCS 440-604190/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604190/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604190/8	Lab Control Sample	Total/NA	Water	314.0	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	314.0	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	314.0	

Analysis Batch: 604380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 371493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	1613B	
MB 320-371493/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-371493/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 371730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	1613B	371493
MB 320-371493/1-A	Method Blank	Total/NA	Water	1613B	371493
LCS 320-371493/2-A	Lab Control Sample	Total/NA	Water	1613B	371493

Metals

Analysis Batch: 603739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	SM 2340B	

Filtration Batch: 604089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604089/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Metals (Continued)

Filtration Batch: 604089 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 604093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604093/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604093/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604093/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 604095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604089
MB 440-604089/1-B	Method Blank	Dissolved	Water	245.1	604089
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	245.1	604089
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604089
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604089

Analysis Batch: 604111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604095
MB 440-604089/1-B	Method Blank	Dissolved	Water	245.1	604095
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	245.1	604095
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604095
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	245.1	604095

Prep Batch: 604188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	
MB 440-604188/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604188/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264162-1 MS	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	
440-264162-1 MSD	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	
MB 440-604209/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604209/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264162-1 MS	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	
440-264162-1 MSD	Outfall002_20200407_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093
MB 440-604093/1-B	Method Blank	Dissolved	Water	200.2	604093
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	200.2	604093
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Metals

Prep Batch: 604252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093
MB 440-604093/1-C	Method Blank	Dissolved	Water	200.2	604093
LCS 440-604093/2-C	Lab Control Sample	Dissolved	Water	200.2	604093
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	200.2	604093

Analysis Batch: 604271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total Recoverable	Water	200.8	604188
MB 440-604188/1-A	Method Blank	Total Recoverable	Water	200.8	604188
LCS 440-604188/2-A	Lab Control Sample	Total Recoverable	Water	200.8	604188
440-264162-1 MS	Outfall002_20200407_Comp	Total Recoverable	Water	200.8	604188
440-264162-1 MSD	Outfall002_20200407_Comp	Total Recoverable	Water	200.8	604188

Analysis Batch: 604292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	200.8	604252
MB 440-604093/1-C	Method Blank	Dissolved	Water	200.8	604252
LCS 440-604093/2-C	Lab Control Sample	Dissolved	Water	200.8	604252
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	200.8	604252
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	200.8	604252

Analysis Batch: 604342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-3	Outfall002_20200407_Comp_F	Dissolved	Water	200.7 Rev 4.4	604251
MB 440-604093/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	604251
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	604251
440-264162-3 MS	Outfall002_20200407_Comp_F	Dissolved	Water	200.7 Rev 4.4	604251
440-264162-3 MSD	Outfall002_20200407_Comp_F	Dissolved	Water	200.7 Rev 4.4	604251

Prep Batch: 604401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401
MB 440-604401/1-A	Method Blank	Total/NA	Water	245.1	604401
LCS 440-604401/2-A	Lab Control Sample	Total/NA	Water	245.1	604401
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401

Analysis Batch: 604565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401
MB 440-604401/1-A	Method Blank	Total/NA	Water	245.1	604401
LCS 440-604401/2-A	Lab Control Sample	Total/NA	Water	245.1	604401
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	245.1	604401

Analysis Batch: 604593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209
MB 440-604209/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	604209
LCS 440-604209/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	604209

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

Metals (Continued)

Analysis Batch: 604593 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1 MS	Outfall002_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209
440-264162-1 MSD	Outfall002_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209

Analysis Batch: 605378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 604202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM5210B	
USB 440-604202/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-604202/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-604202/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-604202/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-264274-B-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 604258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM 5540C	
MB 440-604258/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-604258/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-604258/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	SM 5540C	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 604270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	180.1	
MB 440-604270/5	Method Blank	Total/NA	Water	180.1	
440-264291-E-7 DU	Duplicate	Total/NA	Water	180.1	

Prep Batch: 604575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	Distill/CN	
MB 440-604575/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/CN	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	Distill/CN	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 604615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 CN E	604575
MB 440-604575/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	604575
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	604575
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	604575
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 CN E	604575
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 CN E	604575

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

General Chemistry

Analysis Batch: 604678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM 2540D	
MB 440-604678/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-604678/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264314-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 604929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM 2540C	
MB 440-604929/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-604929/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264162-1 DU	Outfall002_20200407_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 605184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605184/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605184/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605184/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 NH3 G	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

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.
α	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: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

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
Illinois	NELAP	200060	03-17-21
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
Pennsylvania	NELAP	68-01272	03-31-21
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.

Work Orders: OD07056

Project: [none]

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 4/09/2020
Received Date: 4/7/2020
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 4/07/20 with the Chain-of-Custody document. The samples were received in good condition, at 4.6 °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: Outfall002_20200407_Comp_F
0D07056-01 (Water) Sampled: 04/07/20 8:15 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M	Batch ID: W0D0223	Instr: GCMS13	Prepared: 04/07/20 16:10	Analyst: EFC			
Chlorpyrifos	ND	6.9	10	ng/l	1	04/08/20	
Diazinon	ND	5.2	10	ng/l	1	04/08/20	
<i>Surrogate(s)</i>							
1,3-Dimethyl-2-nitrobenzene	95%		76-128	Conc: 474		04/08/20	
Triphenyl phosphate	137%		40-163	Conc: 685		04/08/20	



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Quality Control Results

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Blank (W0D0223-BLK1)					Prepared: 04/06/20 Analyzed: 04/09/20						
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	496			ng/l	500		99	76-128			
Triphenyl phosphate	644			ng/l	500		129	40-163			
LCS (W0D0223-BS1)					Prepared: 04/06/20 Analyzed: 04/08/20						
Chlorpyrifos	63.4	6.9	10	ng/l	50.0		127	37-169			
Diazinon	43.2	5.2	10	ng/l	50.0		86	43-152			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	466			ng/l	500		93	76-128			
Triphenyl phosphate	615			ng/l	500		123	40-163			
Matrix Spike (W0D0223-MS1)					Source: 0D06075-01		Prepared: 04/06/20 Analyzed: 04/08/20				
Chlorpyrifos	81.1	6.9	10	ng/l	50.0	ND	162	37-168			
Diazinon	62.7	5.2	10	ng/l	50.0	ND	125	36-153			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	411			ng/l	500		82	76-128			
Triphenyl phosphate	1020			ng/l	500		205	40-163			S-GC
Matrix Spike Dup (W0D0223-MSD1)					Source: 0D06075-01		Prepared: 04/06/20 Analyzed: 04/08/20				
Chlorpyrifos	81.5	6.9	10	ng/l	50.0	ND	163	37-168	0.5	30	
Diazinon	61.0	5.2	10	ng/l	50.0	ND	122	36-153	3	30	
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	465			ng/l	500		93	76-128			
Triphenyl phosphate	917			ng/l	500		183	40-163			S-GC

Notes and Definitions

Item	Definition
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.

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 Denan Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2020
 Quarterly 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; 818 589.0702 (cell)

Test America's services under this CoC shall be performed in accordance with the TSCs within Barlett Service Agreement 2019-22, Test America by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Test America Laboratories, Inc.

Sampler: Dan Smith

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MSMSD	Total Recoverable Metals (E200 7) Zn (E200 8), Cu, Pb, Cd, Se	TCD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1 (SM210B_BODCalc))	Surfactants (MBS) (SM5540C/E425 1)	Chloride (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2 (SM2540D))	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6 TCF, 2,4 Dinitrochlorobenzene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E825)	Total Recoverable Metals Mercury (E245 1)	Comments
Outfall 002	Outfall002_20200407_Comp	4/7/2020 08:15	WM	500 mL Poly	3	HNO3	90	Yes	X	X										
			WM	1L Glass Amber	2	None	110	No												
			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							
			WM	500 mL Poly	1	None	150	No						X						48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	3	H2SO4	160	Yes							X					48 hours Holding Time for Turbidity
			WM	1L Glass Amber	6	None	170	Yes								X				
			WM	1L Glass Amber	6	None	180	Yes									X			
			WM	1L Poly	1	None	185	No												
			WM	1L Glass Amber	2	None	110	No												Hold
			WM	500 mL Poly	2	None	120	No												Hold
			WM	500 mL Poly	2	None	130	No												Hold
			WM	1L Glass Amber	5	None	190	No												Hold
			WM	1L Glass Amber	2	None	160	No												Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Requisitioned By: *Mark Dominick* 4/7/2020/11:57 AM
 Date/Time: 4/7/2020/11:57 AM

Received By: *William Rivera* 4/7/20
 Date/Time: 4/7/20

Requisitioned By: *William Rivera* 4/7/20
 Date/Time: 4/7/20

Received By: *Oya Onelkes* 4/7/20 11:30
 Date/Time: 4/7/20 11:30

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

440-264162 Chain of Custody

08/08 24/24 07/07 08/08
 08/08 22/22 IR-89

CHAIN OF CUSTODY FORM

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

Project
 Boeing-SSFL NFOES
 Permit 2020
 Quarterly Outfall #001, #002, #111, #118
 Outfall #002
 Comp

Test America Contact Christian Bondoc
 17461 Denan Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Field Manager: Kathleen Miller
 520 289 8606 520 904 6944 (cell)
Field Manager: Mark Dominick
 978 234 5033 818 599 0702 (cell)

Sample Description Outfall#02_20200407_Comp_F

Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSM/SD	
					MSM	SD
WM	1 L Poly	1	None	190	No	No
WM	500 mL Poly	1	HNO ₃	80	No	No
WM	1L Poly	3	None	200	Yes	Yes
WM	1 L Glass Amber	2	None	250	No	No
WM	borosilicate vials	3	None	320	Yes	Yes
WM	500 mL Poly	3	NaOH	220	Yes	Yes
WM	2.5 Gal Cube	3	None	225	Yes	Yes
WM	1 L Glass Amber	3	None	230	Yes	Yes
WM	1 Gal Glass	6	None	245	No	No
WM	1L Glass Amber	2	None	275	Yes	Yes

Sample Date/Time 4/7/2020

Sample ID Outfall#02_20200407_Comp_F

Sample Matrix WM

Container Type 1L Poly

of Cont. 1

Preservative None

Bottle # 190

MSM/SD No

Received By William Riva
 Date/Time 4/7/2020 11:14

Received By Olga Ondus
 Date/Time 4/7/2020 14:30

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QR=Quarterly Receiving Water, S=Semi-Annual

Turn-around time (Check)
 24 Hour 72 Hour 10 Day
 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

7019-2020 Rainy Season
 Version 2
 4/24/2020



Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 880 Riverside Parkway, West Sacramento, CA, 95605 Phone: 916-373-5600 (Tel) 916-372-1059 (Fax) Email: Project Name: Boeing NPDES SSFL outfalls Site:			Sampler: Lab PM Bondoc, Christian M E-Mail: christian.bondoc@testamerica.com Accreditations Required (See note): State Program - California			Camer Tracking No(s): COC No: 440-154829-1 Page: Page 1 of 1 Job #: 440-264162-1 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 Other: 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)		
Due Date Requested: 4/17/2020 TAT Requested (days): PO #: WO #: Project #: 44009879 SSOW#:			Analysis Requested Total Number of Containers: 2 Special Instructions/Note: See QAS, Boeing .wu to zero, ug/L. Use Boeing glassware.					
Sample Identification - Client ID (Lab ID) Outfall002_20200407_Comp (440-264162-1)			Field Filtered Sample (Yes or No) X Perform MS/MSD (Yes or No) X 1613B/1618_Sox_Sep_P Standard List w/ Totals X					
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swastill, On-site/Off-site, BT-Tissue, A=Air)	Sample Date	Sample Time			
4/17/20	08:15 Pacific		Water					

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/test/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 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank 2			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Empty Kit Relinquished by:			Method of Shipment:		
Relinquished by: A. Kennedy	Date/Time: 4/20/20 1700	Company: EC-IPV	Relinquished by: [Signature]	Date/Time: 9 Apr 20 0955	Company: EAW SAC
Relinquished by:	Date/Time:	Company:	Relinquished by:	Date/Time:	Company:
Custody Seals Intact: Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: Seal 2.6°C/3.0°C			

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264162-1

Login Number: 264162

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264162-1

Login Number: 264162

List Number: 2

Creator: Her, David A

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/09/20 03:34 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	3.0c
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 <math><6\text{mm}</math> (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: Quarterly Outfall 002 Comp

Job ID: 440-264162-1

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)
440-264162-1	Outfall002_20200407_Comp	57	70	58	62	67	63	56	64
MB 320-371493/1-A	Method Blank	71	83	70	73	77	76	68	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)
440-264162-1	Outfall002_20200407_Comp	58	67	65	55	59	61	50
MB 320-371493/1-A	Method Blank	75	80	83	71	71	82	64

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 320-371493/2-A	Lab Control Sample	68	77	65	70	75	71	63	71

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 320-371493/2-A	Lab Control Sample	66	74	74	61	64	69	59

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: Quarterly Outfall 002 Comp

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

Job ID: 440-264162-1

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Environment Testing
TestAmerica

Sacramento
Sample Receiving Notes



440-264162 Field Sheet

Job: _____

Tracking #: 1540 410 77405

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: Alc-5 Corr. Factor: (-) 0.4 °C

Ice Wet Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 2.6 °C Corrected: 3.0 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: [Signature] Date: 9 April 20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: DH Date: 4/9/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264162-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

3 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.: 1272.003H.01

Sample Delivery Group: 440-264162-2

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
OUTFALL002_20200407_COMP	440-264162-1	N/A	WM	4/7/20 8:15 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A- 01-R
OUTFALL002_20200407_COMP	440-264162-2	N/A	WM	4/7/20 8:15 AM	RADIUM



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) 440-264162-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- The sample cubitainers were received improperly preserved at TA-SL. The appropriate containers were preserved to $\text{pH} \leq 2$ upon receipt.
- 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.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^X reviewed the SDG on June 3, 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 A-01-R* 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 (except as noted in the Sample Management section above) and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiency for gross alpha was less than 20%; therefore, the 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.

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 radium-226. The detected sample result for radium-226 was qualified as nondetect (U).

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 in this SDG for Method 900.0 (gross alpha and gross beta) and Method 901.1 (cesium-137 and potassium-40). RERs met laboratory control limits. Laboratory duplicates were not performed on the sample from this SDG for the remaining methods.

III.3.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE:

Matrix spike and matrix spike duplicate (MS)/MSD analyses were performed on the sample from this SDG for Methods 900.0 (gross alpha and gross beta) Method 903.0 (radium-226), Method 904.0 (radium-228), Method 905.0 (strontium-90), Method 906.0 (tritium) and Method A-01-R (total uranium). Recoveries were within the laboratory control limits and DERs were within laboratory control limits.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. 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: 4402641622

Analysis Method E900

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	1.55	2.47	3.00	4.26	pCi/L	U G	UJ	*III
Gross Beta Analytes	GROSSBETA	4.88	1.59	4.00	2.00	pCi/L			

Analysis Method E901.1

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	0.162	9.27	20.0	11.9	pCi/L	U	U	
Potassium-40	13966-00-2	9.19	79.3	143	143	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.130	0.0972	1.00	0.126	pCi/L		U	B

Analysis Method E904.0

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.176	0.334	1.00	0.567	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.217	0.261	3.00	0.431	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	14.9	159	500	282	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	1.44	0.347	1.00	0.163	pCi/L			

Analysis Method RADIUM

Sample Name OUTFALL002_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 8:15:00 AM Validation Level: 9

Lab Sample Name: 440-264162-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.567	0.347			pCi/L		U	B

ANALYTICAL REPORT

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

Laboratory Job ID: 440-264162-2

Client Project/Site: Quarterly Outfall 002 Comp

For:

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

Attn: Katherine Miller



Authorized for release by:
5/4/2020 10:05:55 AM

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

LINKS

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results through
TotalAccess

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www.eurofinsus.com/Env

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.

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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 10:05:55 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264162-1	Outfall002_20200407_Comp	Water	04/07/20 08:15	04/07/20 14:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Job ID: 440-264162-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264162-2

Comments

No additional comments.

Receipt

The samples were received on 4/7/2020 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.7° C, 0.8° C, 0.8° C, 0.8° C, 2.2° C and 2.4° C.

RAD

Method 900.0: Gross Alpha Beta Prep Batch 160-468136

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: Outfall002_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (440-264162-K-1-S DU), (440-264162-K-1-Q MSBT) and (440-264162-K-1-R MSBTD). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha Beta Prep Batch 160-468136

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (LCS 160-468136/2-A), (LCSB 160-468136/3-A), (MB 160-468136/1-A), (440-264162-K-1-S DU), (440-264162-K-1-Q MSBT) and (440-264162-K-1-R MSBTD)

Method 901.1: Gamma Prep Batch 160-467695

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Job ID: 440-264162-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Ac-227

Th-227 Bi-211

Th-227 Pb-211

Bi-214 Ra-226

Outfall002_20200407_Comp (440-264162-1), (LCS 160-467695/2-A), (MB 160-467695/1-A) and (440-264162-K-1-K DU)

Method 903.0: Ra-226 Prep Batch 160-467450

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (LCS 160-467450/1-A) and (MB 160-467450/22-A)

Method 904.0: Radium-228 Prep Batch 160-467451

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (LCS 160-467451/1-A) and (MB 160-467451/22-A)

Method 905: Sr-90 Prep Batch 160-467509

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (LCS 160-467509/1-A) and (MB 160-467509/10-A)

Method 906.0: LSC Tritium Prep Batch 160-468476

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[MSD]), (LCS 160-468476/2-A), (MB 160-468476/1-A), (160-37864-A-1-A) and (160-37864-A-1-B DU)

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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]), Outfall002_20200407_Comp (440-264162-1[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_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]) and Outfall002_20200407_Comp (440-264162-1[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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Job ID: 440-264162-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

and was prepared at a reduced aliquot.

Method PrecSep_0: Radium 228 Prep Batch 160-467451:

Samples 440-264162-1, 1 MS, & 1 MSD and 440-264182-1 were reduced due to yellow discoloration. Samples 440-264345-1 & 3 were reduced due to yellow discoloration and a cloudy appearance. Samples 440-264345-2 & 4, and samples 440-264346-1 through 10 were reduced due to limited volume: Outfall002_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]) and Outfall002_20200407_Comp (440-264162-1[MSD])

Method PrecSep-21: Radium 226 Prep Batch 160-467450:

Samples 440-264162-1, 1 MS, & 1 MSD and 440-264182-1 were reduced due to yellow discoloration. Samples 440-264345-1 & 3 were reduced due to yellow discoloration and a cloudy appearance. Samples 440-264345-2 & 4, and samples 440-264346-1 through 10 were reduced due to limited volume: Outfall002_20200407_Comp (440-264162-1), Outfall002_20200407_Comp (440-264162-1[MS]) and Outfall002_20200407_Comp (440-264162-1[MSD])

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: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	1.55	U G	2.47	2.47	3.00	4.26	pCi/L	04/20/20 09:20	04/24/20 07:52	1
Gross Beta	4.88		1.51	1.59	4.00	2.00	pCi/L	04/20/20 09:20	04/24/20 07:52	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	0.162	U	9.27	9.27	20.0	11.9	pCi/L	04/14/20 14:27	04/15/20 08:33	1
Potassium-40	9.19	U	79.3	79.3		143	pCi/L	04/14/20 14:27	04/15/20 08:33	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.130		0.0965	0.0972	1.00	0.126	pCi/L	04/12/20 15:55	05/04/20 04:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		40 - 110					04/12/20 15:55	05/04/20 04:28	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.176	U	0.333	0.334	1.00	0.567	pCi/L	04/12/20 16:21	04/28/20 07:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		40 - 110					04/12/20 16:21	04/28/20 07:12	1
Y Carrier	84.1		40 - 110					04/12/20 16:21	04/28/20 07:12	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.217	U	0.261	0.261	3.00	0.431	pCi/L	04/13/20 07:49	04/24/20 13:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	55.6		40 - 110					04/13/20 07:49	04/24/20 13:17	1
Y Carrier	93.1		40 - 110					04/13/20 07:49	04/24/20 13:17	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	14.9	U	159	159	500	282	pCi/L	04/22/20 04:26	04/22/20 19:14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	1.44		0.337	0.347	1.00	0.163	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	79.1		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

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: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Client Sample ID: Outfall002_20200407_Comp

Lab Sample ID: 440-264162-1

Date Collected: 04/07/20 08:15

Matrix: Water

Date Received: 04/07/20 14:30

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 mL	1.0 g	468136	04/20/20 09:20	RJD	TAL SL
Total/NA	Analysis	900.0		1			468726	04/24/20 07:52	KLS	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	467695	04/14/20 14:27	MMO	TAL SL
Total/NA	Analysis	901.1		1			467838	04/15/20 08:33	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.59 mL	1.0 g	467450	04/12/20 15:55	MNH	TAL SL
Total/NA	Analysis	903.0		1			469493	05/04/20 04:28	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			750.59 mL	1.0 g	467451	04/12/20 16:21	MNH	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	469050	04/28/20 07:12	KLS	TAL SL
Total/NA	Prep	PrecSep-7			999.34 mL	1.0 g	467509	04/13/20 07:49	EJQ	TAL SL
Total/NA	Analysis	905		1			468937	04/24/20 13:17	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	468476	04/22/20 04:26	NMN	TAL SL
Total/NA	Analysis	906.0		1			468623	04/22/20 19:14	JS	TAL SL
Total/NA	Prep	ExtChrom			499.26 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468764	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-468136/1-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468136

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.2223	U	0.373	0.374	3.00	0.910	pCi/L	04/20/20 09:20	04/24/20 04:25	1
Gross Beta	-0.2861	U	0.439	0.440	4.00	0.850	pCi/L	04/20/20 09:20	04/24/20 04:25	1

Lab Sample ID: LCS 160-468136/2-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	44.64		6.82	3.00	1.74	pCi/L	90	75 - 125

Lab Sample ID: LCSB 160-468136/3-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	78.14		8.34	4.00	0.848	pCi/L	93	75 - 125

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	1.55	U G	92.5	80.08		13.2	3.00	6.01	pCi/L	85	60 - 140

Lab Sample ID: 440-264162-1 MSBT
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	4.88		157	149.4		16.0	4.00	1.90	pCi/L	92	60 - 140

Lab Sample ID: 440-264162-1 MSBTD
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER Limit
						Uncert. (2σ+/-)					Limits	Limit	
Gross Beta	4.88		158	152.7		16.3	4.00	1.54	pCi/L	94	60 - 140	0.10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. RER		
											Limits	RER	
Gross Alpha	1.55	U G	92.5	61.31		10.6	3.00	4.10	pCi/L	65	60 - 140	0.79	1

Lab Sample ID: 440-264162-1 DU
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468136

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER
										Limit
Gross Alpha	1.55	U G	1.240	U G	2.61	3.00	4.64	pCi/L	0.06	1
Gross Beta	4.88		2.912		1.28	4.00	1.74	pCi/L	0.69	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-467695/1-A
Matrix: Water
Analysis Batch: 467836

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467695

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.446	U	12.2	12.2	20.0	15.4	pCi/L	04/14/20 14:27	04/15/20 08:35	1
Potassium-40	-22.63	U	154	154		222	pCi/L	04/14/20 14:27	04/15/20 08:35	1

Lab Sample ID: LCS 160-467695/2-A
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Americium-241	136000	126100		14600		349	pCi/L	93	90 - 111	
Cesium-137	43700	43790		4390	20.0	102	pCi/L	100	90 - 111	
Cobalt-60	26300	25540		2530		54.0	pCi/L	97	89 - 110	

Lab Sample ID: 440-264162-1 DU
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER
										Limit
Cesium-137	0.162	U	3.072	U	8.42	20.0	10.2	pCi/L	0.16	1
Potassium-40	9.19	U	-143.8	U	141		220	pCi/L	0.70	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467450/22-A
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467450

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.005278	U	0.0628	0.0628	1.00	0.138	pCi/L	04/12/20 15:55	05/04/20 06:18	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.6		40 - 110					04/12/20 15:55	05/04/20 06:18	1

Lab Sample ID: LCS 160-467450/1-A
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	15.1	14.75		1.59	1.00	0.148	pCi/L	97	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	75.2		40 - 110						

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
						Uncert. (2σ+/-)					
Radium-226	0.130		15.1	13.75		1.49	1.00	0.135	pCi/L	90	75 - 138
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	79.5		40 - 110								

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
						Uncert. (2σ+/-)							
Radium-226	0.130		15.1	14.79		1.59	1.00	0.204	pCi/L	97	75 - 138	0.34	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	79.2		40 - 110										

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-467451/22-A
Matrix: Water
Analysis Batch: 469048

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467451

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.1854	U	0.264	0.264	1.00	0.442	pCi/L	04/12/20 16:21	04/28/20 07:16	1

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	93.6		40 - 110	04/12/20 16:21	04/28/20 07:16	1
Y Carrier	82.6		40 - 110	04/12/20 16:21	04/28/20 07:16	1

Lab Sample ID: LCS 160-467451/1-A
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Ba Carrier	75.2		40 - 110
Y Carrier	83.4		40 - 110

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	MS MS		Limits
	%Yield	Qualifier	
Ba Carrier	79.5		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Ba Carrier	79.2		40 - 110
Y Carrier	85.2		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-467509/10-A
Matrix: Water
Analysis Batch: 468938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467509

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.1722	U	0.208	0.208	3.00	0.343	pCi/L	04/13/20 07:49	04/24/20 13:13	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-467509/10-A
Matrix: Water
Analysis Batch: 468938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467509

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Sr Carrier	87.2		40 - 110	04/13/20 07:49	04/24/20 13:13	1
Y Carrier	91.2		40 - 110	04/13/20 07:49	04/24/20 13:13	1

Lab Sample ID: LCS 160-467509/1-A
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467509

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	7.88	7.758		0.844	3.00	0.340	pCi/L	98	75 - 125

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Sr Carrier	91.3		40 - 110
Y Carrier	85.2		40 - 110

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467509

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	0.217	U	7.88	7.547		0.848	3.00	0.342	pCi/L	93	19 - 150

Carrier	MS MS		Limits
	%Yield	Qualifier	
Sr Carrier	76.5		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 467509

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	0.217	U	7.89	7.398		0.860	3.00	0.414	pCi/L	91	19 - 150	0.09	1

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Sr Carrier	70.3		40 - 110
Y Carrier	90.8		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-468476/1-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468476

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	62.16	U	161	161	500	277	pCi/L	04/22/20 04:26	04/22/20 13:34	1

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-468476/2-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	2470	2384		380	500	277	pCi/L	96	75 - 114

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	14.9	U	2470	2096		353	500	277	pCi/L	84	67 - 130

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Outfall002_20200407_Comp
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	14.9	U	2460	2655		404	500	276	pCi/L	107	67 - 130	0.74	1

Lab Sample ID: 160-37864-A-1-B DU
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	66.7	U	77.93	U	156	500	261	pCi/L	0.04	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

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

Tracer	LCS		Limits
	%Yield	Qualifier	
Uranium-232	81.2		30 - 110

Lab Sample ID: 440-264162-1 MS
Matrix: Water
Analysis Batch: 468765

Client Sample ID: Outfall002_20200407_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	0.776		12.7	13.76		1.57	1.00	0.145	pCi/L	102	65 - 146	
Uranium-238	0.649		13.0	14.91		1.67	1.00	0.167	pCi/L	110	68 - 143	

Tracer	MS		Limits
	%Yield	Qualifier	
Uranium-232	76.8		30 - 110

Lab Sample ID: 440-264162-1 MSD
Matrix: Water
Analysis Batch: 468763

Client Sample ID: Outfall002_20200407_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	Limit
Uranium-234	0.776		12.7	13.01		1.48	1.00	0.142	pCi/L	96	65 - 146	0.24	1	
Uranium-238	0.649		13.0	12.73		1.45	1.00	0.127	pCi/L	93	68 - 143	0.70	1	

Tracer	MSD		Limits
	%Yield	Qualifier	
Uranium-232	79.3		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Rad

Prep Batch: 467450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-21	
MB 160-467450/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467450/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-21	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 467451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	PrecSep_0	
MB 160-467451/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-467451/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	PrecSep_0	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 467509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-7	
MB 160-467509/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-467509/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-7	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 467695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-467695/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-467695/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264162-1 DU	Outfall002_20200407_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_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	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	ExtChrom	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 468136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	
MB 160-468136/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-468136/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-468136/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	
440-264162-1 MSBT	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	
440-264162-1 MSBTD	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	
440-264162-1 DU	Outfall002_20200407_Comp	Total/NA	Water	Evaporation	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Rad

Prep Batch: 468476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264162-1	Outfall002_20200407_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-468476/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-468476/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264162-1 MS	Outfall002_20200407_Comp	Total/NA	Water	LSC_Dist_Susp	
440-264162-1 MSD	Outfall002_20200407_Comp	Total/NA	Water	LSC_Dist_Susp	
160-37864-A-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

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: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

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

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2020 Quarterly Outfall 001, 002, 011, 018 Outfall 002 Comp</p>		<p>ANALYSIS REQUIRED</p>																	
<p>Test America Contact: Christian Bondoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520 289.8606; 520 904.6944 (cell) Field Manager: Mark Dominick 978 234 5033; 818 589.0702 (cell)</p>		<p>Total Recoverable Metals (E200 7) Zn (E200 8), Cu, Pb, Cd, Se</p> <p>TCD (and all congeners) (E1613B)</p> <p>BOD5 (20 degrees C) (E405 1 (SM210B_BODCal))</p> <p>Surfactants (MBAS) (SM5540C/E425 1)</p> <p>Chloride (E300)</p> <p>Turbidity, TDS (SM2540C/E180 1)</p> <p>TSS (160 2 (SM2540D))</p> <p>Ammonia-N (350 2)</p> <p>alpha-BHC (E608)</p> <p>2,4,6 TCF, 2,4 Dinitrochloro, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E825)</p> <p>Total Recoverable Metals Mercury (E245 1)</p>																	
<p>Sample Description</p>		<p>Sample ID</p>	<p>Sampling Date/Time</p>	<p>Sample Matrix</p>	<p>Container Type</p>	<p># of Cont</p>	<p>Preservative</p>	<p>Bottle #</p>	<p>MSMSD</p>	<p>Comments</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>3</p>	<p>HNO3</p>	<p>90</p>	<p>Yes</p>	<p>46 hours Holding Time NO3 & NO2 46 hours Holding Time for Turbidity</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp_Extra</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>1L Glass Amber</p>	<p>6</p>	<p>None</p>	<p>180</p>	<p>No</p>	<p>Hold</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>1L Glass Amber</p>	<p>2</p>	<p>None</p>	<p>110</p>	<p>No</p>	<p>Hold</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>2</p>	<p>None</p>	<p>120</p>	<p>No</p>	<p>Hold</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>2</p>	<p>None</p>	<p>130</p>	<p>No</p>	<p>Hold</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>1L Glass Amber</p>	<p>5</p>	<p>None</p>	<p>180</p>	<p>No</p>	<p>Hold</p>											
<p>Outfall 002</p>		<p>Outfall002_20200407_Comp</p>	<p>4/7/2020 08:15</p>	<p>WM</p>	<p>1L Glass Amber</p>	<p>2</p>	<p>None</p>	<p>180</p>	<p>No</p>	<p>Hold</p>											

Requisitioned By: Mark Dominick 4/7/2020/11:15
 Date/Time: 4/7/2020/11:15
 Company: William Rivera

Received By: William Rivera 4/7/20 11:14
 Date/Time: 4/7/20 11:14
 Company: William Rivera

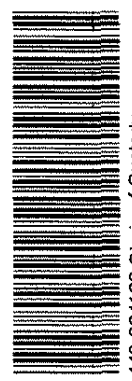
Requisitioned By: William Rivera 4/7/20 1430
 Date/Time: 4/7/20 1430
 Company: William Rivera

Received By: Oya Onelkes 4/7/20 1430
 Date/Time: 4/7/20 1430
 Company: William Rivera

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

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



440-264162 Chain of Custody

08/08 24/24 07/07 08/08
 08/08 22/22 IR-89



CHAIN OF CUSTODY FORM

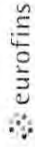
<p>Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p> <p>Test America Contact Christian Bondic 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p> <p><small>Field contact's samples under this CCF shall be performed in accordance with the TEGs within the Quality System Agreement # 2019-22. Transmitted by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratory.</small></p> <p>Sampler Dan Smith</p>	<p>Project Boeing-SSFL NFOES Permit 2020 Quarterly Outfall [001, 002, 011, 018] Outfall 002 Comp</p> <p>Project Manager Katherine Miller 520 289 8606 520 904 6944 (cell)</p> <p>Field Manager Mark Dominick 978 234 5033 818 589 0702 (cell)</p>	<p style="text-align: center;">ANALYSIS REQUIRED</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Sample Description</th> <th style="width: 10%;">Sample ID</th> <th style="width: 10%;">Sampling Date/Time</th> <th style="width: 10%;">Sample Matrix</th> <th style="width: 10%;">Container Type</th> <th style="width: 10%;"># of Cont.</th> <th style="width: 10%;">Preservative</th> <th style="width: 10%;">Bottle #</th> <th style="width: 10%;">MSMSD</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="text-align: center;">Outfall 002</td> <td rowspan="3" style="text-align: center;">Outfall002_20200407_Comp_F</td> <td rowspan="3" style="text-align: center;">4/7/2020 10815</td> <td>WM</td> <td>1 L Poly</td> <td>1</td> <td>None</td> <td>190</td> <td>No</td> </tr> <tr> <td>WM</td> <td>500 mL Poly</td> <td>1</td> <td>HNO₃</td> <td>80</td> <td>No</td> </tr> <tr> <td>WM</td> <td>1L Poly</td> <td>3</td> <td>None</td> <td>200</td> <td>Yes</td> </tr> <tr> <td rowspan="7" style="text-align: center;">Outfall 002</td> <td rowspan="7" style="text-align: center;">Outfall002_20200407_Comp</td> <td rowspan="7" style="text-align: center;">4/7/2020 10815</td> <td>WM</td> <td>1 L Glass Amber</td> <td>2</td> <td>None</td> <td>250</td> <td>No</td> </tr> <tr> <td>WM</td> <td>borosilicate vials</td> <td>3</td> <td>None</td> <td>320</td> <td>Yes</td> </tr> <tr> <td>WM</td> <td>500 mL Poly</td> <td>3</td> <td>NaOH</td> <td>220</td> <td>Yes</td> </tr> <tr> <td>WM</td> <td>2.5 Gal Cube</td> <td>3</td> <td>None</td> <td>225</td> <td>Yes</td> </tr> <tr> <td>WM</td> <td>1 L Glass Amber</td> <td>3</td> <td>None</td> <td>230</td> <td>Yes</td> </tr> <tr> <td>WM</td> <td>1.5 Gal Glass</td> <td>6</td> <td>None</td> <td>248</td> <td>No</td> </tr> <tr> <td>WM</td> <td>1L Glass Amber</td> <td>2</td> <td>None</td> <td>275</td> <td>Yes</td> </tr> </tbody> </table>		Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Outfall 002	Outfall002_20200407_Comp_F	4/7/2020 10815	WM	1 L Poly	1	None	190	No	WM	500 mL Poly	1	HNO ₃	80	No	WM	1L Poly	3	None	200	Yes	Outfall 002	Outfall002_20200407_Comp	4/7/2020 10815	WM	1 L Glass Amber	2	None	250	No	WM	borosilicate vials	3	None	320	Yes	WM	500 mL Poly	3	NaOH	220	Yes	WM	2.5 Gal Cube	3	None	225	Yes	WM	1 L Glass Amber	3	None	230	Yes	WM	1.5 Gal Glass	6	None	248	No	WM	1L Glass Amber	2	None	275	Yes	<p>Project Boeing-SSFL NFOES Permit 2020 Quarterly Outfall [001, 002, 011, 018] Outfall 002 Comp</p>	<p>Comments</p> <p>Filter and preserve with 24hrs of receipt at lab at OF001 002,011, or 018</p> <p>at OF001 002,011, or 018</p> <p>Chloride, DOD, DDE, DDT, dieldrin, PCBs, Iowaphene at OF001 002,011, or 018</p> <p>Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures</p> <p>Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MSMSD</p> <p>Extract within 24-Hours of sampling at Week Labs</p>
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD																																																																								
Outfall 002	Outfall002_20200407_Comp_F	4/7/2020 10815	WM	1 L Poly	1	None	190	No																																																																								
			WM	500 mL Poly	1	HNO ₃	80	No																																																																								
			WM	1L Poly	3	None	200	Yes																																																																								
Outfall 002	Outfall002_20200407_Comp	4/7/2020 10815	WM	1 L Glass Amber	2	None	250	No																																																																								
			WM	borosilicate vials	3	None	320	Yes																																																																								
			WM	500 mL Poly	3	NaOH	220	Yes																																																																								
			WM	2.5 Gal Cube	3	None	225	Yes																																																																								
			WM	1 L Glass Amber	3	None	230	Yes																																																																								
			WM	1.5 Gal Glass	6	None	248	No																																																																								
			WM	1L Glass Amber	2	None	275	Yes																																																																								

Requested by: <u>William Riva</u>	Received By: <u>William Riva</u>	Date/Time: <u>4/7/20</u>	Date/Time: <u>4/7/20 11:14</u>
Requested by: <u>William</u>	Received By: <u>Ogden</u>	Date/Time: <u>4/7/20</u>	Date/Time: <u>4/7/20 14:30</u>

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual



Chain of Custody Record



Client Information (Sub Contract Lab) Shipper: Bondoc, Christian M Phone: christian_bondoc@testamericainc.com E-Mail: christian_bondoc@testamericainc.com State of Origin: California Carrier Tracking No(s): 440-154819.1 Page: Page 1 of 1 Job #: 440-264162-1		Lab PM: Bondoc, Christian M E-Mail: christian_bondoc@testamericainc.com State of Origin: California Accreditations Required (See note): State Program - California											
Due Date Requested: 4/17/2020 TAT Requested (days):		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 Other:											
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Analysis Requested: 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-228 905.5/Sp90/PrecSep_7 Strontium-90 906.0/SC_Dist_Susp Tritium Total Number of Containers:											
Project Name: Boeing NPDES SSFL outfalls Site:		Special Instructions/Note: 2 Boeing SSFL; DO NOT FILTER; use prep date from preservation 2 Boeing SSFL; DO NOT FILTER; use prep date from preservation 2 Boeing SSFL; DO NOT FILTER; use prep date from preservation											
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Organic, BT-Tissue, A=Ali)	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	905.5/Sp90/PrecSep_7 Strontium-90	906.0/SC_Dist_Susp Tritium
Outfall002_20200407_Comp (440-264162-1)	4/17/20	08:15 Pacific	Water	Water	X	X	X	X	X	X	X	X	X
Outfall002_20200407_Comp (440-264162-1MS)	4/17/20	08:15 Pacific	MS	Water	X	X	X	X	X	X	X	X	X
Outfall002_20200407_Comp (440-264162-1MSD)	4/17/20	08:15 Pacific	MSD	Water	X	X	X	X	X	X	X	X	X

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
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *P. Kennedy* Date/Time: 4/8/20 1700
 Relinquished by: **FED EX** Date/Time: 4/8/20 1700
 Relinquished by: *[Signature]* Date/Time: 4/9/2020 09:20
 Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: _____
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____
 Received by: *[Signature]* Date/Time: _____
 Received by: *[Signature]* Date/Time: _____
 Received by: *[Signature]* Date/Time: _____
 Company: **FED EX**
 Company: **FED EX**
 Company: **FED EX**
 Company: **FED EX**

CONDITION UPON RECEIPT FORM

Client: ETA Irvine

Initiated by: LAM Date: 4/9/2020 Time: 09:20 Shipper: FedEx Package Quantity: 5

**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 7227 (2 of 3)	192688461	1.7	
2.	1540 4107 7210 (1 of 3)		-1.4	
3.	1540 4107 7232 (2 of 3)		1.2	
4.	1540 4107 7243 (1 of 2)		-0.1	
5.	1540 4107 7254 (2 of 2)		-1.3	
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> N	Are there custody seals present on the cooler?	8.	<input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	Y <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>HC904495</u>
4.	<input checked="" type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> N	Sample received in proper containers?
6.	Y <input checked="" type="radio"/> N	Was sample received broken?	13.	Y N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y N <input checked="" type="radio"/> 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 received improperly preserved.

pH Adjustment (if needed)

Date/Time of Preservation: 4/10/2020 19:00

Initial pH and pH strip lot#: HC904495

Preservative and lot#: HNO3 / 244827

Final pH and pH strip lot#: HC904495

Amount of Preservative: 6ml

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: 440-264162-2

Login Number: 264162

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264162-2

Login Number: 264162

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/10/20 08:22 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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?	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	All cubitainers were received improperly preserved.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

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)	
440-264162-1	Outfall002_20200407_Comp	80.1	
440-264162-1 MS	Outfall002_20200407_Comp	79.5	
440-264162-1 MSD	Outfall002_20200407_Comp	79.2	
LCS 160-467450/1-A	Lab Control Sample	75.2	
MB 160-467450/22-A	Method Blank	93.6	
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)
440-264162-1	Outfall002_20200407_Comp	80.1	84.1
440-264162-1 MS	Outfall002_20200407_Comp	79.5	84.5
440-264162-1 MSD	Outfall002_20200407_Comp	79.2	85.2
LCS 160-467451/1-A	Lab Control Sample	75.2	83.4
MB 160-467451/22-A	Method Blank	93.6	82.6
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)
440-264162-1	Outfall002_20200407_Comp	55.6	93.1
440-264162-1 MS	Outfall002_20200407_Comp	76.5	90.8
440-264162-1 MSD	Outfall002_20200407_Comp	70.3	90.8
LCS 160-467509/1-A	Lab Control Sample	91.3	85.2
MB 160-467509/10-A	Method Blank	87.2	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	uranium-235 (30-110)	
440-264162-1	Outfall002_20200407_Comp	79.1	
440-264162-1 MS	Outfall002_20200407_Comp	76.8	
440-264162-1 MSD	Outfall002_20200407_Comp	79.3	
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: Quarterly Outfall 002 Comp

Job ID: 440-264162-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Environment Testing
TestAmerica

Sacramento
Sample Receiving Notes



440-264162 Field Sheet

Job: _____

Tracking #: 1540 410 77405

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: Alc-5 Corr. Factor: (-) 0.4 °C

Ice Wet Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 2.6 °C Corrected: 3.0 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: [Signature] Date: 9 April 20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: DH Date: 4/9/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

ANALYTICAL REPORT

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

Laboratory Job ID: 440-264557-1

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:
4/22/2020 12:38:46 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.

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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 12:38:46 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264557-1	Outfall002_20200413_Grab	Water	04/13/20 09:00	04/13/20 11:28	
440-264557-3	TB-20200413	Water	04/13/20 09:00	04/13/20 11:28	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

Job ID: 440-264557-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-264557-1

Comments

No additional comments.

Receipt

The samples were received on 4/13/2020 11:28 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° 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 440-605004.

No additional analytical or quality issues were noted, other than those described above or 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 Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

Client Sample ID: Outfall002_20200413_Grab

Lab Sample ID: 440-264557-1

Date Collected: 04/13/20 09:00

Matrix: Water

Date Received: 04/13/20 11:28

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			04/14/20 18:46	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/14/20 18:46	1
Trichloroethene	0.66		0.50	0.25	ug/L			04/14/20 18:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		60 - 140					04/14/20 18:46	1
Dibromofluoromethane (Surr)	98		60 - 140					04/14/20 18:46	1
Toluene-d8 (Surr)	109		60 - 140					04/14/20 18:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		04/21/20 05:03	04/21/20 09:49	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	400		1.0	1.0	umhos/cm			04/21/20 12:35	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			04/14/20 15:25	1

Client Sample ID: TB-20200413

Lab Sample ID: 440-264557-3

Date Collected: 04/13/20 09:00

Matrix: Water

Date Received: 04/13/20 11:28

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			04/15/20 09:42	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/15/20 09:42	1
Trichloroethene	ND		0.50	0.25	ug/L			04/15/20 09:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		60 - 140					04/15/20 09:42	1
Dibromofluoromethane (Surr)	100		60 - 140					04/15/20 09:42	1
Toluene-d8 (Surr)	110		60 - 140					04/15/20 09:42	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

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: 440-264557-1

Client Sample ID: Outfall002_20200413_Grab

Lab Sample ID: 440-264557-1

Date Collected: 04/13/20 09:00

Matrix: Water

Date Received: 04/13/20 11:28

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	605011	04/14/20 18:46	GMA	TAL IRV
Total/NA	Analysis	120.1		1			605665	04/21/20 12:35	XL	TAL IRV
Total/NA	Prep	1664A			940 mL	1000 mL	605772	04/21/20 05:03	L1A	TAL IRV
Total/NA	Analysis	1664A		1			605848	04/21/20 09:49	L1A	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	605004	04/14/20 15:25	ST	TAL IRV

Client Sample ID: TB-20200413

Lab Sample ID: 440-264557-3

Date Collected: 04/13/20 09:00

Matrix: Water

Date Received: 04/13/20 11:28

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	605059	04/15/20 09:42	RM	TAL IRV

Laboratory References:

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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

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

Lab Sample ID: MB 440-605011/4
Matrix: Water
Analysis Batch: 605011

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			04/14/20 18:22	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/14/20 18:22	1
Trichloroethene	ND		0.50	0.25	ug/L			04/14/20 18:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		60 - 140		04/14/20 18:22	1
Dibromofluoromethane (Surr)	102		60 - 140		04/14/20 18:22	1
Toluene-d8 (Surr)	109		60 - 140		04/14/20 18:22	1

Lab Sample ID: LCS 440-605011/1002
Matrix: Water
Analysis Batch: 605011

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	20.8		ug/L		83	19 - 212
1,2-Dichloroethane	25.0	23.0		ug/L		92	72 - 137
Trichloroethene	25.0	23.1		ug/L		92	75 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		60 - 140
Dibromofluoromethane (Surr)	97		60 - 140
Toluene-d8 (Surr)	108		60 - 140

Lab Sample ID: 440-264557-1 MS
Matrix: Water
Analysis Batch: 605011

Client Sample ID: Outfall002_20200413_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	9.21		ug/L		92	10 - 234
1,2-Dichloroethane	ND		10.0	10.3		ug/L		103	49 - 155
Trichloroethene	0.66		10.0	9.59		ug/L		89	70 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		60 - 140
Dibromofluoromethane (Surr)	102		60 - 140
Toluene-d8 (Surr)	107		60 - 140

Lab Sample ID: 440-264557-1 MSD
Matrix: Water
Analysis Batch: 605011

Client Sample ID: Outfall002_20200413_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	8.80		ug/L		88	10 - 234	5	32
1,2-Dichloroethane	ND		10.0	10.3		ug/L		103	49 - 155	1	49
Trichloroethene	0.66		10.0	10.6		ug/L		99	70 - 157	10	48

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

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

Lab Sample ID: 440-264557-1 MSD
Matrix: Water
Analysis Batch: 605011

Client Sample ID: Outfall002_20200413_Grab
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		60 - 140
Dibromofluoromethane (Surr)	104		60 - 140
Toluene-d8 (Surr)	110		60 - 140

Lab Sample ID: MB 440-605059/4
Matrix: Water
Analysis Batch: 605059

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			04/15/20 08:17	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/15/20 08:17	1
Trichloroethene	ND		0.50	0.25	ug/L			04/15/20 08:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		60 - 140		04/15/20 08:17	1
Dibromofluoromethane (Surr)	107		60 - 140		04/15/20 08:17	1
Toluene-d8 (Surr)	111		60 - 140		04/15/20 08:17	1

Lab Sample ID: LCS 440-605059/1002
Matrix: Water
Analysis Batch: 605059

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	23.2		ug/L		93	19 - 212
1,2-Dichloroethane	25.0	25.9		ug/L		104	72 - 137
Trichloroethene	25.0	23.3		ug/L		93	75 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		60 - 140
Dibromofluoromethane (Surr)	107		60 - 140
Toluene-d8 (Surr)	104		60 - 140

Lab Sample ID: 440-264661-A-2 MS
Matrix: Water
Analysis Batch: 605059

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	8.09		ug/L		81	10 - 234
1,2-Dichloroethane	ND		10.0	9.86		ug/L		99	49 - 155
Trichloroethene	ND		10.0	9.15		ug/L		92	70 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		60 - 140
Dibromofluoromethane (Surr)	102		60 - 140
Toluene-d8 (Surr)	107		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

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

Lab Sample ID: 440-264661-A-2 MSD
Matrix: Water
Analysis Batch: 605059

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	8.32		ug/L		83	10 - 234	3	32
1,2-Dichloroethane	ND		10.0	10.3		ug/L		103	49 - 155	4	49
Trichloroethene	ND		10.0	9.48		ug/L		95	70 - 157	4	48
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	103		60 - 140								
Dibromofluoromethane (Surr)	100		60 - 140								
Toluene-d8 (Surr)	111		60 - 140								

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-605665/3
Matrix: Water
Analysis Batch: 605665

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			04/21/20 12:34	1

Lab Sample ID: LCS 440-605665/4
Matrix: Water
Analysis Batch: 605665

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	917		umhos/cm		97	90 - 110

Lab Sample ID: 440-264678-A-1 DU
Matrix: Water
Analysis Batch: 605665

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	110		110		umhos/cm		0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605772/1-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/21/20 05:03	04/21/20 09:49	1

Lab Sample ID: LCS 440-605772/2-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	40.0	32.2		mg/L		81	78 - 114

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCSD 440-605772/3-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	34.7		mg/L		87	78 - 114	7	11

Lab Sample ID: 440-264905-A-1-A MS
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	ND		40.8	39.7		mg/L		97	78 - 114

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

GC/MS VOA

Analysis Batch: 605011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-1	Outfall002_20200413_Grab	Total/NA	Water	624.1	
MB 440-605011/4	Method Blank	Total/NA	Water	624.1	
LCS 440-605011/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264557-1 MS	Outfall002_20200413_Grab	Total/NA	Water	624.1	
440-264557-1 MSD	Outfall002_20200413_Grab	Total/NA	Water	624.1	

Analysis Batch: 605059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-3	TB-20200413	Total/NA	Water	624.1	
MB 440-605059/4	Method Blank	Total/NA	Water	624.1	
LCS 440-605059/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264661-A-2 MS	Matrix Spike	Total/NA	Water	624.1	
440-264661-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 605004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-1	Outfall002_20200413_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 605665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-1	Outfall002_20200413_Grab	Total/NA	Water	120.1	
MB 440-605665/3	Method Blank	Total/NA	Water	120.1	
LCS 440-605665/4	Lab Control Sample	Total/NA	Water	120.1	
440-264678-A-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 605772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-1	Outfall002_20200413_Grab	Total/NA	Water	1664A	
MB 440-605772/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605772/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605772/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
440-264905-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	

Analysis Batch: 605848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264557-1	Outfall002_20200413_Grab	Total/NA	Water	1664A	605772
MB 440-605772/1-A	Method Blank	Total/NA	Water	1664A	605772
LCS 440-605772/2-A	Lab Control Sample	Total/NA	Water	1664A	605772
LCSD 440-605772/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605772
440-264905-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	605772

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Grab

Job ID: 440-264557-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 Grab

Job ID: 440-264557-1

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

1

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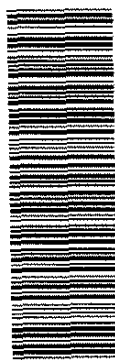
13

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

TRAEFT9B

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		Field Readings (Include units) Time of Readings: 0855 DO 5.96 mg/L pH 7.08 pH unit Temp 54.1 °C		Meter serial #							
Eurofins Calscience Irvine Contact: Christian Bontoc 17461 Derfan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC		Checked by: <i>[Signature]</i>							
Eurofins Calscience Irvine Contact: Christian Bontoc		Field Manager: Mark Dominick 978.234.5033, 618.569.0702 (cell)		Date Time: 4-13-2020/0855		Comments							
TestAmerica's services under this CoC shall be performed in accordance with the T/Cs when 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 ID	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)	Settable Solids (E190.5 (SM2540F))	Conductivity (SM2510B / E120.1)	ANALYSIS REQUIRED
Outfall 002	Outfall002_20200413_Grab	4/13/2020 /0900	WM	1 L Glass Amber	2	HCl	15	No	X	X	X	X	
	Outfall002_20200413_Grab_Extra	4/13/2020 /0900	WM	40 mL YOA	3	HCl	30	No					
Trip Blanks	TB-20200413	4/13/2020/0900	WQ	1 L Glass Amber	2	HCl	15	No					
				40 mL YOA	3	HCl	30	No		H			
				800 mL Poly	1	None	75	No					
				40 mL YOA	3	HCl	30	No	X				



440-264557 Chain of Custody

Requisitioned By <i>[Signature]</i>	Date/Time 4-13-2020/0950	Company M:A	Legend: R=Routine	Received By <i>[Signature]</i>	Date/Time 4-13-2020/0950	Turn-around time: (Check) 24 Hour _____ 72 Hour: _____ 10 Day: X _____ 48 Hour _____ 5 Day: _____ Normal: _____
Requisitioned By <i>[Signature]</i>	Date/Time 4-12-2020/1128	Company		Received By <i>[Signature]</i>	Date/Time EC 12V 4/13/20	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months.
Requisitioned By	Date/Time	Company		Received By	Date/Time	Data Requirements: (Check) No Level IV: _____ All Level IV: X _____

1128
1R89 2.1/2.1



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264557-1

Login Number: 264557

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264636-1

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

29 May 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:** 440-264636-1**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
OUTFALL002_2020041 4_COMP	440-264636-1	N/A	WM	4/14/20 9:15 AM	E1613B, E200.7, E200.8	II
OUTFALL002_2020041 4_COMP_F	440-264636-3	N/A	WM	4/14/20 9:15 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) 440-264636-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact and properly preserved, as applicable, with the following exception. Sample OUTFALL002_20200414_COMP was received for metals analysis unpreserved. The sample was preserved upon receipt at the laboratory.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- The sample was transferred from TA-Irvine to TA- Sacramento 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 upon receipt at TA-Sacramento.
- Strikethroughs on the original COC were initialed but not dated.



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

L. Calvin of MEC^X reviewed the SDG on June 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 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,7,8-TCDF, OCDD and OCDF, and for all totals except PeCDF and TCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. The sample totals for HpCDD, HpCDF, HxCDD and HxCDF 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 at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not necessary, 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 at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Totals HpCDD, HpCDF and HxCDF flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^X reviewed the SDG on May 29, 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_20200414_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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 $\pm 2\times$ the reporting limit, whichever is greater. Interferents in site samples were not summarized; therefore, interference was not 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 sample (dissolved only) for Method 200.7. Recoveries were within the QAPP control limits of 70-130% and RPDs were $\leq 20\%$. MS/MSD analyses were not performed on the samples (total or dissolved) in this SDG for Method 200.8.

IV.3.6. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.4. INTERNAL STANDARDS PERFORMANCE

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. 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.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:

IV.6.1. FIELD BLANKS AND EQUIPMENT BLANKS

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

IV.6.2. FIELD DUPLICATES

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402646361

Analysis Method E1613B

Sample Name OUTFALL002_20200414_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/14/2020 9:15:00 AM **Validation Level:** 9

Lab Sample Name: 440-264636-1

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	0.0000047	0.00010	0.00000058	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000015	0.00010	0.00000051	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000020	0.000052	0.00000042	ug/L	J,DXMBq	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000025	0.000052	0.00000041	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	ND	0.000052	0.00000044	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	ND	0.000052	0.00000079	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000025	0.000052	0.00000070	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000052	0.00000082	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000021	0.000052	0.00000066	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000011	0.000052	0.00000041	ug/L	J,DXMBq	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	ND	0.000052	0.00000062	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	ND	0.000052	0.00000041	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000052	0.00000053	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	ND	0.000052	0.00000046	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	ND	0.000052	0.00000050	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000030	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000010	0.00000045	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000032	0.000052	0.00000042	ug/L	J,DXMBq	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000037	0.000052	0.00000041	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000018	0.000052	0.00000041	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000045	0.000052	0.00000062	ug/L	J,DXMB	J	B, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	ND	0.000052	0.00000041	ug/L	U	U	
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000052	0.00000053	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000010	0.00000030	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000010	0.00000045	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Iron	T	7439-89-6	ND	0.10	0.050	mg/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL002_20200414_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-3

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	U	
Zinc	D	7440-66-6	ND	20	12	ug/L	U	U	

Analysis Method E200.8

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

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	2.0	2.0	0.50	ug/L			
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_20200414_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-3

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	U	
Copper	D	7440-50-8	1.4	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	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

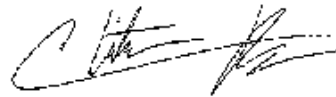
Laboratory Job ID: 440-264636-1

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:
4/23/2020 1:05:58 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.

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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
4/23/2020 1:05:58 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264636-1	Outfall002_20200414_Comp	Water	04/14/20 09:15	04/14/20 13:55	
440-264636-3	Outfall002_20200414_Comp_F	Water	04/14/20 09:15	04/14/20 13:55	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Job ID: 440-264636-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264636-1

Comments

No additional comments.

Receipt

The samples were received on 4/14/2020 1:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 1.0° C, 1.3° C, 1.6° C and 2.1° C.

GC/MS Semi VOA

Method 625.1: Surrogate Phenol-d5 recovery for the following sample was below control limits: Outfall002_20200414_Comp (440-264636-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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 440-605053 and analytical batch 440-605156. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-605053/2-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_20200414_Comp (440-264636-1), (CCV 320-373674/2), (LCS 320-372899/2-A) and (MB 320-372899/1-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: Outfall002_20200414_Comp_F (440-264636-3). This sample was filtered and preserved upon receipt to the laboratory.

04/14/20

2.5mL of HNO3

HNO3 Lot # 0000234822

Method 200.7 Rev 4.4: The method blank for preparation batch 440-605121 and analytical batch 440-605236 contained Zinc 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 method blank for preparation batch 440-605121 and analytical batch 440-605236 contained Arsenic above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 200.7 Rev 4.4: The continuing calibration blank (CCB) for 440-605236 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.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Job ID: 440-264636-1 (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.

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 440-605053. Method 8081B

Methods 3520C, 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 8270C preparation batch 440-605674. 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_20200414_Comp (440-264636-1) were received in a wide-mouth amber glass bottle.

Prep Batch: 372899

Method: 1613 (Waste Water)

Matrix: Water

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 002 Comp

Job ID: 440-264636-1

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

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		04/20/20 10:27	04/22/20 10:19	1
Bis(2-ethylhexyl) phthalate	ND		5.4	2.2	ug/L		04/20/20 10:27	04/22/20 10:19	1
N-Nitrosodimethylamine	ND		5.4	0.32	ug/L		04/20/20 10:27	04/22/20 10:19	1
Pentachlorophenol	ND		5.4	1.1	ug/L		04/20/20 10:27	04/22/20 10:19	1
2,4-Dinitrotoluene	ND		5.4	2.2	ug/L		04/20/20 10:27	04/22/20 10:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	79		60 - 120	04/20/20 10:27	04/22/20 10:19	1
2-Fluorobiphenyl	76		51 - 120	04/20/20 10:27	04/22/20 10:19	1
2-Fluorophenol	81		43 - 120	04/20/20 10:27	04/22/20 10:19	1
Nitrobenzene-d5	80		53 - 150	04/20/20 10:27	04/22/20 10:19	1
Phenol-d5	27	LG	45 - 150	04/20/20 10:27	04/22/20 10:19	1
Terphenyl-d14	78		12 - 142	04/20/20 10:27	04/22/20 10:19	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		04/15/20 05:53	04/15/20 14:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	41		10 - 104	04/15/20 05:53	04/15/20 14:30	1
DCB Decachlorobiphenyl (Surr)	62		18 - 134	04/15/20 05:53	04/15/20 14:30	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.1		0.50	0.25	mg/L			04/14/20 20:03	1
Nitrate as N	ND		0.11	0.055	mg/L			04/14/20 20:03	1
Nitrite as N	ND		0.15	0.025	mg/L			04/14/20 20:03	1
Sulfate	99		2.5	1.3	mg/L			04/14/20 20:21	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			04/16/20 11:19	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			04/15/20 15:17	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	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
2,3,7,8-TCDF	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,7,8-PeCDD	ND		0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,7,8-PeCDF	ND		0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
2,3,4,7,8-PeCDF	ND		0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,4,7,8-HxCDD	0.0000025	J,DX MB	0.000052	0.0000007	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,6,7,8-HxCDD	0.0000021	J,DX	0.000052	0.0000006	ug/L		04/16/20 12:05	04/20/20 20:28	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

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	0.0000006	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,4,7,8-HxCDF	ND		0.000052	0.0000007	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,6,7,8-HxCDF	ND		0.000052	0.0000008	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,7,8,9-HxCDF	0.0000011	J,DX MB q	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
2,3,4,6,7,8-HxCDF	ND		0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,4,6,7,8-HpCDD	0.0000025	J,DX MB	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,4,6,7,8-HpCDF	0.0000020	J,DX MB q	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
1,2,3,4,7,8,9-HpCDF	ND		0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
OCDD	0.000015	J,DX MB	0.00010	0.0000005	ug/L		04/16/20 12:05	04/20/20 20:28	1
OCDF	0.0000047	J,DX MB q	0.00010	0.0000005	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total TCDD	ND		0.000010	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total TCDF	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total PeCDD	ND		0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total PeCDF	ND		0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total HxCDD	0.0000045	J,DX MB	0.000052	0.0000006	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total HxCDF	0.0000018	J,DX MB q	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total HpCDD	0.0000037	J,DX MB q	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1
Total HpCDF	0.0000032	J,DX MB q	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 20:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	65		25 - 164	04/16/20 12:05	04/20/20 20:28	1
13C-2,3,7,8-TCDF	64		24 - 169	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,7,8-PeCDD	55		25 - 181	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,7,8-PeCDF	56		24 - 185	04/16/20 12:05	04/20/20 20:28	1
13C-2,3,4,7,8-PeCDF	48		21 - 178	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,6,7,8-HxCDF	53		26 - 123	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	04/16/20 12:05	04/20/20 20:28	1
13C-2,3,4,6,7,8-HxCDF	60		28 - 136	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,4,6,7,8-HpCDD	73		23 - 140	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,4,6,7,8-HpCDF	63		28 - 143	04/16/20 12:05	04/20/20 20:28	1
13C-1,2,3,4,7,8,9-HpCDF	83		26 - 138	04/16/20 12:05	04/20/20 20:28	1
13C-OCDD	74		17 - 157	04/16/20 12:05	04/20/20 20:28	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	86		35 - 197	04/16/20 12:05	04/20/20 20:28	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		04/15/20 09:51	04/15/20 17:12	1
Zinc	ND		20	12	ug/L		04/15/20 09:51	04/15/20 17:12	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		04/15/20 09:38	04/15/20 16:52	1
Copper	2.0		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:52	1
Lead	ND		1.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:52	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:52	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		04/14/20 15:17	04/15/20 12:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	0.31		0.10	0.040	NTU			04/15/20 15:23	1
Total Dissolved Solids	280		10	5.0	mg/L			04/21/20 09:33	1
Total Suspended Solids	0.60	J,DX	1.0	0.50	mg/L			04/21/20 13:42	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/20/20 13:47	1
Methylene Blue Active Substances	0.10		0.10	0.050	mg/L			04/15/20 13:21	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			04/15/20 08:25	1

Client Sample ID: Outfall002_20200414_Comp_F

Lab Sample ID: 440-264636-3

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

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		04/15/20 10:36	04/15/20 17:55	1
Zinc	ND		20	12	ug/L		04/15/20 10:36	04/15/20 17:55	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		04/15/20 10:40	04/15/20 20:56	1
Copper	1.4	J,DX	2.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:56	1
Lead	ND		1.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:56	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:56	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		04/17/20 11:03	04/20/20 12:40	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

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)	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
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	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:

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: 440-264636-1

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			930 mL	2.0 mL	605674	04/20/20 10:27	NAM	TAL IRV
Total/NA	Analysis	625.1		1			606010	04/22/20 10:19	L1B	TAL IRV
Total/NA	Prep	608			965 mL	2 mL	605053	04/15/20 05:53	L1H	TAL IRV
Total/NA	Analysis	608.3		1			605156	04/15/20 14:30	D1D	TAL IRV
Total/NA	Analysis	300.0		1			604906	04/14/20 20:03	OH1	TAL IRV
Total/NA	Analysis	300.0		1			604907	04/14/20 20:03	OH1	TAL IRV
Total/NA	Analysis	300.0		5			604907	04/14/20 20:21	OH1	TAL IRV
Total/NA	Analysis	314.0		1			605310	04/16/20 11:19	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			605194	04/15/20 15:17	TLN	TAL IRV
Total/NA	Prep	1613B			958.7 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B		1			373674	04/20/20 20:28	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	605121	04/15/20 09:51	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605236	04/15/20 17:12	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605115	04/15/20 09:38	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			605225	04/15/20 16:52	MQP	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	605002	04/14/20 15:17	MEM	TAL IRV
Total/NA	Analysis	245.1		1			605167	04/15/20 12:30	MEM	TAL IRV
Total/NA	Analysis	180.1		1			605147	04/15/20 15:23	ST	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605839	04/21/20 09:33	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	605914	04/21/20 13:42	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	605119	04/15/20 09:51	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			605374	04/16/20 13:39	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605752	04/20/20 13:47	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	605169	04/15/20 13:21	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	605082	04/15/20 08:25	KYP	TAL IRV

Client Sample ID: Outfall002_20200414_Comp_F

Lab Sample ID: 440-264636-3

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

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	605017	04/14/20 17:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605131	04/15/20 10:36	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			605236	04/15/20 17:55	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	605017	04/14/20 17:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605132	04/15/20 10:40	M1G	TAL IRV
Dissolved	Analysis	200.8		1			605296	04/15/20 20:56	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	605016	04/14/20 17:27	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	605496	04/17/20 11:03	MEM	TAL IRV
Dissolved	Analysis	245.1		1			605723	04/20/20 12:40	EMS	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

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-605674/1-A
Matrix: Water
Analysis Batch: 606010

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605674

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		04/20/20 10:27	04/22/20 09:07	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		04/20/20 10:27	04/22/20 09:07	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		04/20/20 10:27	04/22/20 09:07	1
Pentachlorophenol	ND		5.0	1.0	ug/L		04/20/20 10:27	04/22/20 09:07	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		04/20/20 10:27	04/22/20 09:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		60 - 120	04/20/20 10:27	04/22/20 09:07	1
2-Fluorobiphenyl	79		51 - 120	04/20/20 10:27	04/22/20 09:07	1
2-Fluorophenol	81		43 - 120	04/20/20 10:27	04/22/20 09:07	1
Nitrobenzene-d5	65		53 - 150	04/20/20 10:27	04/22/20 09:07	1
Phenol-d5	78		45 - 150	04/20/20 10:27	04/22/20 09:07	1
Terphenyl-d14	90		12 - 142	04/20/20 10:27	04/22/20 09:07	1

Lab Sample ID: LCS 440-605674/2-A
Matrix: Water
Analysis Batch: 606010

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605674

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	15.0	12.5		ug/L		83	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	12.2		ug/L		81	29 - 137
N-Nitrosodimethylamine	15.0	12.8		ug/L		85	60 - 140
Pentachlorophenol	30.0	28.0		ug/L		93	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	82		60 - 120
2-Fluorobiphenyl	77		51 - 120
2-Fluorophenol	78		43 - 120
Nitrobenzene-d5	84		53 - 150
Phenol-d5	80		45 - 150
Terphenyl-d14	85		12 - 142

Lab Sample ID: LCSD 440-605674/3-A
Matrix: Water
Analysis Batch: 606010

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605674

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2,4,6-Trichlorophenol	15.0	12.3		ug/L		82	52 - 129	2	35
Bis(2-ethylhexyl) phthalate	15.0	12.7		ug/L		85	29 - 137	4	35
N-Nitrosodimethylamine	15.0	12.8		ug/L		86	60 - 140	0	35
Pentachlorophenol	30.0	27.4		ug/L		91	38 - 152	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	81		60 - 120
2-Fluorobiphenyl	75		51 - 120
2-Fluorophenol	80		43 - 120
Nitrobenzene-d5	82		53 - 150

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-605674/3-A
Matrix: Water
Analysis Batch: 606010

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605674

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Phenol-d5	77		45 - 150
Terphenyl-d14	88		12 - 142

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-605053/1-A
Matrix: Water
Analysis Batch: 605156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605053

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
alpha-BHC	ND		0.10	0.020	ug/L		04/15/20 05:53	04/15/20 13:30	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	50		10 - 104	04/15/20 05:53	04/15/20 13:30	1
DCB Decachlorobiphenyl (Surr)	77		18 - 134	04/15/20 05:53	04/15/20 13:30	1

Lab Sample ID: LCS 440-605053/2-A
Matrix: Water
Analysis Batch: 605156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605053

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
alpha-BHC	0.400	0.243		ug/L		61	37 - 140

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	70		10 - 104
DCB Decachlorobiphenyl (Surr)	99		18 - 134

Lab Sample ID: LCSD 440-605053/3-A
Matrix: Water
Analysis Batch: 605156

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605053

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec. Limits	RPD	Limit
		Result	Qualifier						
alpha-BHC	0.400	0.231		ug/L		58	37 - 140	5	36

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	65		10 - 104
DCB Decachlorobiphenyl (Surr)	90		18 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604906/6
Matrix: Water
Analysis Batch: 604906

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate as N	ND		0.11	0.055	mg/L			04/14/20 10:58	1
Nitrite as N	ND		0.15	0.025	mg/L			04/14/20 10:58	1

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-604906/5
Matrix: Water
Analysis Batch: 604906

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	1.56		mg/L		102	90 - 110

Lab Sample ID: 440-264660-D-1 MS
Matrix: Water
Analysis Batch: 604906

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	0.83		1.13	1.90		mg/L		95	80 - 120
Nitrite as N	0.22		1.52	1.62		mg/L		92	80 - 120

Lab Sample ID: 440-264660-D-1 MSD
Matrix: Water
Analysis Batch: 604906

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	Limit
Nitrate as N	0.83		1.13	1.90		mg/L		95	80 - 120	0	20
Nitrite as N	0.22		1.52	1.62		mg/L		92	80 - 120	0	20

Lab Sample ID: MB 440-604907/6
Matrix: Water
Analysis Batch: 604907

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			04/14/20 10:58	1
Sulfate	ND		0.50	0.25	mg/L			04/14/20 10:58	1

Lab Sample ID: LCS 440-604907/5
Matrix: Water
Analysis Batch: 604907

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	4.51		mg/L		90	90 - 110
Sulfate	5.00	4.88		mg/L		98	90 - 110

Lab Sample ID: 440-264660-D-1 MS
Matrix: Water
Analysis Batch: 604907

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	26	EY	5.00	32.1	EY BB	mg/L		114	80 - 120
Sulfate	66	EY	5.00	72.3	EY BB	mg/L		119	80 - 120

Lab Sample ID: 440-264660-D-1 MSD
Matrix: Water
Analysis Batch: 604907

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	Limit
Chloride	26	EY	5.00	32.1	EY BB	mg/L		113	80 - 120	0	20
Sulfate	66	EY	5.00	72.3	EY BB	mg/L		119	80 - 120	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-605310/6
Matrix: Water
Analysis Batch: 605310

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND	IB	4.0	0.95	ug/L			04/16/20 09:49	1

Lab Sample ID: LCS 440-605310/5
Matrix: Water
Analysis Batch: 605310

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	9.34	IB	ug/L		93	85 - 115

Lab Sample ID: MRL 440-605310/4
Matrix: Water
Analysis Batch: 605310

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	0.997	J,DX	ug/L		100	75 - 125

Lab Sample ID: MRL 440-605310/8
Matrix: Water
Analysis Batch: 605310

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	4.02		ug/L		100	75 - 125

Lab Sample ID: 440-264636-1 MS
Matrix: Water
Analysis Batch: 605310

Client Sample ID: Outfall002_20200414_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	10.2		ug/L		102	80 - 120

Lab Sample ID: 440-264636-1 MSD
Matrix: Water
Analysis Batch: 605310

Client Sample ID: Outfall002_20200414_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	10.3		ug/L		103	80 - 120	1	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDD	0.00000189	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDD	0.000000710	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDD	0.00000730	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDF	0.00000720	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000006	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDD	0.0000663	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDF	0.0000257	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDF	0.000000636	J,DX	0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDD	0.00000260	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDD	0.0000130	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDF	0.0000152	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,7,8-TCDF	72		24 - 169	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,7,8-PeCDF	72		21 - 178	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDD	70		28 - 130	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	04/16/20 12:05	04/20/20 16:41	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDD	72		23 - 140	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8,9-HpCDF	79		26 - 138	04/16/20 12:05	04/20/20 16:41	1
13C-OCDD	73		17 - 157	04/16/20 12:05	04/20/20 16:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	86		35 - 197	04/16/20 12:05	04/20/20 16:41	1

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	Limits
2,3,7,8-TCDF	0.000200	0.000207	MB	ug/L		104	75 - 158	
1,2,3,7,8-PeCDD	0.00100	0.00105	MB	ug/L		105	70 - 142	
1,2,3,7,8-PeCDF	0.00100	0.00106		ug/L		106	80 - 134	
2,3,4,7,8-PeCDF	0.00100	0.000992		ug/L		99	68 - 160	
1,2,3,4,7,8-HxCDD	0.00100	0.000959	MB	ug/L		96	70 - 164	
1,2,3,6,7,8-HxCDD	0.00100	0.00107		ug/L		107	76 - 134	
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162	
1,2,3,4,7,8-HxCDF	0.00100	0.000915		ug/L		91	72 - 134	
1,2,3,6,7,8-HxCDF	0.00100	0.00101		ug/L		101	84 - 130	
1,2,3,7,8,9-HxCDF	0.00100	0.00103	MB	ug/L		103	78 - 130	
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	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	0.000964		ug/L		96	78 - 138	
OCDD	0.00200	0.00199	MB	ug/L		100	78 - 144	
OCDF	0.00200	0.00217	MB	ug/L		108	63 - 170	

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	60		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	63		25 - 163
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	68		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	67		13 - 199

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	84		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD - RA	ND		0.000010	0.0000011	ug/L		04/16/20 12:05	04/21/20 13:45	1
2,3,7,8-TCDF - RA	ND		0.000010	0.0000007	ug/L		04/16/20 12:05	04/21/20 13:45	1
				6					

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF - RA	67		24 - 169	04/16/20 12:05	04/21/20 13:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD - RA	85		35 - 197	04/16/20 12:05	04/21/20 13:45	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-605121/1-A
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.10	0.050	mg/L		04/15/20 09:51	04/15/20 16:00	1
Zinc	12.0	J,DX	20	12	ug/L		04/15/20 09:51	04/15/20 16:00	1

Lab Sample ID: LCS 440-605121/2-A
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits %Rec.
Iron	0.500	0.455		mg/L		91	85 - 115
Zinc	500	492		ug/L		98	85 - 115

Lab Sample ID: 440-264642-E-1-B MS
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits %Rec.
Iron	0.19		0.500	0.668		mg/L		95	70 - 130
Zinc	140	MB	500	655		ug/L		102	70 - 130

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-264642-E-1-C MSD
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Iron	0.19		0.500	0.667		mg/L		95		70 - 130	0	20
Zinc	140	MB	500	640		ug/L		99		70 - 130	2	20

Lab Sample ID: MB 440-605017/1-C
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605131

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	ND		0.10	0.050	mg/L		04/15/20 10:36	04/15/20 17:50	1
Zinc	ND		20	12	ug/L		04/15/20 10:36	04/15/20 17:50	1

Lab Sample ID: LCS 440-605017/2-C
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Added	Result					
Iron	0.500	0.478		mg/L		96		85 - 115
Zinc	500	490		ug/L		98		85 - 115

Lab Sample ID: 440-264636-3 MS
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Outfall002_20200414_Comp_F
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Iron	ND		0.500	0.483		mg/L		97		70 - 130
Zinc	ND		500	491		ug/L		98		70 - 130

Lab Sample ID: 440-264636-3 MSD
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Outfall002_20200414_Comp_F
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Iron	ND		0.500	0.487		mg/L		97		70 - 130	1	20
Zinc	ND		500	503		ug/L		101		70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-605115/1-A
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cadmium	ND		1.0	0.25	ug/L		04/15/20 09:38	04/15/20 15:49	1
Copper	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Lead	ND		1.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-605115/2-A
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	74.5		ug/L		93	85 - 115
Copper	80.0	79.4		ug/L		99	85 - 115
Lead	80.0	75.2		ug/L		94	85 - 115
Selenium	80.0	77.9		ug/L		97	85 - 115

Lab Sample ID: 440-264639-A-11-B MS
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	72.6		ug/L		91	70 - 130
Copper	460		80.0	488	BB	ug/L		37	70 - 130
Lead	ND		80.0	75.5		ug/L		94	70 - 130
Selenium	ND		80.0	74.7		ug/L		93	70 - 130

Lab Sample ID: 440-264639-A-11-C MSD
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND		80.0	73.3		ug/L		92	70 - 130	1	20
Copper	460		80.0	519	BB	ug/L		75	70 - 130	6	20
Lead	ND		80.0	77.1		ug/L		96	70 - 130	2	20
Selenium	ND		80.0	77.6		ug/L		97	70 - 130	4	20

Lab Sample ID: MB 440-605017/1-D
Matrix: Water
Analysis Batch: 605296

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605132

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		04/15/20 10:40	04/15/20 20:39	1
Copper	ND		2.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:39	1
Lead	ND		1.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:39	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 10:40	04/15/20 20:39	1

Lab Sample ID: LCS 440-605017/2-D
Matrix: Water
Analysis Batch: 605296

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	73.0		ug/L		91	85 - 115
Copper	80.0	78.5		ug/L		98	85 - 115
Lead	80.0	77.3		ug/L		97	85 - 115
Selenium	80.0	79.5		ug/L		99	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 720-98114-C-1-D MS
Matrix: Water
Analysis Batch: 605296

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 605132

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	72.7		ug/L		91	70 - 130
Copper	12		80.0	90.1		ug/L		98	70 - 130
Lead	ND		80.0	78.1		ug/L		98	70 - 130
Selenium	0.57	J,DX	80.0	79.3		ug/L		98	70 - 130

Lab Sample ID: 720-98114-C-1-E MSD
Matrix: Water
Analysis Batch: 605296

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 605132

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND		80.0	72.1		ug/L		90	70 - 130	1	20
Copper	12		80.0	92.7		ug/L		101	70 - 130	3	20
Lead	ND		80.0	77.3		ug/L		97	70 - 130	1	20
Selenium	0.57	J,DX	80.0	76.6		ug/L		95	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-605002/1-A
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/14/20 15:17	04/15/20 12:13	1

Lab Sample ID: LCS 440-605002/2-A
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.64		ug/L		91	85 - 115

Lab Sample ID: 320-60074-C-1-D MS
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.75		ug/L		94	75 - 125

Lab Sample ID: 320-60074-C-1-E MSD
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	4.03		ug/L		101	75 - 125	7	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: MB 440-605016/1-C
 Matrix: Water
 Analysis Batch: 605723

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 605496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/17/20 11:03	04/20/20 12:35	1

Lab Sample ID: LCS 440-605016/2-C
 Matrix: Water
 Analysis Batch: 605723

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved
 Prep Batch: 605496

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.98		ug/L		99	85 - 115

Lab Sample ID: 440-264636-3 MS
 Matrix: Water
 Analysis Batch: 605723

Client Sample ID: Outfall002_20200414_Comp_F
 Prep Type: Dissolved
 Prep Batch: 605496

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	4.01		ug/L		100	75 - 125

Lab Sample ID: 440-264636-3 MSD
 Matrix: Water
 Analysis Batch: 605723

Client Sample ID: Outfall002_20200414_Comp_F
 Prep Type: Dissolved
 Prep Batch: 605496

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	3.97		ug/L		99	75 - 125	1	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-605147/5
 Matrix: Water
 Analysis Batch: 605147

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			04/15/20 15:23	1

Lab Sample ID: 440-264630-B-2 DU
 Matrix: Water
 Analysis Batch: 605147

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Turbidity	0.28		0.250		NTU		11	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605839/1
 Matrix: Water
 Analysis Batch: 605839

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			04/21/20 09:33	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-605839/2
Matrix: Water
Analysis Batch: 605839

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	982		mg/L		98	90 - 110

Lab Sample ID: 720-98174-F-8 DU
Matrix: Water
Analysis Batch: 605839

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	1600		1550		mg/L		1	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-605914/1
Matrix: Water
Analysis Batch: 605914

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			04/21/20 13:42	1

Lab Sample ID: LCS 440-605914/2
Matrix: Water
Analysis Batch: 605914

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: 440-264709-B-4 DU
Matrix: Water
Analysis Batch: 605914

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	18		17.2		mg/L		7	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-605119/1-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1

Lab Sample ID: LCS 440-605119/2-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-264517-F-1-B MS
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	ND		100	69.3	LN	ug/L		69	75 - 125

Lab Sample ID: 440-264517-F-1-C MSD
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	ND		100	68.5	LN	ug/L		69	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605752/10
Matrix: Water
Analysis Batch: 605752

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			04/20/20 13:20	1

Lab Sample ID: LCS 440-605752/11
Matrix: Water
Analysis Batch: 605752

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	4.980		mg/L		100	90 - 110

Lab Sample ID: MRL 440-605752/9
Matrix: Water
Analysis Batch: 605752

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	0.1720	J,DX	mg/L		86	50 - 150

Lab Sample ID: 440-264517-F-1 MS
Matrix: Water
Analysis Batch: 605752

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	5.270		mg/L		105	90 - 110

Lab Sample ID: 440-264517-F-1 MSD
Matrix: Water
Analysis Batch: 605752

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	Limit
Ammonia (as N)	ND		5.00	5.450		mg/L		109	90 - 110	3	15

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-605169/4
Matrix: Water
Analysis Batch: 605169

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			04/15/20 13:20	1

Lab Sample ID: LCS 440-605169/5
Matrix: Water
Analysis Batch: 605169

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	0.226		mg/L		90	90 - 110

Lab Sample ID: MRL 440-605169/3
Matrix: Water
Analysis Batch: 605169

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	0.102		mg/L		102	50 - 150

Lab Sample ID: 440-264636-1 MS
Matrix: Water
Analysis Batch: 605169

Client Sample ID: Outfall002_20200414_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	0.328		mg/L		90	50 - 125

Lab Sample ID: 440-264636-1 MSD
Matrix: Water
Analysis Batch: 605169

Client Sample ID: Outfall002_20200414_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	0.350		mg/L		99	50 - 125	7	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-605082/3
Matrix: Water
Analysis Batch: 605082

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			04/15/20 08:25	1

Lab Sample ID: LCS 440-605082/7
Matrix: Water
Analysis Batch: 605082

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	211		mg/L		106	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCSD 440-605082/8
Matrix: Water
Analysis Batch: 605082

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	204		mg/L		103	85 - 115	3	20

Lab Sample ID: LCSD 440-605082/9
Matrix: Water
Analysis Batch: 605082

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	216		mg/L		109	85 - 115	3	20

Lab Sample ID: 440-264632-R-1 DU
Matrix: Water
Analysis Batch: 605082

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: 440-264636-1

GC/MS Semi VOA

Prep Batch: 605674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	625	
MB 440-605674/1-A	Method Blank	Total/NA	Water	625	
LCS 440-605674/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 440-605674/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 606010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	625.1	605674
MB 440-605674/1-A	Method Blank	Total/NA	Water	625.1	605674
LCS 440-605674/2-A	Lab Control Sample	Total/NA	Water	625.1	605674
LCSD 440-605674/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	605674

GC Semi VOA

Prep Batch: 605053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	608	
MB 440-605053/1-A	Method Blank	Total/NA	Water	608	
LCS 440-605053/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-605053/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 605156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	608.3	605053
MB 440-605053/1-A	Method Blank	Total/NA	Water	608.3	605053
LCS 440-605053/2-A	Lab Control Sample	Total/NA	Water	608.3	605053
LCSD 440-605053/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	605053

HPLC/IC

Analysis Batch: 604906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	300.0	
MB 440-604906/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604906/5	Lab Control Sample	Total/NA	Water	300.0	
440-264660-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264660-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 604907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	300.0	
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	300.0	
MB 440-604907/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604907/5	Lab Control Sample	Total/NA	Water	300.0	
440-264660-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264660-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 605194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	NO3NO2 Calc	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

HPLC/IC

Analysis Batch: 605310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	314.0	
MB 440-605310/6	Method Blank	Total/NA	Water	314.0	
LCS 440-605310/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-605310/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-605310/8	Lab Control Sample	Total/NA	Water	314.0	
440-264636-1 MS	Outfall002_20200414_Comp	Total/NA	Water	314.0	
440-264636-1 MSD	Outfall002_20200414_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 372899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	1613B	
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 373674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	372899
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	372899

Analysis Batch: 373924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	372899

Metals

Prep Batch: 605002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	245.1	
MB 440-605002/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-605002/2-A	Lab Control Sample	Total/NA	Water	245.1	
320-60074-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	
320-60074-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 605016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	
MB 440-605016/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 605017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	
MB 440-605017/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-605017/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-605017/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Metals (Continued)

Filtration Batch: 605017 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	FILTRATION	
720-98114-C-1-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
720-98114-C-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 605115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total Recoverable	Water	200.2	
MB 440-605115/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605115/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264639-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264639-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 605121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total Recoverable	Water	200.2	
MB 440-605121/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605121/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264642-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264642-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 605131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	200.2	605017
MB 440-605017/1-C	Method Blank	Dissolved	Water	200.2	605017
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	200.2	605017
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	200.2	605017
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	200.2	605017

Prep Batch: 605132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	200.2	605017
MB 440-605017/1-D	Method Blank	Dissolved	Water	200.2	605017
LCS 440-605017/2-D	Lab Control Sample	Dissolved	Water	200.2	605017
720-98114-C-1-D MS	Matrix Spike	Dissolved	Water	200.2	605017
720-98114-C-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	605017

Analysis Batch: 605167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	245.1	605002
MB 440-605002/1-A	Method Blank	Total/NA	Water	245.1	605002
LCS 440-605002/2-A	Lab Control Sample	Total/NA	Water	245.1	605002
320-60074-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	605002
320-60074-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	605002

Analysis Batch: 605225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total Recoverable	Water	200.8	605115
MB 440-605115/1-A	Method Blank	Total Recoverable	Water	200.8	605115
LCS 440-605115/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605115
440-264639-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.8	605115

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Metals (Continued)

Analysis Batch: 605225 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264639-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	605115

Analysis Batch: 605236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	200.7 Rev 4.4	605131
MB 440-605017/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	605131
MB 440-605121/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	605121
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	605131
LCS 440-605121/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	200.7 Rev 4.4	605131
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	200.7 Rev 4.4	605131
440-264642-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264642-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	605121

Analysis Batch: 605296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	200.8	605132
MB 440-605017/1-D	Method Blank	Dissolved	Water	200.8	605132
LCS 440-605017/2-D	Lab Control Sample	Dissolved	Water	200.8	605132
720-98114-C-1-D MS	Matrix Spike	Dissolved	Water	200.8	605132
720-98114-C-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	605132

Prep Batch: 605496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605016
MB 440-605016/1-C	Method Blank	Dissolved	Water	245.1	605016
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	245.1	605016
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605016
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605016

Analysis Batch: 605723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-3	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605496
MB 440-605016/1-C	Method Blank	Dissolved	Water	245.1	605496
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	245.1	605496
440-264636-3 MS	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605496
440-264636-3 MSD	Outfall002_20200414_Comp_F	Dissolved	Water	245.1	605496

General Chemistry

Analysis Batch: 605082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM5210B	
USB 440-605082/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-605082/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-605082/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-605082/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-264632-R-1 DU	Duplicate	Total/NA	Water	SM5210B	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

General Chemistry

Prep Batch: 605119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	Distill/CN	
MB 440-605119/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 605147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	180.1	
MB 440-605147/5	Method Blank	Total/NA	Water	180.1	
440-264630-B-2 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 605169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM 5540C	
MB 440-605169/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-605169/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-605169/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-264636-1 MS	Outfall002_20200414_Comp	Total/NA	Water	SM 5540C	
440-264636-1 MSD	Outfall002_20200414_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 605374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM 4500 CN E	605119
MB 440-605119/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	605119
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	605119

Analysis Batch: 605752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605752/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605752/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605752/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 605839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM 2540C	
MB 440-605839/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605839/2	Lab Control Sample	Total/NA	Water	SM 2540C	
720-98174-F-8 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 605914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	SM 2540D	
MB 440-605914/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605914/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264709-B-4 DU	Duplicate	Total/NA	Water	SM 2540D	

Eurofins Calscience Irvine

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
LG	LG=Surrogate recovery below the acceptance limits

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
IB	CCV recovery above limit; analyte not detected
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
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
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.
α	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: 440-264636-1

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
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
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	04-16-21
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.



Eurofins Calscience Irvine

440-264636 Chain of Custody

4/14/20 LD

CHAIN OF CUSTODY FORM

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

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel. 949-260-3218

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)

Sampler: Dan Smith

The analytical services under this CoC shall be performed in accordance with the TCOs within Baxter Service Agreement# 2019-227 established by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Technonics Laboratories Inc.

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD
Outfall 002	Outfall002_20200414_Comp	4/14/2020 10:15	WM	500 mL Poly	1	HNO ₃	80	No
			WM	1 L Glass Amber	2	None	110	No
			WM	1 L Poly	1	None	115	No
			WM	500 mL Poly	2	None	120	No
			WM	500 mL Poly	2	None	130	No
			WM	500 mL Poly	1	None	150	No
			WM	500 mL Poly	1	H ₂ SO ₄	180	No
			WM	1 L Glass Amber	2	None	170	No
			WM	1 L Glass Amber	2	None	180	No
			WM	1 L Poly	1	None	185	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	120	No
			WM	500 mL Poly	2	None	130	No
			WM	1 L Glass Amber	2	None	170	No
			WM	1 L Glass Amber	2	None	180	No

ANALYSIS REQUIRED

Parameter	Result
Total Recoverable Metals (E2007) Cu, Pb, Cd, Se	X
TCD (and all congeners) (E1813B)	X
BOD ₅ (20 degrees C) (E405) (SM5108_BODCalc)	
Surfactants (MPAS) (SM5540CE425 1)	X
Ch ₂ SO ₄ , Nitrite-N, Nitrate-N, NO ₃ +NO ₂ -N, Perchlorate (E300)	X
Turbidity, TDS (SM2540CF180 1)	
TSS (160 2) (SM2540D1)	
Ammonia-N (350 2)	X
alpha-BHC (E608)	
2,4,6-TCP, 2,4-Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E825)	
Total Recoverable Metals Mercury (E245 1)	X

Comments:
Cuff 1112 analysis for Fe
48 hours Holding Time NO₃ & NO₂
48 hour holding time for turbidity

Legend: C=Conditional, R=Routine

Requisitioned By: *Conl Dominick* Date/Time: 4-14-20 11:50
Received By: *JD EC-IRV* Date/Time: 4/14/20 13:55

Requisitioned By: *[Signature]* Date/Time: 4-14-20 1:55
Received By: *[Signature]* Date/Time: 4-14-20 1:55

Company: *[Signature]*

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

Sample Integrity (Check): Intact On ice

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

1R-94

1.4/1.6, 1.1/1.3, 0.2/1.0, 0.3/0.5, 1.9/2.1



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		ANALYSIS REQUIRED						
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel. 949-280-3218		Project Manager: Katharine Miller 520 289 8806; 520.904.6844 (cell)		Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se (E200 9)						
Sampler: Dan Smith		Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)		Total Dissolved Metals (E245 1)						
<small>TestAmerica's services under this CoC shall be performed in accordance with the TCOs within Blanket Service Agreements 2015-22; TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc</small>		<small>TestAmerica's services under this CoC shall be performed in accordance with the TCOs within Blanket Service Agreements 2015-22; TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc</small>		Chronic Toxicity - Selenium (EPA-821-R-02-013)						
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cart	Preservable	Bottle #	MS/MSD	Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E908 0), Sr-90 (E905 0), Total Radium 226 (E903 0 or E903 0), Uranium (E906 0), K-40, Cs-137 (E901 0 or E901 1) <th>Comments</th>	Comments
Outfall 002	Outfall002_20200414_Comp_F	4/14/2020 10:15	WM	1L Poly	1	None	200	No	X	Sample received DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
			WM	bioscience vials	1	None	320	No	X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
			WM	500 mL Poly	1	NaOH	220	No		Only test if first of second set of samples
			WM	2.5 Gal Cube	1	None	225	No		
			WM	1 L Clear Amber	1	None	230	No		
			WM	4-Sept-20	0	None	305	No		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>[Signature]</i>	Date/Time 4-14-2020 1:55	Company H&A	Received By <i>[Signature]</i>	Date/Time 4-4-20 11:50	Company FAW
Relinquished By <i>[Signature]</i>	Date/Time 4-14-20 1:55	Company	Received By <i>[Signature]</i>	Date/Time 4/14/20 1355	Company
Relinquished By	Date/Time	Company	Received By	Date/Time	Company



Chain of Custody Record



Calscience



Client Information (Sub Contract Lab)		Lab PM: Bondoc, Christian M	Carrier Tracking No(s): 440-155034.1
Client Contact: Shipping/Receiving		E-Mail: christian.bondoc@testamericainc.com	State of Origin: California
Company: TestAmerica Laboratories, Inc.		Page: Page 1 of 1	
Address: 13715 Rider Trail North, Earth City State, Zip: MO, 63045		Job #: 440-264636-1	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 R - MeOH S - H2SO4 G - Amchlor 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:	
Project Name: Boeing NPDES SSFL outfalls		Special Instructions/Note: Boeing SSFL; DO NOT FILTER; use prep date from preservation	
Site: Outfall002_20200414_Comp (440-264636-1)		Total Number of containers: 2	

Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Other)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers
	4/14/20	09:15 Pacific		Water		X	X	901_T_Cs/II_Geo_0_K-40 and Csium-137	
						X	X	A01R_U/ExtChrom_Actin Total Uranium	
						X	X	900_0/Evaporation Gross Alpha/Beta	
						X	X	903_0/PrecSep_21 Radium-226	
						X	X	904_0/PrecSep_0 Radium-228	
						X	X	905_Sr90/PrecSep_7 Strontium-90	
						X	X	906_0/LSC_Disl_Susp Tritium	

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/test/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
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: JLO Date: 4/14/20 1500 Company: ECIRV
 Relinquished by: FED EX Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: [Signature] Date/Time: 4/15/20 0952 Company: EPA STL
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____



CONDITION UPON RECEIPT FORM

Client: ETA IRVING

Initiated by: LAM Date: 4/15/2020 Time: 00:52 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 8342	192152620	0.3	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> N	Are there custody seals present on the cooler?	8.	Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	Y <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input checked="" type="radio"/> N/A	Was sample received with proper pH? (if not, make note below) pH strip lot #: <u>HC905612</u>
4.	<input checked="" type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> N	Sample received in proper containers?
6.	Y <input checked="" type="radio"/> N	Was sample received broken?	13.	Y N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y N <input checked="" type="radio"/> 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: 440-264636-R-1 preserved upon arrival to lab.

pH Adjustment (if needed)

Date/Time of Preservation: 4/15/2020 15:51

Initial pH and pH strip lot#: pH=7 HC905612

Preservative and lot#: HNO3 000024882

Final pH and pH strip lot#: pH=2 HC905612

Amount of Preservative: 6mL

Sample Labels Applied By: LAM

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.

17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record



Calscience



Client Information (Sub Contract Lab)				Sampler:		Lab PM: Bondoc, Christian M		Carrier Tracking No(s):		COC No: 440-155033.1	
Shipping/Receiving				Phone:		E-Mail: christian.bondoc@lestamericainc.com		State of Origin: California		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note): State Program - California		Job #: 440-264636-1		Preservation Codes: A - HCL M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - Tsp Dodecahydrate U - Acetone V - MCAA W - pH 4.5 X - EDTA Z - other (specify) Other:		Job #: 440-264636-1	
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:				Due Date Requested: 4/24/2020 TAT Requested (days):		Analysis Requested		Total Number of Containers		Special Instructions/Note:	
Project Name: Boeing NPDES SSFL outfalls Site:				PO #: WO #: Project #: 44009879 SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		16138/16138_Sox_Sep_P Standard List w/ Totals	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sealed, O-wastrol, BT-Tissue, A/Ab)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	16138/16138_Sox_Sep_P Standard List w/ Totals	Special Instructions/Note:	
Outfall002_20200414_Comp (440-264636-1)		4/14/20	09:15 Pacific		Water		X	X	2	See OAS, Boeing w/u to zero, ug/L. Use Boeing glassware.	
Outfall002 - 20200414 - Comp - Extra (440-264636-2)		4/14/20	09:15 Pacific		water		X		2	on hold	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/test/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

Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/OC Requirements: _____

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: *JD* Date/Time: 4/14/20 1500 Company: FC-12V
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Received by: *[Signature]* Date/Time: 04/15/20 Company: ETA - SGC
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: *seal*
 Yes No Cooler Temperature(s) °C and Other Remarks: 0.7°C

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264636-1

Login Number: 264636

List Number: 1

Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264636-1

Login Number: 264636

List Number: 2

Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/15/20 11:59 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
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	0.7c
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?	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.	True	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-1

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)
440-264636-1	Outfall002_20200414_Comp	65	64	55	56	48	48	55	53
MB 320-372899/1-A	Method Blank	76	72	65	64	72	70	70	72
MB 320-372899/1-A - RA	Method Blank		67						

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)
440-264636-1	Outfall002_20200414_Comp	53	66	60	73	63	83	74
MB 320-372899/1-A	Method Blank	69	68	67	72	72	79	73
MB 320-372899/1-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 320-372899/2-A	Lab Control Sample	69	64	59	60	64	62	63	64

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 320-372899/2-A	Lab Control Sample	61	63	63	68	66	75	67

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 002 Comp

$^{13}\text{CH}_x\text{CF} = ^{13}\text{C-2,3,4,6,7,8-HxCDF}$

HpCDD = $^{13}\text{C-1,2,3,4,6,7,8-HpCDD}$

HpCDF = $^{13}\text{C-1,2,3,4,6,7,8-HpCDF}$

HpCDF2 = $^{13}\text{C-1,2,3,4,7,8,9-HpCDF}$

OCDD = $^{13}\text{C-OCDD}$

Job ID: 440-264636-1

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Environment Testing
TestAmerica

Sacramento
Sample Receiving Notes



440-264636 Field Sheet

Tracking #: 1540 4107 8353

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 12 Corr. Factor: (+/-) 0 °C

Ice Wet Gel _____ Other _____

Cooler Custody Seal: seal

Cooler ID: —

Temp Observed: 0.7 °C Corrected: 0.7 °C

From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PK Date: 04/15/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: SO Date: 4/15/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

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DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264636-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

5 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.:** 1272.003H.01**Sample Delivery Group:** 440-264636-2**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
OUTFALL002_20200414_COMP	440-264636-1	N	WM	4/14/20 9:15 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A-01-R
OUTFALL002_20200414_COMP	440-264636-2	N	WM	4/14/20 9:15 AM	RADIUM



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) 440-264636-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- The sample containers were received at TA-SL unpreserved. The containers were preserved to $\text{pH} \leq 2$ upon receipt.
- 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.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^x reviewed the SDG on June 5, 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 A-01-R* 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 (except as noted in the Sample Management section above) and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiencies for gross alpha and radium-226 were less than 20%; therefore, the results 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.

III.3. QUALITY CONTROL SAMPLES

III.3.1. METHOD BLANKS

Target isotopes were not detected in the method blanks above the MDC with the exception of radium-228. The result for radium-228 was nondetect and was not qualified. 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 result was 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 and matrix spike duplicate analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. 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: 4402646362

Analysis Method E900

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	1.41	1.27	3.00	1.89	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	3.23	0.829	4.00	0.848	pCi/L		J+	B

Analysis Method E901.1

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	1.46	7.36	20.0	9.50	pCi/L	U	U	
Potassium-40	13966-00-2	68.4	90.0	143	143	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0484	0.0735	1.00	0.126	pCi/L	U	UJ	*III

Analysis Method E904.0

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.105	0.257	1.00	0.442	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.168	0.212	3.00	0.351	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	136	176	500	292	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.552	0.289	1.00	0.280	pCi/L		U	B

Analysis Method RADIUM

Sample Name OUTFALL002_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:15:00 AM Validation Level: 9

Lab Sample Name: 440-264636-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.442	0.267			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: 440-264636-2
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:
5/14/2020 11:33:10 AM

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

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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.

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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
5/14/2020 11:33:10 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264636-1	Outfall002_20200414_Comp	Water	04/14/20 09:15	04/14/20 13:55	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Job ID: 440-264636-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264636-2

Comments

No additional comments.

Receipt

The samples were received on 4/14/2020 1:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 1.0° C, 1.3° C, 1.6° C and 2.1° C.

RAD

Method 900.0: Gross Alpha/Beta Prep Batch 160-469494

The Gross Alpha and Gross Beta detection goals were not met for the following samples due to a reduction of the sample size attributed to high residual mass: (160-37832-C-2-A), (160-37832-C-2-D DU), (160-37832-C-2-B MS) and (160-37832-C-2-C MSBT). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha/Beta Prep Batch 160-469494

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_20200414_Comp (440-264636-1), (LCS 160-469494/2-A), (LCSB 160-469494/3-A), (MB 160-469494/1-A), (160-37832-C-2-A), (160-37832-C-2-D DU), (160-37832-C-2-B MS) and (160-37832-C-2-C MSBT)

Method 901.1: Gamma Prep Batch 160-468154

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Job ID: 440-264636-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall002_20200414_Comp (440-264636-1), (LCS 160-468154/2-A), (MB 160-468154/1-A), (440-264517-R-1-F) and (440-264517-R-1-G DU)

Method 903.0: Radium-226 Prep Batch 160-467982

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_20200414_Comp (440-264636-1), (LCS 160-467982/1-A), (MB 160-467982/23-A), (440-264517-R-1-A), (440-264517-M-1-B MS) and (440-264517-M-1-C MSD)

Method 904.0: Radium-228 Prep Batch 160-468070

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_20200414_Comp (440-264636-1), (LCS 160-468070/1-A), (MB 160-468070/23-A), (440-264517-R-1-E), (440-264517-M-1-F MS) and (440-264517-M-1-G MSD)

Method 905: Sr-90 Prep Batch 160-468677

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_20200414_Comp (440-264636-1), (LCS 160-468677/1-A), (MB 160-468677/22-A), (440-264517-R-1-H), (440-264517-M-1-H MS) and (440-264517-M-1-I MSD)

Method 906.0: Tritium Prep Batch 160-469023

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_20200414_Comp (440-264636-1), (LCS 160-469023/2-A), (MB 160-469023/1-A), (160-37794-B-1-A), (160-37794-B-1-B DU), (440-264517-Q-1-A), (440-264517-L-1-B MS) and (440-264517-L-1-C MSD)

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_20200414_Comp (440-264636-1), (LCS 160-468046/2-A), (MB 160-468046/1-A), (440-263721-S-1-J), (440-263721-M-1-I MS) and (440-263721-M-1-J MSD)

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 002 Comp

Job ID: 440-264636-2

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Gross Alpha	1.41	U	1.26	1.27	3.00	1.89	pCi/L	05/04/20 10:53	05/10/20 22:24	1
Gross Beta	3.23		0.763	0.829	4.00	0.848	pCi/L	05/04/20 10:53	05/10/20 22:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Cesium-137	1.46	U	7.36	7.36	20.0	9.50	pCi/L	04/19/20 14:22	04/21/20 08:35	1
Potassium-40	68.4	U	89.7	90.0		143	pCi/L	04/19/20 14:22	04/21/20 08:35	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.0484	U	0.0734	0.0735	1.00	0.126	pCi/L	04/16/20 13:59	05/12/20 04:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.4		40 - 110					04/16/20 13:59	05/12/20 04:41	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	0.105	U	0.257	0.257	1.00	0.442	pCi/L	04/19/20 16:36	04/30/20 07:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.4		40 - 110					04/19/20 16:36	04/30/20 07:41	1
Y Carrier	94.6		40 - 110					04/19/20 16:36	04/30/20 07:41	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium-90	0.168	U	0.212	0.212	3.00	0.351	pCi/L	04/23/20 09:24	05/06/20 09:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	85.3		40 - 110					04/23/20 09:24	05/06/20 09:28	1
Y Carrier	91.6		40 - 110					04/23/20 09:24	05/06/20 09:28	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tritium	136	U	175	176	500	292	pCi/L	04/28/20 04:41	04/29/20 08:00	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Total Uranium	0.552		0.287	0.289	1.00	0.280	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	82.5		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

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: 440-264636-2

Client Sample ID: Outfall002_20200414_Comp

Lab Sample ID: 440-264636-1

Date Collected: 04/14/20 09:15

Matrix: Water

Date Received: 04/14/20 13:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.23 mL	1.0 g	469494	05/04/20 10:53	RJD	TAL SL
Total/NA	Analysis	900.0		1			469946	05/10/20 22:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	468154	04/19/20 14:22	MLG	TAL SL
Total/NA	Analysis	901.1		1			468186	04/21/20 08:35	KLS	TAL SL
Total/NA	Prep	PrecSep-21			999.29 mL	1.0 g	467982	04/16/20 13:59	RBR	TAL SL
Total/NA	Analysis	903.0		1			470197	05/12/20 04:41	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.29 mL	1.0 g	468070	04/19/20 16:36	MNH	TAL SL
Total/NA	Analysis	904.0		1			469238	04/30/20 07:41	KRR	TAL SL
Total/NA	Prep	PrecSep-7			1000.26 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469750	05/06/20 09:28	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.4 mL	1.0 g	469023	04/28/20 04:41	NMN	TAL SL
Total/NA	Analysis	906.0		1			469168	04/29/20 08:00	KRR	TAL SL
Total/NA	Prep	ExtChrom			500.07 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468777	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-469494/1-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469494

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.1119	U	0.445	0.446	3.00	0.866	pCi/L	05/04/20 08:52	05/10/20 13:29	1
Gross Beta	0.6416	U	0.525	0.529	4.00	0.829	pCi/L	05/04/20 08:52	05/10/20 13:29	1

Lab Sample ID: LCS 160-469494/2-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	45.79		6.94	3.00	1.72	pCi/L	92	75 - 125

Lab Sample ID: LCSB 160-469494/3-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	77.14		8.24	4.00	0.831	pCi/L	91	75 - 125

Lab Sample ID: 160-37832-C-2-B MS
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	8680	G	23600	31670		4720	3.00	1060	pCi/L	97	60 - 140

Lab Sample ID: 160-37832-C-2-C MSBT
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	2680	G	38300	33740	G	3630	4.00	526	pCi/L	81	60 - 140

Lab Sample ID: 160-37832-C-2-D DU
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	8680	G	9783	G	2130	3.00	1210	pCi/L	0.27	1
Gross Beta	2680	G	2894	G	606	4.00	544	pCi/L	0.18	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-468154/1-A
Matrix: Water
Analysis Batch: 468184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468154

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	9.865	U	9.03	9.08	20.0	10.3	pCi/L	04/19/20 14:22	04/21/20 07:26	1
Potassium-40	-10.82	U	156	156		222	pCi/L	04/19/20 14:22	04/21/20 07:26	1

Lab Sample ID: LCS 160-468154/2-A
Matrix: Water
Analysis Batch: 468186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Americium-241	136000	126300		14600		415	pCi/L	93	90 - 111
Cesium-137	43700	43710		4380	20.0	106	pCi/L	100	90 - 111
Cobalt-60	26200	25510		2530		64.4	pCi/L	97	89 - 110

Lab Sample ID: 440-264517-R-1-G DU
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Cesium-137	2.76	U	2.790	U	5.70	20.0	7.42	pCi/L	0	1
Potassium-40	16.6	U	-35.24	U	119		175	pCi/L	0.26	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467982/23-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467982

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05167	U	0.0787	0.0788	1.00	0.135	pCi/L	04/16/20 13:59	05/12/20 06:30	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110	04/16/20 13:59	05/12/20 06:30	1

Lab Sample ID: LCS 160-467982/1-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.36		1.07	1.00	0.101	pCi/L	91	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	97.0		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-B MS
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual		Result	Qual							
Radium-226	0.136		15.1	14.73		1.53	1.00	0.124	pCi/L	96	75 - 138	
	<i>MS MS</i>											
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	82.3		40 - 110									

Lab Sample ID: 440-264517-M-1-C MSD
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	Limits	RER	Limit
	Result	Qual		Result	Qual									
Radium-226	0.136		15.1	14.06		1.45	1.00	0.101	pCi/L	92	75 - 138	0.22	1	
	<i>MSD MSD</i>													
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	95.4		40 - 110											

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-468070/23-A
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468070

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.3732		0.242	0.244	1.00	0.372	pCi/L	04/19/20 16:36	04/30/20 07:45	1
	<i>MB MB</i>									
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					04/19/20 16:36	04/30/20 07:45	1
Y Carrier	91.2		40 - 110					04/19/20 16:36	04/30/20 07:45	1

Lab Sample ID: LCS 160-468070/1-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
		Result	Qual							
Radium-228	8.88	8.918		1.03	1.00	0.383	pCi/L	100	75 - 125	
	<i>LCS LCS</i>									
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	97.0		40 - 110							
Y Carrier	93.5		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-F MS
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual		Result	Qual							
Radium-228	-0.0386	U	11.8	12.22		1.44	1.00	0.503	pCi/L	103		45 - 150
MS MS												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	82.3		40 - 110									
Y Carrier	92.0		40 - 110									

Lab Sample ID: 440-264517-M-1-G MSD
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	Limits	RER	RER
	Result	Qual		Result	Qual								Uncert. (2σ+/-)	Limit
Radium-228	-0.0386	U	11.8	12.99		1.49	1.00	0.505	pCi/L	110		45 - 150	0.26	1
MSD MSD														
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	95.4		40 - 110											
Y Carrier	85.6		40 - 110											

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1
MB MB										
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Sr Carrier	93.4		40 - 110	04/23/20 09:24	05/06/20 09:25	1				
Y Carrier	92.0		40 - 110	04/23/20 09:24	05/06/20 09:25	1				

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
		Result	Qual							
Strontium-90	16.9	16.93		1.79	3.00	0.626	pCi/L	100		75 - 125
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Sr Carrier	91.7		40 - 110							
Y Carrier	85.6		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-H MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual						
Strontium-90	0.284	U	16.9	16.73		1.77	3.00	0.633	pCi/L	98	19 - 150
MS MS											
Carrier	%Yield	Qualifier	Limits								
Sr Carrier	88.8		40 - 110								
Y Carrier	90.8		40 - 110								

Lab Sample ID: 440-264517-M-1-I MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual		Result	Qual								
Strontium-90	0.284	U	16.9	15.70		1.68	3.00	0.641	pCi/L	91	19 - 150	0.30	1
MSD MSD													
Carrier	%Yield	Qualifier	Limits										
Sr Carrier	87.6		40 - 110										
Y Carrier	92.7		40 - 110										

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-469023/1-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469023

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Tritium	-32.88	U	154	154	500	285	pCi/L	04/28/20 04:41	04/29/20 02:20	1

Lab Sample ID: LCS 160-469023/2-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Lab Sample ID: 440-264517-L-1-B MS
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual						
Tritium	194	U	2460	2681		432	500	308	pCi/L	101	67 - 130

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-264517-L-1-C MSD
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	RER Limit
											67	130	0.03	1
Tritium	194	U	2450	2654		424	500	297	pCi/L	100	67 - 130	0.03	1	

Lab Sample ID: 160-37794-B-1-B DU
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										0.21
Tritium	10.8	U	77.48	U	166	500	284	pCi/L	0.21	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	
									12.7	13.10
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							

Lab Sample ID: 440-263721-M-1-I MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Matrix Spike
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	
											0.0485 <th>12.44 <th>1.46 <th>1.00 <th>0.164</th> <th>pCi/L</th> <th>97 <th>65 - 146</th> </th></th></th></th>	12.44 <th>1.46 <th>1.00 <th>0.164</th> <th>pCi/L</th> <th>97 <th>65 - 146</th> </th></th></th>
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									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263721-M-1-J MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468046

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					Limits		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	MSD											
	%Yield	Qualifier	Limits										
Uranium-232	65.1		30 - 110										

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Rad

Prep Batch: 467982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	PrecSep-21	
MB 160-467982/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467982/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264517-M-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-264517-M-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_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-M-1-I MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263721-M-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 468070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	PrecSep_0	
MB 160-468070/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-468070/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264517-M-1-F MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-264517-M-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 468154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-468154/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-468154/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264517-R-1-G DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-M-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264517-M-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 469023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-469023/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-469023/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
160-37794-B-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 469494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-1	Outfall002_20200414_Comp	Total/NA	Water	Evaporation	
MB 160-469494/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-469494/2-A	Lab Control Sample	Total/NA	Water	Evaporation	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

Rad (Continued)

Prep Batch: 469494 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSB 160-469494/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
160-37832-C-2-B MS	Matrix Spike	Total/NA	Water	Evaporation	
160-37832-C-2-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
160-37832-C-2-D DU	Duplicate	Total/NA	Water	Evaporation	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 002 Comp

Job ID: 440-264636-2

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)
MQL	Method Quantitation Limit
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: 440-264636-2

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
Alaska (UST)	State	20-001	05-06-22
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



Eurofins Calscience Irvine

440-264636 Chain of Custody

4/14/20 LD

CHAIN OF CUSTODY FORM

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

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel. 949-260-3218

Project: Boeing-SSFL NPDES Permit 2020
Routine Outfall: 001, 002, 011, 018J
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)

Sampler: Dan Smith

The analytical services under this CoC shall be performed in accordance with the TCOs within Baxter Service Agreement# 2019-227 established by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Technonics Laboratories Inc.

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD
Outfall 002	Outfall002_20200414_Comp	4/14/2020 10:15	WM	500 mL Poly	1	HNO ₃	80	No
			WM	1 L Glass Amber	2	None	110	No
			WM	1 L Poly	1	None	115	No
			WM	500 mL Poly	2	None	120	No
			WM	500 mL Poly	2	None	130	No
			WM	500 mL Poly	1	None	150	No
			WM	500 mL Poly	1	H ₂ SO ₄	180	No
			WM	1 L Glass Amber	2	None	170	No
			WM	1 L Glass Amber	2	None	180	No
			WM	1 L Poly	1	None	185	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	120	No
			WM	500 mL Poly	2	None	130	No
			WM	1 L Glass Amber	2	None	170	No
			WM	1 L Glass Amber	2	None	180	No

ANALYSIS REQUIRED

Parameter	Result
Total Recoverable Metals (E2007) Cu, Pb, Cd, Se	X
TCD (and all congeners) (E1813B)	X
BOD ₅ (20 degrees C) (E405 (SM5108_BODCalc))	X
Surfactants (MBAS) (SM5540CE425 1)	X
Ch ₂ SO ₄ , Nitrite-N, Nitrate-N, NO ₃ +NO ₂ -N, Perchlorate (E300)	X
Turbidity, TDS (SM2540CF180 1)	X
TSS (160 2 (SM2540D1))	X
Ammonia-N (350 2)	X
alpha-BHC (E608)	X
2,4,6-TCP, 2,4-Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E825)	X
Total Recoverable Metals Mercury (E245 1)	X

Comments:
Cuff 1112 analysis for Fe
48 hours Holding Time NO₃ & NO₂
48 hour holding time for turbidity

Legend: C=Conditional, R=Routine

Requisitioned By: *Conl Dominick* Date/Time: 4-14-20 11:50
Received By: *JD EC-IRV* Date/Time: 4/14/20 13:55

Company: *Company*

Turn-around time (Check): 24 Hour 72 Hour 10 Day
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

1.4/1.6, 1.1/1.3, 0.2/1.0, 0.3/0.5, 1.9/2.1 **1R-94**



CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address		Project		ANALYSIS REQUIRED		Comments								
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel. 949-280-3218		Boeing SSFL NPDES Permit 2020 Routine Outfall 007, 002, 011, 018) Outfall 002 Comp		Total Dissolved Metals (E245 1) Chronic Toxicity - Selenium (EPA-821-R-02-013) CS-137 (E901 D or E901 1) Radium 226 (E904 D), Uranium (E903 D, K-40) Tritium (H-3) (E906 D), Sr-90 (E905 D), Total Gross Alpha (E900 D), Gross Beta (E900 D) Cyanide (SM4500-CN-E / E335 2) Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se			Filter and Preserve in 100 mL Amber HDPE Bottle Do NOT OPEN BAG until analyzed Sample receiving DO NOT OPEN BAG to be opened in Mercury Prep using clean procedures Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MSMSD Only test if final of second clean up							
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cart	Preservable	Bottle #	MSMSD	Total Dissolved Metals (E200 7) Zn (E200 8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha (E900 D), Gross Beta (E900 D), Tritium (H-3) (E906 D), Sr-90 (E905 D), Total Radium 226 (E904 D), Uranium (E903 D, K-40) CS-137 (E901 D or E901 1)	Chronic Toxicity - Selenium (EPA-821-R-02-013)	Total Dissolved Metals (E245 1)	Comments
Outfall 002	Outfall002_20200414_Comp_F	4/14/2020 10:15	WM	1L Poly	1	None	200	No	X					
Outfall 002	Outfall002_20200414_Comp	4/14/2020 10:15	WM	bioscience vials	1	None	320	No				X		
			WM	500 mL Poly	1	NaOH	220	No		X				
			WM	2.5 Gal Cube	1	None	225	No			X			
			WM	1 L Clear Amber	1	None	230	No						
			WM	4-Septic	0	None	305	No						

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>Mark Dominick</i>	4-14-2020	H&A	<i>Fay</i>	4-4-20 11:50	
<i>Christian Bondoc</i>	4-14-20		<i>JP</i>	4/14/20 13:55	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

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

Sample integrity (Check)
 Intact On Ice
 Data Requirements (Check)
 No Level IV All Level IV



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264636-2

Login Number: 264636

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: 440-264636-2

Login Number: 264636

List Number: 3

Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/15/20 03:55 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.	N/A	
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	440-264636-R-1 preserved upon arrival to lab.
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: 440-264636-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba Carrier (40-110)	
440-264517-M-1-B MS	Matrix Spike	82.3	
440-264517-M-1-C MSD	Matrix Spike Duplicate	95.4	
440-264636-1	Outfall002_20200414_Comp	78.4	
LCS 160-467982/1-A	Lab Control Sample	97.0	
MB 160-467982/23-A	Method Blank	87.2	
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba Carrier (40-110)	Y Carrier (40-110)
440-264517-M-1-F MS	Matrix Spike	82.3	92.0
440-264517-M-1-G MSD	Matrix Spike Duplicate	95.4	85.6
440-264636-1	Outfall002_20200414_Comp	78.4	94.6
LCS 160-468070/1-A	Lab Control Sample	97.0	93.5
MB 160-468070/23-A	Method Blank	87.2	91.2
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Sr Carrier (40-110)	Y Carrier (40-110)
440-264517-M-1-H MS	Matrix Spike	88.8	90.8
440-264517-M-1-I MSD	Matrix Spike Duplicate	87.6	92.7
440-264636-1	Outfall002_20200414_Comp	85.3	91.6
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6
MB 160-468677/22-A	Method Blank	93.4	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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		uranium-235 (30-110)	
440-263721-M-1-I MS	Matrix Spike	65.3	
440-263721-M-1-J MSD	Matrix Spike Duplicate	65.1	
440-264636-1	Outfall002_20200414_Comp	82.5	
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: 440-264636-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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ANALYTICAL REPORT

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

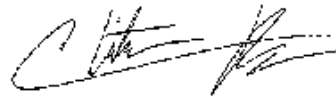
Laboratory Job ID: 440-264369-1

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:
4/20/2020 4:28:42 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.

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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 4:28:42 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264369-1	Outfall008_20200408_Grab	Water	04/08/20 07:20	04/09/20 15:45	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

Job ID: 440-264369-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-264369-1

Comments

No additional comments.

Receipt

The samples were received on 4/9/2020 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

Organic Prep

Methods 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-605605 and analytical batch 440-605653. 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 008 Grab

Job ID: 440-264369-1

Client Sample ID: Outfall008_20200408_Grab

Lab Sample ID: 440-264369-1

Date Collected: 04/08/20 07:20

Matrix: Water

Date Received: 04/09/20 15:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		04/20/20 05:12	04/20/20 08:48	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

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: 440-264369-1

Client Sample ID: Outfall008_20200408_Grab

Lab Sample ID: 440-264369-1

Date Collected: 04/08/20 07:20

Matrix: Water

Date Received: 04/09/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			950 mL	1000 mL	605605	04/20/20 05:12	L1A	TAL IRV
Total/NA	Analysis	1664A		1			605653	04/20/20 08:48	L1A	TAL IRV

Laboratory References:

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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605605/1-A
Matrix: Water
Analysis Batch: 605653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605605

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/20/20 05:12	04/20/20 08:48	1

Lab Sample ID: LCS 440-605605/2-A
Matrix: Water
Analysis Batch: 605653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605605

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	36.0		mg/L		90	78 - 114

Lab Sample ID: LCSD 440-605605/3-A
Matrix: Water
Analysis Batch: 605653

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605605

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	36.4		mg/L		91	78 - 114	1	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

General Chemistry

Prep Batch: 605605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264369-1	Outfall008_20200408_Grab	Total/NA	Water	1664A	
MB 440-605605/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605605/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605605/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 605653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264369-1	Outfall008_20200408_Grab	Total/NA	Water	1664A	605605
MB 440-605605/1-A	Method Blank	Total/NA	Water	1664A	605605
LCS 440-605605/2-A	Lab Control Sample	Total/NA	Water	1664A	605605
LCSD 440-605605/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605605

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264369-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 008 Grab

Job ID: 440-264369-1

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

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CHAIN OF CUSTODY FORM

Test America

TRAEF913

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Darian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall [008] Outfall 008 Grab		Project Manager: Kathenne Miller 520.288.6606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		ANALYSIS REQUIRED		Field Readings (Include units) Title of Readings: 0715 pH: 7.19 pH unit Temp: 78.3 °C @ 50.419/20 Field readings QC Checked by: [Signature] Date/Time: 4-8-20/0715		Meter serial #	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2019-22; TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Sampler: Dan Smith		Oil & Grease (E1694-HEM)		Turn-around time (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal _____					
Sample Description Outfall 008 Outfall 008_Grab Outfall 008_Grab_Extra	Sample ID Outfall008_20200408_Grab Outfall008_20200408_Grab_Extra	Sampling Date/Time 4/8/2020 10:30 4/8/2020 10:30	Sample Matrix WM WM	Container Type 1 L Glass Amber 1 L Glass Amber	# of Cont. 2 2	Preservative HCl HCl	Bottle # 15 15	MS/MSD No No	Comments Extra Bottle Hold		
Requisitioned By: [Signature] Date/Time: 4-9-2020/1030 Company: IT, A		Requisitioned By: [Signature] Date/Time: 4-9-20 15 45 Company: F.C.F.I.L.L.		Received By: [Signature] Date/Time: 4-9-20 10:30 Company: RECEIVED		Received By: [Signature] Date/Time: 4/4/20 1545 Company: EC 12V		Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual 440-264369 Chain of Custody			
Requisitioned By: [Signature] Date/Time: 4-9-20 15 45 Company: F.C.F.I.L.L.		Requisitioned By: [Signature] Date/Time: 4-9-20 15 45 Company: F.C.F.I.L.L.		Received By: [Signature] Date/Time: 4-9-20 10:30 Company: RECEIVED		Received By: [Signature] Date/Time: 4/4/20 1545 Company: EC 12V		Turn-around time (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal _____			
Requisitioned By: [Signature] Date/Time: 4-9-20 15 45 Company: F.C.F.I.L.L.		Requisitioned By: [Signature] Date/Time: 4-9-20 15 45 Company: F.C.F.I.L.L.		Received By: [Signature] Date/Time: 4-9-20 10:30 Company: RECEIVED		Received By: [Signature] Date/Time: 4/4/20 1545 Company: EC 12V		Sample Integrity (Check) Intact _____ On Ice _____ Store samples for 6 months Date Requirements (Check) No Level IV _____ All Level IV _____ X			



1.2/1.2 before 4-3/20 12-57
 SW



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264369-1

Login Number: 264369

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	
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 <math><6\text{mm}</math> (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: 440-264370-1

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

29 May 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: 440-264370-1

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
OUTFALL008_20200409_COMP	440-264370-1	N/A	WM	4/9/20 7:25 AM	E1613B, E200.7, E200.8	II
OUTFALL008_20200409_COMP_F	440-264370-2	N/A	WM	4/9/20 7:25 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) 440-264370-1:

- The laboratories received the samples in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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- Sacramento 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 upon receipt at TA-Sacramento.
- Strikethroughs on the COC were initialed but not dated.



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

L. Calvin of MEC^X reviewed the SDG on June 3, 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8-PeCDF, OCDD and OCDF, and for totals HpCDD, HpCDF and PeCDF. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. Totals HpCDF and PeCDF in the sample (containing both a qualified method blank isomer and a qualified EMPC isomer) were qualified as estimated nondetects (UJ). The sample total for HpCDD 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 not evaluated at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. 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 at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Totals HpCDF and PeCDF in the sample (containing both a qualified method blank isomer and a qualified EMPC isomer) were qualified as estimated nondetects (UJ). The concentration of total PeCDD in the sample matched the qualified isomer and was therefore also qualified as an estimated nondetect (UJ). Remaining totals flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^x reviewed the SDG on May 29, 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 OUTFALL008_20200409_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 total metals analyzed on 4/21/2020, the mass calibration resolution for mass 115 (no gas) and mass 59 (He) failed. In the absence of information about which target masses are associated with the failed resolution masses, results for all ICP-MS total metals 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 with the exception of total antimony in a bracketing continuing calibration blank (0.887 µg/L). The associated sample result was a detect at less than 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 $\pm 2 \times$ the reporting limit, whichever is greater. No non-spiked target analytes were present in the ICP-MS ICSA at greater than MDL; therefore, matrix interference was not suspected. Interferents in site samples were not summarized for ICP-AES analyses; therefore, interference was not evaluated for Method 200.7.

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 in this SDG (total and dissolved). Recoveries were within the QAPP control limits of 70-130% for all target analytes. RPDs were $\leq 20\%$.

IV.3.6. *SERIAL DILUTION*

Serial dilution analyses were not performed.

IV.4. INTERNAL STANDARDS PERFORMANCE

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. 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.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:

IV.6.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

IV.6.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402643701

Analysis Method E1613B

Sample Name OUTFALL008_20200409_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/9/2020 7:25:00 AM **Validation Level:** 9

Lab Sample Name: 440-264370-1

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	0.000010	0.00011	0.00000085	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000093	0.00011	0.0000025	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000028	0.000053	0.00000050	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000051	0.000053	0.00000092	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000013	0.000053	0.00000062	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000018	0.000053	0.0000010	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000029	0.000053	0.00000054	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	ND	0.000053	0.00000099	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000015	0.000053	0.00000056	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000013	0.000053	0.00000070	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000015	0.000053	0.00000050	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000013	0.000053	0.00000067	ug/L	J,DXqMB	U	B
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000010	0.000053	0.00000069	ug/L	J,DXq	UJ	*III
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.00000098	0.000053	0.00000068	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000099	0.000053	0.00000065	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000042	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.00000065	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000040	0.000053	0.00000056	ug/L	J,DXqMB	UJ	B, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000078	0.000053	0.00000092	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000040	0.000053	0.00000085	ug/L	J,DXq	J	DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000059	0.000053	0.00000054	ug/L	J,DXq	J	DNQ, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000023	0.000053	0.00000066	ug/L	J,DXqMB	UJ	B, *III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000010	0.000053	0.00000069	ug/L	J,DXq	UJ	*III
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000042	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.00000065	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	UJ	L1
Zinc	T	7440-66-6	60	20	12	ug/L		J	L1

Sample Name OUTFALL008_20200409_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	D	7440-02-0	ND	10	5.0	ug/L	U	U	
Zinc	D	7440-66-6	47	20	12	ug/L			

Analysis Method E200.8

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.51	2.0	0.50	ug/L	J,DX	UJ	L1, B
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	UJ	L1
Copper	T	7440-50-8	1.8	2.0	0.50	ug/L	J,DX	J	L1, DNQ
Lead	T	7439-92-1	ND	1.0	0.50	ug/L	U	UJ	L1
Selenium	T	7782-49-2	0.66	2.0	0.50	ug/L	J,DX	J	L1, DNQ
Silver	T	7440-22-4	ND	1.0	0.50	ug/L	U	UJ	L1
Thallium	T	7440-28-0	ND	1.0	0.20	ug/L	U	UJ	L1

Sample Name OUTFALL008_20200409_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-2

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	U	
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	1.5	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	U	
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0	ND	1.0	0.20	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: 440-264370-1

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:
4/22/2020 3:22:08 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.

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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 3:22:08 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264370-1	Outfall008_20200409_Comp	Water	04/09/20 07:25	04/09/20 15:45	
440-264370-2	Outfall008_20200409_Comp_F	Water	04/09/20 07:25	04/09/20 15:45	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Job ID: 440-264370-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264370-1

Comments

No additional comments.

Receipt

The samples were received on 4/9/2020 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 1.2° 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/or 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall008_20200409_Comp (440-264370-1), (CCV 320-372808/13), (LCS 320-372221/2-A) and (MB 320-372221/1-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_20200409_Comp_F (440-264370-2). This sample was filtered and preserved upon receipt to the laboratory.

04/09/20
2.5mL of HNO3
HNO3 Lot # 0000234822

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

General Chemistry

Method SM 4500 CN E: The continuing calibration blank (CCB) for analytical batch 440-604615 contained cyanide 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.

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_20200409_Comp (440-264370-1) was provided in a wide-mouth amber glass bottle.

preparation batch 320-372221
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 Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.8		0.50	0.25	mg/L			04/09/20 19:52	1
Nitrate as N	0.16		0.11	0.055	mg/L			04/09/20 19:52	1
Nitrite as N	ND		0.15	0.025	mg/L			04/09/20 19:52	1
Sulfate	4.0		0.50	0.25	mg/L			04/09/20 19:52	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			04/14/20 10:57	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.16		0.15	0.055	mg/L			04/10/20 12:03	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	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
2,3,7,8-TCDF	ND		0.000011	0.0000004	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,7,8-PeCDD	0.0000010	J,DX q	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,7,8-PeCDF	0.0000013	J,DX q MB	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
2,3,4,7,8-PeCDF	0.00000099	J,DX q	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,4,7,8-HxCDD	0.0000029	J,DX	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,6,7,8-HxCDD	0.0000015	J,DX q	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,7,8,9-HxCDD	0.0000015	J,DX	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,4,7,8-HxCDF	0.0000018	J,DX	0.000053	0.0000010	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,6,7,8-HxCDF	ND		0.000053	0.0000009	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,7,8,9-HxCDF	0.0000013	J,DX q	0.000053	0.0000007	ug/L		04/14/20 08:57	04/16/20 00:52	1
2,3,4,6,7,8-HxCDF	0.00000098	J,DX q	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,4,6,7,8-HpCDD	0.0000051	J,DX MB	0.000053	0.0000009	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,4,6,7,8-HpCDF	0.0000028	J,DX q MB	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
1,2,3,4,7,8,9-HpCDF	0.0000013	J,DX q	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
OCDD	0.000093	J,DX MB	0.00011	0.0000025	ug/L		04/14/20 08:57	04/16/20 00:52	1
OCDF	0.000010	J,DX q MB	0.00011	0.0000008	ug/L		04/14/20 08:57	04/16/20 00:52	1
Total TCDD	ND		0.000011	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
Total TCDF	ND		0.000011	0.0000004	ug/L		04/14/20 08:57	04/16/20 00:52	1
Total PeCDD	0.0000010	J,DX q	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1
Total PeCDF	0.0000023	J,DX q MB	0.000053	0.0000006	ug/L		04/14/20 08:57	04/16/20 00:52	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	0.000059	J,DX q	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
				4					
Total HxCDF	0.000040	J,DX q	0.000053	0.0000008	ug/L		04/14/20 08:57	04/16/20 00:52	1
				5					
Total HpCDD	0.000078	J,DX MB	0.000053	0.0000009	ug/L		04/14/20 08:57	04/16/20 00:52	1
				2					
Total HpCDF	0.000040	J,DX q MB	0.000053	0.0000005	ug/L		04/14/20 08:57	04/16/20 00:52	1
				6					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	64		25 - 164				04/14/20 08:57	04/16/20 00:52	1
13C-2,3,7,8-TCDF	59		24 - 169				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,7,8-PeCDD	56		25 - 181				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,7,8-PeCDF	56		24 - 185				04/14/20 08:57	04/16/20 00:52	1
13C-2,3,4,7,8-PeCDF	62		21 - 178				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,4,7,8-HxCDD	60		32 - 141				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,6,7,8-HxCDD	60		28 - 130				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,7,8,9-HxCDF	57		29 - 147				04/14/20 08:57	04/16/20 00:52	1
13C-2,3,4,6,7,8-HxCDF	58		28 - 136				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,4,6,7,8-HpCDD	64		23 - 140				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,4,6,7,8-HpCDF	65		28 - 143				04/14/20 08:57	04/16/20 00:52	1
13C-1,2,3,4,7,8,9-HpCDF	69		26 - 138				04/14/20 08:57	04/16/20 00:52	1
13C-OCDD	59		17 - 157				04/14/20 08:57	04/16/20 00:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	89		35 - 197				04/14/20 08:57	04/16/20 00:52	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		04/14/20 09:09	04/15/20 13:42	1
Zinc	60		20	12	ug/L		04/14/20 09:09	04/15/20 13:42	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		04/21/20 09:01	04/21/20 13:43	1
Cadmium	ND		1.0	0.25	ug/L		04/21/20 09:01	04/21/20 13:43	1
Copper	1.8	J,DX	2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:43	1
Lead	ND		1.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:43	1
Antimony	0.51	J,DX	2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:43	1
Selenium	0.66	J,DX	2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:43	1
Thallium	ND		1.0	0.20	ug/L		04/21/20 09:01	04/21/20 13:43	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		04/10/20 10:42	04/10/20 16:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	130		10	5.0	mg/L			04/16/20 10:34	1
Total Suspended Solids	2.6		1.0	0.50	mg/L			04/16/20 12:37	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:40	1
Ammonia (as N)	0.180	J,DX	0.200	0.100	mg/L			04/20/20 13:52	1

Client Sample ID: Outfall008_20200409_Comp_F

Lab Sample ID: 440-264370-2

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

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		04/09/20 18:25	04/10/20 09:44	1
Zinc	47		20	12	ug/L		04/09/20 18:25	04/10/20 09:44	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		04/10/20 08:18	04/10/20 15:19	1
Cadmium	ND		1.0	0.25	ug/L		04/10/20 08:18	04/10/20 15:19	1
Copper	1.5	J,DX	2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:19	1
Lead	ND		1.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:19	1
Antimony	ND		2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:19	1
Selenium	ND		2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:19	1
Thallium	ND		1.0	0.20	ug/L		04/10/20 08:18	04/10/20 15:19	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		04/10/20 10:44	04/10/20 16:28	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

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
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:

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: 440-264370-1

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

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			604365	04/09/20 19:52	NTN	TAL IRV
Total/NA	Analysis	300.0		1			604366	04/09/20 19:52	NTN	TAL IRV
Total/NA	Analysis	314.0		1			604893	04/14/20 10:57	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			604580	04/10/20 12:03	TLN	TAL IRV
Total/NA	Prep	1613B			948.2 mL	20 uL	372221	04/14/20 08:57	RDR	TAL SAC
Total/NA	Analysis	1613B		1			372808	04/16/20 00:52	AS	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	604822	04/14/20 09:09	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605180	04/15/20 13:42	TQN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605761	04/21/20 09:01	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			605922	04/21/20 13:43	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	604477	04/10/20 10:42	DB	TAL IRV
Total/NA	Analysis	245.1		1			604948	04/10/20 16:25	MEM	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605340	04/16/20 10:34	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	605365	04/16/20 12:37	XL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	604575	04/10/20 11:07	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			604615	04/10/20 15:40	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605752	04/20/20 13:52	KMY	TAL IRV

Client Sample ID: Outfall008_20200409_Comp_F

Lab Sample ID: 440-264370-2

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

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	604462	04/09/20 17:59	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604463	04/09/20 18:25	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			604586	04/10/20 09:44	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	604462	04/09/20 17:59	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604464	04/10/20 08:18	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604614	04/10/20 15:19	EMS	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	604462	04/09/20 17:59	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	604470	04/10/20 10:44	DB	TAL IRV
Dissolved	Analysis	245.1		1			604649	04/10/20 16:28	DB	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604365/6
Matrix: Water
Analysis Batch: 604365

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			04/09/20 11:50	1
Nitrite as N	ND		0.15	0.025	mg/L			04/09/20 11:50	1

Lab Sample ID: LCS 440-604365/5
Matrix: Water
Analysis Batch: 604365

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	1.08		mg/L		96	90 - 110
Nitrite as N	1.52	1.52		mg/L		100	90 - 110

Lab Sample ID: MB 440-604366/6
Matrix: Water
Analysis Batch: 604366

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			04/09/20 11:50	1
Sulfate	ND		0.50	0.25	mg/L			04/09/20 11:50	1

Lab Sample ID: LCS 440-604366/5
Matrix: Water
Analysis Batch: 604366

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	5.03		mg/L		101	90 - 110

Lab Sample ID: 440-264037-A-1 MS
Matrix: Water
Analysis Batch: 604366

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	280		250	551		mg/L		107	80 - 120
Sulfate	86		250	332		mg/L		98	80 - 120

Lab Sample ID: 440-264037-A-1 MSD
Matrix: Water
Analysis Batch: 604366

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	280		250	551		mg/L		107	80 - 120	0	20
Sulfate	86		250	332		mg/L		98	80 - 120	0	20

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-604893/6
Matrix: Water
Analysis Batch: 604893

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			04/14/20 10:01	1

Lab Sample ID: LCS 440-604893/5
Matrix: Water
Analysis Batch: 604893

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	24.5		ug/L		98	85 - 115

Lab Sample ID: MRL 440-604893/4
Matrix: Water
Analysis Batch: 604893

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	1.07	J,DX	ug/L		107	75 - 125

Lab Sample ID: MRL 440-604893/8
Matrix: Water
Analysis Batch: 604893

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	3.65	J,DX	ug/L		91	75 - 125

Lab Sample ID: 440-264370-1 MS
Matrix: Water
Analysis Batch: 604893

Client Sample ID: Outfall008_20200409_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	25.4		ug/L		102	80 - 120

Lab Sample ID: 440-264370-1 MSD
Matrix: Water
Analysis Batch: 604893

Client Sample ID: Outfall008_20200409_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	25.5		ug/L		102	80 - 120	0	15

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-372221/1-A
Matrix: Water
Analysis Batch: 372808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372221

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
2,3,7,8-TCDF	ND		0.000010	0.0000003	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000006	ug/L		04/14/20 08:57	04/15/20 23:21	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372221/1-A
Matrix: Water
Analysis Batch: 372808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372221

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8-PeCDF	0.00000699	J,DX q	0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
2,3,4,7,8-PeCDF	ND		0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.000005	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,4,6,7,8-HpCDD	0.0000294	J,DX q	0.000050	0.000011	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,4,6,7,8-HpCDF	0.0000124	J,DX q	0.000050	0.000005	ug/L		04/14/20 08:57	04/15/20 23:21	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.000007	ug/L		04/14/20 08:57	04/15/20 23:21	1
OCDD	0.0000954	J,DX	0.00010	0.0000029	ug/L		04/14/20 08:57	04/15/20 23:21	1
OCDF	0.00000733	J,DX	0.00010	0.0000009	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total TCDD	ND		0.000010	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total TCDF	ND		0.000010	0.000003	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total PeCDD	ND		0.000050	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total PeCDF	0.00000699	J,DX q	0.000050	0.000004	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total HxCDD	ND		0.000050	0.000005	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total HxCDF	ND		0.000050	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total HpCDD	0.0000294	J,DX q	0.000050	0.000011	ug/L		04/14/20 08:57	04/15/20 23:21	1
Total HpCDF	0.0000124	J,DX q	0.000050	0.000006	ug/L		04/14/20 08:57	04/15/20 23:21	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	82		25 - 164	04/14/20 08:57	04/15/20 23:21	1
13C-2,3,7,8-TCDF	78		24 - 169	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,7,8-PeCDD	69		25 - 181	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,7,8-PeCDF	69		24 - 185	04/14/20 08:57	04/15/20 23:21	1
13C-2,3,4,7,8-PeCDF	77		21 - 178	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,4,7,8-HxCDD	72		32 - 141	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,6,7,8-HxCDD	71		28 - 130	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	04/14/20 08:57	04/15/20 23:21	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372221/1-A
Matrix: Water
Analysis Batch: 372808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372221

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,4,6,7,8-HpCDD	70		23 - 140	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,4,6,7,8-HpCDF	73		28 - 143	04/14/20 08:57	04/15/20 23:21	1
13C-1,2,3,4,7,8,9-HpCDF	79		26 - 138	04/14/20 08:57	04/15/20 23:21	1
13C-OCDD	62		17 - 157	04/14/20 08:57	04/15/20 23:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	91		35 - 197	04/14/20 08:57	04/15/20 23:21	1

Lab Sample ID: LCS 320-372221/2-A
Matrix: Water
Analysis Batch: 372808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDF	0.000200	0.000197		ug/L		99	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00107		ug/L		107	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00108	MB	ug/L		108	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000993		ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101		ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00110		ug/L		110	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	0.000975		ug/L		97	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	0.00107		ug/L		107	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00108		ug/L		108	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00108	MB	ug/L		108	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00111	MB	ug/L		111	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00103		ug/L		103	78 - 138
OCDD	0.00200	0.00215	MB	ug/L		108	78 - 144
OCDF	0.00200	0.00230	MB	ug/L		115	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	80		20 - 175
13C-2,3,7,8-TCDF	77		22 - 152
13C-1,2,3,7,8-PeCDD	71		21 - 227
13C-1,2,3,7,8-PeCDF	71		21 - 192
13C-2,3,4,7,8-PeCDF	78		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	73		25 - 163
13C-1,2,3,4,7,8-HxCDF	72		19 - 202
13C-1,2,3,6,7,8-HxCDF	69		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	77		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	83		20 - 186
13C-OCDD	70		13 - 199

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-372221/2-A
Matrix: Water
Analysis Batch: 372808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372221

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	92		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-604822/1-A
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/14/20 09:09	04/15/20 12:37	1
Zinc	ND		20	12	ug/L		04/14/20 09:09	04/15/20 12:37	1

Lab Sample ID: LCS 440-604822/2-A
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	508		ug/L		102	85 - 115
Zinc	500	513		ug/L		103	85 - 115

Lab Sample ID: 440-264527-G-8-B MS
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	478		ug/L		96	70 - 130
Zinc	ND		500	485		ug/L		97	70 - 130

Lab Sample ID: 440-264527-G-8-C MSD
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	475		ug/L		95	70 - 130	1	20
Zinc	ND		500	492		ug/L		98	70 - 130	1	20

Lab Sample ID: MB 440-604462/1-B
Matrix: Water
Analysis Batch: 604586

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/09/20 18:25	04/10/20 09:39	1
Zinc	ND		20	12	ug/L		04/09/20 18:25	04/10/20 09:39	1

Lab Sample ID: LCS 440-604462/2-B
Matrix: Water
Analysis Batch: 604586

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	503		ug/L		101	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-604462/2-B
Matrix: Water
Analysis Batch: 604586

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	498		ug/L		100	85 - 115

Lab Sample ID: 440-264370-2 MS
Matrix: Water
Analysis Batch: 604586

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604463

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	486		ug/L		97	70 - 130
Zinc	47		500	534		ug/L		97	70 - 130

Lab Sample ID: 440-264370-2 MSD
Matrix: Water
Analysis Batch: 604586

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604463

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nickel	ND		500	495		ug/L		99	70 - 130	2	20
Zinc	47		500	540		ug/L		99	70 - 130	1	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-605761/1-A
Matrix: Water
Analysis Batch: 605922

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:38	1
Cadmium	ND		1.0	0.25	ug/L		04/21/20 09:01	04/21/20 13:38	1
Copper	ND		2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:38	1
Lead	ND		1.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:38	1
Antimony	ND		2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:38	1
Selenium	ND		2.0	0.50	ug/L		04/21/20 09:01	04/21/20 13:38	1
Thallium	ND		1.0	0.20	ug/L		04/21/20 09:01	04/21/20 13:38	1

Lab Sample ID: LCS 440-605761/2-A
Matrix: Water
Analysis Batch: 605922

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	77.0		ug/L		96	85 - 115
Cadmium	80.0	77.9		ug/L		97	85 - 115
Copper	80.0	75.9		ug/L		95	85 - 115
Lead	80.0	77.9		ug/L		97	85 - 115
Antimony	80.0	86.2		ug/L		108	85 - 115
Selenium	80.0	78.6		ug/L		98	85 - 115
Thallium	80.0	77.3		ug/L		97	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264370-1 MS
Matrix: Water
Analysis Batch: 605922

Client Sample ID: Outfall008_20200409_Comp
Prep Type: Total Recoverable
Prep Batch: 605761

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Silver	ND		80.0	75.7		ug/L		95	70 - 130
Cadmium	ND		80.0	75.8		ug/L		95	70 - 130
Copper	1.8	J,DX	80.0	78.1		ug/L		95	70 - 130
Lead	ND		80.0	76.7		ug/L		96	70 - 130
Antimony	0.51	J,DX	80.0	84.3		ug/L		105	70 - 130
Selenium	0.66	J,DX	80.0	72.7		ug/L		90	70 - 130
Thallium	ND		80.0	63.8		ug/L		80	70 - 130

Lab Sample ID: 440-264370-1 MSD
Matrix: Water
Analysis Batch: 605922

Client Sample ID: Outfall008_20200409_Comp
Prep Type: Total Recoverable
Prep Batch: 605761

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Silver	ND		80.0	74.4		ug/L		93	70 - 130	2	20
Cadmium	ND		80.0	75.7		ug/L		95	70 - 130	0	20
Copper	1.8	J,DX	80.0	78.4		ug/L		96	70 - 130	0	20
Lead	ND		80.0	75.4		ug/L		94	70 - 130	2	20
Antimony	0.51	J,DX	80.0	83.3		ug/L		104	70 - 130	1	20
Selenium	0.66	J,DX	80.0	74.5		ug/L		92	70 - 130	2	20
Thallium	ND		80.0	67.1		ug/L		84	70 - 130	5	20

Lab Sample ID: MB 440-604462/1-C
Matrix: Water
Analysis Batch: 604614

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604464

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silver	ND		1.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:15	1
Cadmium	ND		1.0	0.25	ug/L		04/10/20 08:18	04/10/20 15:15	1
Copper	ND		2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:15	1
Lead	ND		1.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:15	1
Antimony	ND		2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:15	1
Selenium	ND		2.0	0.50	ug/L		04/10/20 08:18	04/10/20 15:15	1
Thallium	ND		1.0	0.20	ug/L		04/10/20 08:18	04/10/20 15:15	1

Lab Sample ID: LCS 440-604462/2-C
Matrix: Water
Analysis Batch: 604614

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604464

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Silver	80.0	88.1		ug/L		110	85 - 115
Cadmium	80.0	78.6		ug/L		98	85 - 115
Copper	80.0	82.7		ug/L		103	85 - 115
Lead	80.0	80.4		ug/L		100	85 - 115
Antimony	80.0	80.5		ug/L		101	85 - 115
Selenium	80.0	76.8		ug/L		96	85 - 115
Thallium	80.0	77.8		ug/L		97	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264370-2 MS
Matrix: Water
Analysis Batch: 604614

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604464

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Silver	ND		80.0	87.4		ug/L		109	70 - 130
Cadmium	ND		80.0	77.7		ug/L		97	70 - 130
Copper	1.5	J,DX	80.0	84.0		ug/L		103	70 - 130
Lead	ND		80.0	80.0		ug/L		100	70 - 130
Antimony	ND		80.0	80.2		ug/L		100	70 - 130
Selenium	ND		80.0	74.1		ug/L		93	70 - 130
Thallium	ND		80.0	76.9		ug/L		96	70 - 130

Lab Sample ID: 440-264370-2 MSD
Matrix: Water
Analysis Batch: 604614

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604464

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Silver	ND		80.0	88.8		ug/L		111	70 - 130	2	20
Cadmium	ND		80.0	79.2		ug/L		99	70 - 130	2	20
Copper	1.5	J,DX	80.0	85.9		ug/L		105	70 - 130	2	20
Lead	ND		80.0	82.2		ug/L		103	70 - 130	3	20
Antimony	ND		80.0	81.4		ug/L		102	70 - 130	1	20
Selenium	ND		80.0	77.6		ug/L		97	70 - 130	5	20
Thallium	ND		80.0	79.3		ug/L		99	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604477/1-A
Matrix: Water
Analysis Batch: 604948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604477

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.10	ug/L		04/10/20 10:42	04/10/20 16:21	1

Lab Sample ID: LCS 440-604477/2-A
Matrix: Water
Analysis Batch: 604948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604477

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Mercury	4.00	3.95		ug/L		99	85 - 115

Lab Sample ID: 440-264370-1 MS
Matrix: Water
Analysis Batch: 604948

Client Sample ID: Outfall008_20200409_Comp
Prep Type: Total/NA
Prep Batch: 604477

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury	ND		4.00	4.17		ug/L		104	75 - 125

Lab Sample ID: 440-264370-1 MSD
Matrix: Water
Analysis Batch: 604948

Client Sample ID: Outfall008_20200409_Comp
Prep Type: Total/NA
Prep Batch: 604477

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Mercury	ND		4.00	4.04		ug/L		101	75 - 125	3	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604462/1-D
Matrix: Water
Analysis Batch: 604649

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/10/20 10:44	04/10/20 16:19	1

Lab Sample ID: LCS 440-604462/2-D
Matrix: Water
Analysis Batch: 604649

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	4.38		ug/L		109	85 - 115

Lab Sample ID: 440-264370-2 MS
Matrix: Water
Analysis Batch: 604649

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604470

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.21		ug/L		105	75 - 125

Lab Sample ID: 440-264370-2 MSD
Matrix: Water
Analysis Batch: 604649

Client Sample ID: Outfall008_20200409_Comp_F
Prep Type: Dissolved
Prep Batch: 604470

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	ND		4.00	4.17		ug/L		104	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605340/1
Matrix: Water
Analysis Batch: 605340

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			04/16/20 10:34	1

Lab Sample ID: LCS 440-605340/2
Matrix: Water
Analysis Batch: 605340

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: 440-264518-A-12 DU
Matrix: Water
Analysis Batch: 605340

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	2700		2690		mg/L		0.7	5

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-605365/1
Matrix: Water
Analysis Batch: 605365

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			04/16/20 12:37	1

Lab Sample ID: LCS 440-605365/2
Matrix: Water
Analysis Batch: 605365

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	976		mg/L		98	85 - 115

Lab Sample ID: 440-264366-A-2 DU
Matrix: Water
Analysis Batch: 605365

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	73		75.0		mg/L		3	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-604575/1-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:39	1

Lab Sample ID: LCS 440-604575/2-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	96.4		ug/L		96	80 - 120

Lab Sample ID: LCSD 440-604575/3-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	100	102		ug/L		102	80 - 120	6	20

Lab Sample ID: 440-264162-J-1-B MS
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	102		ug/L		102	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-264162-J-1-C MSD
 Matrix: Water
 Analysis Batch: 604615

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	89.4		ug/L		89	75 - 125	13	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605752/10
 Matrix: Water
 Analysis Batch: 605752

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			04/20/20 13:20	1

Lab Sample ID: LCS 440-605752/11
 Matrix: Water
 Analysis Batch: 605752

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	4.980		mg/L		100	90 - 110

Lab Sample ID: MRL 440-605752/9
 Matrix: Water
 Analysis Batch: 605752

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	0.1720	J,DX	mg/L		86	50 - 150

Lab Sample ID: 440-264517-F-1 MS
 Matrix: Water
 Analysis Batch: 605752

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	5.270		mg/L		105	90 - 110

Lab Sample ID: 440-264517-F-1 MSD
 Matrix: Water
 Analysis Batch: 605752

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	5.450		mg/L		109	90 - 110	3	15

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

HPLC/IC

Analysis Batch: 604365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	300.0	
MB 440-604365/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604365/5	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 604366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	300.0	
MB 440-604366/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604366/5	Lab Control Sample	Total/NA	Water	300.0	
440-264037-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264037-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 604580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 604893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	314.0	
MB 440-604893/6	Method Blank	Total/NA	Water	314.0	
LCS 440-604893/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604893/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604893/8	Lab Control Sample	Total/NA	Water	314.0	
440-264370-1 MS	Outfall008_20200409_Comp	Total/NA	Water	314.0	
440-264370-1 MSD	Outfall008_20200409_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 372221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	1613B	
MB 320-372221/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-372221/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 372808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	1613B	372221
MB 320-372221/1-A	Method Blank	Total/NA	Water	1613B	372221
LCS 320-372221/2-A	Lab Control Sample	Total/NA	Water	1613B	372221

Metals

Filtration Batch: 604462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604462/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604462/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604462/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604462/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604462/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604462/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Metals (Continued)

Filtration Batch: 604462 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 604463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462
MB 440-604462/1-B	Method Blank	Dissolved	Water	200.2	604462
LCS 440-604462/2-B	Lab Control Sample	Dissolved	Water	200.2	604462
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462

Prep Batch: 604464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462
MB 440-604462/1-C	Method Blank	Dissolved	Water	200.2	604462
LCS 440-604462/2-C	Lab Control Sample	Dissolved	Water	200.2	604462
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	200.2	604462

Prep Batch: 604470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604462
MB 440-604462/1-D	Method Blank	Dissolved	Water	245.1	604462
LCS 440-604462/2-D	Lab Control Sample	Dissolved	Water	245.1	604462
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604462
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604462

Prep Batch: 604477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	245.1	
MB 440-604477/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-604477/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-264370-1 MS	Outfall008_20200409_Comp	Total/NA	Water	245.1	
440-264370-1 MSD	Outfall008_20200409_Comp	Total/NA	Water	245.1	

Analysis Batch: 604586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	200.7 Rev 4.4	604463
MB 440-604462/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	604463
LCS 440-604462/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	604463
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	200.7 Rev 4.4	604463
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	200.7 Rev 4.4	604463

Analysis Batch: 604614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	200.8	604464
MB 440-604462/1-C	Method Blank	Dissolved	Water	200.8	604464
LCS 440-604462/2-C	Lab Control Sample	Dissolved	Water	200.8	604464
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	200.8	604464

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

Metals (Continued)

Analysis Batch: 604614 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	200.8	604464

Analysis Batch: 604649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-2	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604470
MB 440-604462/1-D	Method Blank	Dissolved	Water	245.1	604470
LCS 440-604462/2-D	Lab Control Sample	Dissolved	Water	245.1	604470
440-264370-2 MS	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604470
440-264370-2 MSD	Outfall008_20200409_Comp_F	Dissolved	Water	245.1	604470

Prep Batch: 604822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total Recoverable	Water	200.2	
MB 440-604822/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604822/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264527-G-8-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264527-G-8-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Analysis Batch: 604948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	245.1	604477
MB 440-604477/1-A	Method Blank	Total/NA	Water	245.1	604477
LCS 440-604477/2-A	Lab Control Sample	Total/NA	Water	245.1	604477
440-264370-1 MS	Outfall008_20200409_Comp	Total/NA	Water	245.1	604477
440-264370-1 MSD	Outfall008_20200409_Comp	Total/NA	Water	245.1	604477

Analysis Batch: 605180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total Recoverable	Water	200.7 Rev 4.4	604822
MB 440-604822/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	604822
LCS 440-604822/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	604822
440-264527-G-8-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	604822
440-264527-G-8-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	604822

Prep Batch: 605761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total Recoverable	Water	200.2	
MB 440-605761/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605761/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264370-1 MS	Outfall008_20200409_Comp	Total Recoverable	Water	200.2	
440-264370-1 MSD	Outfall008_20200409_Comp	Total Recoverable	Water	200.2	

Analysis Batch: 605922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total Recoverable	Water	200.8	605761
MB 440-605761/1-A	Method Blank	Total Recoverable	Water	200.8	605761
LCS 440-605761/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605761
440-264370-1 MS	Outfall008_20200409_Comp	Total Recoverable	Water	200.8	605761
440-264370-1 MSD	Outfall008_20200409_Comp	Total Recoverable	Water	200.8	605761

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

General Chemistry

Prep Batch: 604575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	Distill/CN	
MB 440-604575/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/CN	
440-264162-J-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-264162-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 604615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	SM 4500 CN E	604575
MB 440-604575/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	604575
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	604575
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	604575
440-264162-J-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	604575
440-264162-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	604575

Analysis Batch: 605340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	SM 2540C	
MB 440-605340/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605340/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264518-A-12 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 605365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	SM 2540D	
MB 440-605365/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605365/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264366-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 605752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605752/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605752/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605752/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-1

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.
α	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 008 Comp

Job ID: 440-264370-1

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
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
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
Pennsylvania	NELAP	68-01272	03-31-21
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.

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Altrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Denair Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall 1008 Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8606; 520.904.8944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)		ANALYSIS REQUIRED TSS (160 2 (SM2540D)) Total Dissolved Metals Mercury (E245 1) Total Recoverable Metals Mercury (E245 1) Cyanide (SM4500-CNE/E/335 2) Ammonia-N (350 2) Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E900 0), Sr-90 (E900 0), Total Radium 226 (E900 0 or E903 1) & Radium 228 (E904 0), Uranium (E908 0), K-40 CS-137 (E901 0 or E901 1) Total Dissolved Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl TDS (SM2540C/E180 1) Chloride (300) Cd, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Ferrous (300) TCDD (and all congeners) (E1613B) Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl		Field Readings Comments SW 4/9/20 48 hours Holding Time NO ₃ & NO ₂ Unfiltered and unpreserved analysis, Separate (NO ₃ and NO ₂) for nitrate under Analyze duplicate, not MS/MSD Filter and preserve with 24hrs of receipt at lab Sample received too hot to preserve; bag to be opened in Mercury Prep using clean		
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Turn-around time (Check)	Field Readings
Outfall 008	Outfall008_20200408_Comp	4/9/2020 10:30	WM	500 mL Poly	1	HNO ₃	66	No	24 Hour	
			WM	1 L Glass Amber	2	None	110	No	48 Hour	
			WM	500 mL Poly	2	None	130	No	10 Day	X
			WM	500 mL Poly	1	None	165	No	5 Day	
			WM	500 mL Poly	1	H ₂ SO ₄	180	No	Normal	
			WM	500 mL Poly	1	NaOH	220	No		
			WM	2.5 Gal Cube	1	None	225	No		
			WM	1 L Glass Amber	1	None	230	No		
			WM	Garbage	6	None	235	No		
			WM	1 L Poly	1	None	165	No		
			WM	1 L Poly	1	None	205	No		
			WM	borosilicate vials	1	None	320	No		
			WM	1 L Glass Amber	2	None	110	No		
			WM	900 mL Poly	2	None	130	No		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: *[Signature]* Date/Time: 4-9-2020/10:30 Company: M: A

Received By: *[Signature]* Date/Time: 4/9/2020 10:30

Relinquished By: *[Signature]* Date/Time: 4-9-2020/15:45 Company: R(-F77U)

Received By: *[Signature]* Date/Time: 4/9/2020 15:45

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

Sample integrity (Check): Intact On Ice

Store samples for 6 months Data Requirements (Check): No Level IV All Level IV

IPSA 1.2/12 0.6/0.6 0.3/0.3



440-264370 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)	Sampler:	Lab PM:	Carrier Tracking No(s):	COG No:						
Client Contact: Shipping/Receiving Company: Test/America Laboratories, Inc. Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email: Project Name: Routine Outfall 008 Comp Site:	Bondoc, Christian M christian.bondoc@testamerica.com State of Origin: California	440-154936-1 Page: Page 1 of 1 Job #: 440-264370-1	440-264370-1	440-264370-1						
Analysis Requested Due Date Requested: 4/21/2020 TAT Requested (days): PO #: WO #: Project #: 44009879 SSOV#:	16138/16138_Sox_Sep_P Standard List w/Totals Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> X	Special Instructions/Note: See OAS, Boeing_w/lu to zero, ug/L, Use Boeing glassware.	Total Number of Containers 2	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 Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)						
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=soil, O=water, Q=other)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	16138/16138_Sox_Sep_P Standard List w/Totals	Total Number of Containers	Special Instructions/Note:
Outfall008_20200409_Comp (440-264370-1)	4/9/20	07:25 Pacific		Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	2	See OAS, Boeing_w/lu 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/test/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 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Empty Kit Relinquished by: Relinquished by: <i>A. Kenney</i> Date/Time: <i>4/20/20 1700</i> Relinquished by: Date/Time: Relinquished by: Date/Time:	Relinquished by: Date/Time: <i>4/11/20</i> Received by: <i>Edg</i> Date/Time: <i>9:50</i> Relinquished by: Date/Time: Relinquished by: Date/Time:
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: <i>See</i>	Cooler Temperature(s) °C and Other Remarks: <i>0.4°C</i>

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264370-1

Login Number: 264370

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264370-1

Login Number: 264370

List Number: 2

Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/11/20 03:04 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	False	
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	0.4c
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 <math><6\text{mm}</math> (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: 440-264370-1

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)
440-264370-1	Outfall008_20200409_Comp	64	59	56	56	62	60	60	59
MB 320-372221/1-A	Method Blank	82	78	69	69	77	72	71	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)
440-264370-1	Outfall008_20200409_Comp	56	57	58	64	65	69	59
MB 320-372221/1-A	Method Blank	69	68	71	70	73	79	62

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 320-372221/2-A	Lab Control Sample	80	77	71	71	78	72	73	72

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 320-372221/2-A	Lab Control Sample	69	69	70	75	77	83	70

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
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Job ID: 440-264370-1

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Tracking #: 1540 4107 77 80

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.

Therm. ID: RA Stem 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: SO Date: 4/11/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: SO Date: 4/11/20

Notes: _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Log Release checked in TALS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: SO Date: 4/11/20

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264370-2

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

2 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.: 1272.003H.01

Sample Delivery Group: 440-264370-2

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
OUTFALL008_20200409_COMP	440-264370-1	N/A	WM	4/9/20 7:25 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A- 01-R
OUTFALL008_20200409_COMP	440-264370-2	N/A	WM	4/9/20 7:25 AM	RADIUM



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) 440-264370-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^X reviewed the SDG on June 3, 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 A-01-R* 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 and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiency for gross alpha was less than 20%; therefore, the 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:

LCS/LCSD recoveries were within laboratory-established control limits and RPDs, as applicable, were ≤20%.

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 and matrix spike duplicate analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. Reported nondetects are valid to the MDC. The sample was prepared at a reduced aliquot due to matrix issues for Methods 903.0, 904.0 and 905. Detection goals were not met for gross alpha and gross beta due to a reduction of the sample size. Results were reported with the actual detection limit achieved.

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: 4402643702

Analysis Method E900

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	0.722	0.959	3.00	1.60	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	1.96	0.794	4.00	1.09	pCi/L		J+	B

Analysis Method E901.1

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	-1.59	11.5	20.0	14.6	pCi/L	U	U	
Potassium-40	13966-00-2	6.65	126	175	175	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0333	0.0663	1.00	0.120	pCi/L	U	U	

Analysis Method E904.0

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.107	0.319	1.00	0.586	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.447	0.418	3.00	0.671	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	-32.4	159	500	295	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.166	0.140	1.00	0.175	pCi/L	U	U	

Analysis Method RADIUM

Sample Name OUTFALL008_20200409_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/9/2020 7:25:00 AM Validation Level: 9

Lab Sample Name: 440-264370-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.586	0.326			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: 440-264370-2
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:
5/7/2020 9:05:13 AM

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

LINKS

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results through
TotalAccess

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www.eurofinsus.com/Env

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.

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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
5/7/2020 9:05:13 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264370-1	Outfall008_20200409_Comp	Water	04/09/20 07:25	04/09/20 15:45	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Job ID: 440-264370-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264370-2

Receipt

The samples were received on 4/9/2020 3:45 PM; the samples arrived in good condition, properly preserved, and where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3°C, 0.6°C and 1.2°C

Department Alpha Spectroscopy

Method A01R_U: Uranium Prep Batch 160-468046:

The following samples have matrix observations: Outfall008_20200409_Comp (440-264370-1). 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

Method A01R_U: 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.

Outfall008_20200409_Comp (440-264370-1), (LCS 160-468046/2-A), (MB 160-468046/1-A), (440-263721-S-1-J), (440-263721-M-1-I MS) and (440-263721-M-1-J MSD)

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

Department Gamma Spectroscopy

Method 901.1_Cs: Gamma Prep Batch 160-467695

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Job ID: 440-264370-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Ra-223
Th-227 Ac-227
Th-227 Bi-211
Th-227 Pb-211
Bi-214 Ra-226

Outfall008_20200409_Comp (440-264370-1), (LCS 160-467695/2-A), (MB 160-467695/1-A), (440-264162-K-1-J) and (440-264162-K-1-K DU

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

Department Gas Flow Proportional Counter

Method 900.0: Gross Alpha/Beta Prep Batch 160-468957

The gross alpha and gross beta detection goals were not met for the following samples due to a reduction of the sample size attributed to high residual mass: (440-264525-B-5-A), (440-264525-B-5-D DU), (440-264525-B-5-B MS) and (440-264525-B-5-C MSBT). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha/Beta Prep Batch 160-468957

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_20200409_Comp (440-264370-1), (LCS 160-468957/2-A), (LCSB 160-468957/3-A), (MB 160-468957/1-A), (440-264525-B-5-A), (440-264525-B-5-D DU), (440-264525-B-5-B MS) and (440-264525-B-5-C MSB

Method 903.0: Radium 226 Prep Batch 160-467819:

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall008_20200409_Comp (440-264370-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 903.0: Radium 226 Prep Batch 160-467819:

The following sample was prepared at a reduced aliquot due to yellow discoloration and heavy sediment levels:

Outfall008_20200409_Comp (440-264370-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 903.0: Ra-226 Prep Batch 160-467819

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_20200409_Comp (440-264370-1), (LCS 160-467819/1-A), (LCSD 160-467819/2-A) and (MB 160-467819/23-

Method 904.0: Radium 228 Prep Batch 160-467826:

The following sample was prepared at a reduced aliquot due to yellow discoloration and heavy sediment levels:

Outfall008_20200409_Comp (440-264370-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Job ID: 440-264370-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Method 904.0: Radium 228 Prep Batch 160-467826:

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall008_20200409_Comp (440-264370-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision

Method 904.0: Ra-228 Prep Batch 160-467826

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_20200409_Comp (440-264370-1), (LCS 160-467826/1-A), (LCSD 160-467826/2-A) and (MB 160-467826/23-

Method 905_Sr90: Strontium 90 Prep Batch 160-468677:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20200409_Comp (440-264370-1). Samples 440-264370-1, 440-264510-1, 440-264517-1, 440-264517-1 MS, 440-264517-1 MSD, 440-264634-1, and 440-264783-1 all have a yellow discoloration. Sample 310-179946-1 has brown discoloration and heavy sediment

Method 905_Sr90: Sr-90 Prep Batch 160-468677

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_20200409_Comp (440-264370-1), (LCS 160-468677/1-A), (MB 160-468677/22-A), (440-264517-R-1-H), (440-264517-M-1-H MS) and (440-264517-M-1-I MS

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

Department Liquid Scintillation Counter

Method 906.0: LSC Tritium Prep Batch 160-468476

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_20200409_Comp (440-264370-1), (LCS 160-468476/2-A), (MB 160-468476/1-A), (160-37864-A-1-A), (160-37864-A-1-B DU), (440-264162-L-1-A), (440-264162-L-1-B MS) and (440-264162-K-1-T MSD

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 008 Comp

Job ID: 440-264370-2

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Gross Alpha	0.722	U	0.956	0.959	3.00	1.60	pCi/L	04/27/20 11:17	05/03/20 13:56	1
Gross Beta	1.96		0.770	0.794	4.00	1.09	pCi/L	04/27/20 11:17	05/03/20 13:56	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Cesium-137	-1.59	U	11.5	11.5	20.0	14.6	pCi/L	04/14/20 14:27	04/15/20 09:35	1
Potassium-40	6.65	U	126	126		175	pCi/L	04/14/20 14:27	04/15/20 09:35	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.0333	U	0.0662	0.0663	1.00	0.120	pCi/L	04/15/20 08:55	05/07/20 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					04/15/20 08:55	05/07/20 06:13	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	-0.107	U	0.319	0.319	1.00	0.586	pCi/L	04/15/20 09:44	04/28/20 18:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					04/15/20 09:44	04/28/20 18:49	1
Y Carrier	89.0		40 - 110					04/15/20 09:44	04/28/20 18:49	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium-90	0.447	U	0.416	0.418	3.00	0.671	pCi/L	04/23/20 09:24	05/06/20 09:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	80.6		40 - 110					04/23/20 09:24	05/06/20 09:27	1
Y Carrier	90.5		40 - 110					04/23/20 09:24	05/06/20 09:27	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tritium	-32.4	U	159	159	500	295	pCi/L	04/22/20 04:26	04/22/20 21:29	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Total Uranium	0.166	U	0.139	0.140	1.00	0.175	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	86.4		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

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: 440-264370-2

Client Sample ID: Outfall008_20200409_Comp

Lab Sample ID: 440-264370-1

Date Collected: 04/09/20 07:25

Matrix: Water

Date Received: 04/09/20 15:45

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 mL	1.0 g	468957	04/27/20 11:17	RJD	TAL SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	469454	05/03/20 13:56	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	467695	04/14/20 14:27	MMO	TAL SL
Total/NA	Analysis	901.1		1			467835	04/15/20 09:35	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.14 mL	1.0 g	467819	04/15/20 08:55	RBR	TAL SL
Total/NA	Analysis	903.0		1			469780	05/07/20 06:13	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			750.14 mL	1.0 g	467826	04/15/20 09:44	RBR	TAL SL
Total/NA	Analysis	904.0		1			469049	04/28/20 18:49	KLS	TAL SL
Total/NA	Prep	PrecSep-7			500.68 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469750	05/06/20 09:27	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.9 mL	1.0 g	468476	04/22/20 04:26	NMN	TAL SL
Total/NA	Analysis	906.0		1			468623	04/22/20 21:29	JS	TAL SL
Total/NA	Prep	ExtChrom			500.69 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468771	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-468957/1-A
Matrix: Water
Analysis Batch: 469471

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468957

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.5247	U	0.637	0.640	3.00	1.05	pCi/L	04/27/20 07:34	05/02/20 12:05	1
Gross Beta	-0.08125	U	0.431	0.431	4.00	0.787	pCi/L	04/27/20 07:34	05/02/20 12:05	1

Lab Sample ID: LCS 160-468957/2-A
Matrix: Water
Analysis Batch: 469471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468957

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	45.26		6.98	3.00	2.65	pCi/L	91	75 - 125

Lab Sample ID: LCSB 160-468957/3-A
Matrix: Water
Analysis Batch: 469471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468957

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	79.41		8.47	4.00	0.810	pCi/L	94	75 - 125

Lab Sample ID: 440-264525-B-5-B MS
Matrix: Water
Analysis Batch: 469454

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468957

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	12.6	U G	487	317.9		56.8	3.00	30.7	pCi/L	63	60 - 140

Lab Sample ID: 440-264525-B-5-C MSBT
Matrix: Water
Analysis Batch: 469454

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468957

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	10.9	G	829	738.9	G	79.2	4.00	8.00	pCi/L	88	60 - 140

Lab Sample ID: 440-264525-B-5-D DU
Matrix: Water
Analysis Batch: 469454

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468957

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	12.6	U G	9.097	U G	12.8	3.00	21.6	pCi/L		0.14
Gross Beta	10.9	G	11.94	G	6.46	4.00	9.30	pCi/L		0.08

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-467695/1-A
Matrix: Water
Analysis Batch: 467836

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467695

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	1.446	U	12.2	12.2	20.0	15.4	pCi/L	04/14/20 14:27	04/15/20 08:35	1
Potassium-40	-22.63	U	154	154		222	pCi/L	04/14/20 14:27	04/15/20 08:35	1

Lab Sample ID: LCS 160-467695/2-A
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium-241	136000	126100		14600		349	pCi/L	93	90 - 111
Cesium-137	43700	43790		4390	20.0	102	pCi/L	100	90 - 111
Cobalt-60	26300	25540		2530		54.0	pCi/L	97	89 - 110

Lab Sample ID: 440-264162-K-1-K DU
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER	
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit	
Cesium-137	0.162	U	3.072	U	8.42	20.0	10.2	pCi/L		0.16	1
Potassium-40	9.19	U	-143.8	U	141		220	pCi/L		0.70	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467819/23-A
Matrix: Water
Analysis Batch: 469780

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467819

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03121	U	0.0621	0.0621	1.00	0.111	pCi/L	04/15/20 08:55	05/07/20 06:14	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	04/15/20 08:55	05/07/20 06:14	1

Lab Sample ID: LCS 160-467819/1-A
Matrix: Water
Analysis Batch: 469780

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467819

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	9.899		1.04	1.00	0.105	pCi/L	87	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	97.0		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-467819/2-A
Matrix: Water
Analysis Batch: 469780

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 467819

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.3	9.803		1.03	1.00	0.116	pCi/L	86	75 - 125	0.05	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	95.7		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-467826/23-A
Matrix: Water
Analysis Batch: 469049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467826

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2776	U	0.268	0.270	1.00	0.436	pCi/L	04/15/20 09:44	04/28/20 18:49	1
Carrier	%Yield	MB Qualifier	Limits							
Ba Carrier	99.4		40 - 110							
Y Carrier	91.2		40 - 110							
								Prepared	Analyzed	Dil Fac
								04/15/20 09:44	04/28/20 18:49	1
								04/15/20 09:44	04/28/20 18:49	1

Lab Sample ID: LCS 160-467826/1-A
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467826

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.89	7.927		0.958	1.00	0.413	pCi/L	89	75 - 125
Carrier	%Yield	LCS Qualifier	Limits						
Ba Carrier	97.0		40 - 110						
Y Carrier	88.6		40 - 110						

Lab Sample ID: LCSD 160-467826/2-A
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 467826

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.89	8.527		1.02	1.00	0.394	pCi/L	96	75 - 125	0.30	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	95.7		40 - 110								
Y Carrier	87.5		40 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	93.4		40 - 110		04/23/20 09:24	05/06/20 09:25	1			
Y Carrier	92.0		40 - 110		04/23/20 09:24	05/06/20 09:25	1			

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec. Limits
		Result	Qual	Uncert. (2σ+/-)					
Strontium-90	16.9	16.93		1.79	3.00	0.626	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	91.7		40 - 110						
Y Carrier	85.6		40 - 110						

Lab Sample ID: 440-264517-M-1-H MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					
Strontium-90	0.284	U	16.9	16.73		1.77	3.00	0.633	pCi/L	98	19 - 150
Carrier	MS %Yield	MS Qualifier	Limits								
Sr Carrier	88.8		40 - 110								
Y Carrier	90.8		40 - 110								

Lab Sample ID: 440-264517-M-1-I MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)							
Strontium-90	0.284	U	16.9	15.70		1.68	3.00	0.641	pCi/L	91	19 - 150	0.30	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Sr Carrier	87.6		40 - 110										
Y Carrier	92.7		40 - 110										

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-468476/1-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468476

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	62.16	U	161	161	500	277	pCi/L	04/22/20 04:26	04/22/20 13:34	1

Lab Sample ID: LCS 160-468476/2-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec. Limits
		Result	Qual	Uncert. (2σ+/-)					
Tritium	2470	2384		380	500	277	pCi/L	96	75 - 114

Lab Sample ID: 440-264162-K-1-T MSD
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Result	Qual	Uncert. (2σ+/-)							
Tritium	14.9	U	2460	2655		404	500	276	pCi/L	107	67 - 130	0.74	1

Lab Sample ID: 440-264162-L-1-B MS
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Result	Qual	Uncert. (2σ+/-)					
Tritium	14.9	U	2470	2096		353	500	277	pCi/L	84	67 - 130

Lab Sample ID: 160-37864-A-1-B DU
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	DU	DU	Total	RL	MDC	Unit	RER	RER Limit
				Result	Qual					
Tritium	66.7	U	77.93	U	156	500	261	pCi/L	0.04	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 MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

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							

Lab Sample ID: 440-263721-M-1-I MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Matrix Spike
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-M-1-J MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Matrix Spike Duplicate
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	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 008 Comp

Job ID: 440-264370-2

Rad

Prep Batch: 467695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-467695/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-467695/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264162-K-1-K DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 467819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	PrecSep-21	
MB 160-467819/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467819/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-467819/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 467826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	PrecSep_0	
MB 160-467826/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-467826/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-467826/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_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-M-1-I MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263721-M-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 468476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-468476/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-468476/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264162-K-1-T MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
440-264162-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-37864-A-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-M-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264517-M-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 468957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264370-1	Outfall008_20200409_Comp	Total/NA	Water	Evaporation	
MB 160-468957/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-468957/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSEB 160-468957/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264525-B-5-B MS	Matrix Spike	Total/NA	Water	Evaporation	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

Rad (Continued)

Prep Batch: 468957 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264525-B-5-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-264525-B-5-D DU	Duplicate	Total/NA	Water	Evaporation	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264370-2

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)
MQL	Method Quantitation Limit
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 008 Comp

Job ID: 440-264370-2

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

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Altrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Denair Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall 008 Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8606; 520.904.8944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)		Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall 008 Outfall 008 Comp															
Test America's services under the CoC shall be performed in accordance with the IFCO, with Blanket Service Agreement # 2018-22-TestAmerica by and between Haley & Altrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Sampler: Dan Smith		ANALYSIS REQUIRED		Field Readings															
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E2007) Ni, Zn (E2008) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	Cr, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Ferrate (300)	TDS (SM2540C/E180 1)	Total Dissolved Metals (E2007) Ni, Zn (E2008) Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E900 0), Sr-90 (E900 0), Total 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_20200409_Comp	4/9/2020 10:30	WM	500 mL Poly	1	HNO3	66	No	X												SW 4/9/20
			WM	1 L Glass Amber	2	None	110	No		X											48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	2	None	130	No													
			WM	500 mL Poly	1	None	165	No													
			WM	500 mL Poly	1	H2SO4	180	No													
			WM	500 mL Poly	1	NaOH	220	No													
			WM	2.5 Gal Cube	1	None	225	No													
			WM	1 L Glass Amber	1	None	230	No													
			WM	1-GalCube	0	None	235	No													
			WM	1 L Poly	1	None	165	No													
			WM	1 L Poly	1	None	205	No													
			WM	borosilicate vials	1	None	320	No													
			WM	1 L Glass Amber	2	None	110	No													
			WM	900 mL Poly	2	None	130	No													

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: *[Signature]* Date/Time: 4-9-2020/1030 Company: M: A

Received By: *[Signature]* Date/Time: 4/9/20 10:30

Relinquished By: *[Signature]* Date/Time: 4-9-20 15:45 Company: R: C - F: T: U

Received By: *[Signature]* Date/Time: 4/9/20 1545

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

Sample integrity (Check): Intact On Ice

Store samples for 6 months: No Level IV All Level IV

IPSA 1.2/12 0.6/0.6 0.3/0.3



440-264370 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:																
Client Contact: Shipping/Receiving		Phone:	Bondoc, Christian M		440-154918.1																
Company: TestAmerica Laboratories, Inc.		E-Mail: christian.bondoc@testamericainc.com		State of Origin: California	Page: Page 1 of 1																
Address: 13715 Rider Trail North,		Accreditations Required (See note): State Program - California		Job #: 440-264370-2	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 Other: 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)																
Due Date Requested: 5/7/2020		TAT Requested (days):		Analysis Requested																	
City:	State:	Zip:	PO #:	WO #:	Project #:	SSOW#:	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Soil, O=Organic, 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_UR/ExChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905.5/90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
Earth City	MO.	63045	314-298-8566(Tel) 314-298-8757(Fax)		44009879		4/9/20	07:25 Pacific	Water		X	X	X	X	X	X	X	X	X	2	Boeing SSFL, DO NOT FILTER, use prep date from preservation
Sample Identification - Client ID (Lab ID) Outfall008_20200409_Comp (440-264370-1)																					

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/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 Return To Client Disposal By Lab Archive For _____ Months
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: A. Ramsey Date/Time: 4/10/20 17:00 Company: EC-IRV
 Relinquished by: FE Date/Time: _____ Company: _____
 Relinquished by: Michaela Koumings Date/Time: 4/10/20 09:10 Company: EIA STR

Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:



CONDITION UPON RECEIPT FORM

Client: Eurofins Cal Science

Initiated by: MK Date: 4/11/2020 Time: 09:10 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.	154D 407 7677	192688461	-0.4	440-154918.1
2.	154D 4107 7666	192688461	0.3	440-154917.1 440-154913.1
3.	154D 4107 7655	192688461	0.8	440-154917.1 440-154913.1
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	<input type="radio"/> Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>#C904495</u>
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	<input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> 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:

pH Adjustment (if needed)

Date/Time of Preservation:

Initial pH and pH strip lot#:

Preservative and lot#:

Final pH and pH strip lot#:

Amount of Preservative:

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: 440-264370-2

Login Number: 264370

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264370-2

Login Number: 264370

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/13/20 06:21 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 008 Comp

Job ID: 440-264370-2

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)		
440-264370-1	Outfall008_20200409_Comp	94.5		
LCS 160-467819/1-A	Lab Control Sample	97.0		
LCSD 160-467819/2-A	Lab Control Sample Dup	95.7		
MB 160-467819/23-A	Method Blank	99.4		
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)		
440-264370-1	Outfall008_20200409_Comp	94.5	89.0		
LCS 160-467826/1-A	Lab Control Sample	97.0	88.6		
LCSD 160-467826/2-A	Lab Control Sample Dup	95.7	87.5		
MB 160-467826/23-A	Method Blank	99.4	91.2		
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)		
440-264370-1	Outfall008_20200409_Comp	80.6	90.5		
440-264517-M-1-H MS	Matrix Spike	88.8	90.8		
440-264517-M-1-I MSD	Matrix Spike Duplicate	87.6	92.7		
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6		
MB 160-468677/22-A	Method Blank	93.4	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	uranium-232 (30-110)		
440-263721-M-1-I MS	Matrix Spike	65.3		
440-263721-M-1-J MSD	Matrix Spike Duplicate	65.1		
440-264370-1	Outfall008_20200409_Comp	86.4		
LCS 160-468046/2-A	Lab Control Sample	81.2		
MB 160-468046/1-A	Method Blank	92.6		
Tracer/Carrier Legend				
Uranium-232 = Uranium-232				



Tracking #: 1540 4107 77 80

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.

Therm. ID: 181 Stem 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: SO Date: 4/11/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date: 4/11/20

Notes: _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Log Release checked in TALS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: SO Date: 4/11/20

ANALYTICAL REPORT

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

Laboratory Job ID: 440-264782-1

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:
4/22/2020 12:40:36 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.

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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 12:40:36 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264782-1	Outfall008_20200415_Grab	Water	04/15/20 09:10	04/16/20 15:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

Job ID: 440-264782-1

Laboratory: Eurofins Calscience Irvine

Narrative

**Job Narrative
440-264782-1**

Comments

No additional comments.

Receipt

The samples were received on 4/16/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

Organic Prep

Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-605977 and analytical batch 440-606041. 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.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

Client Sample ID: Outfall008_20200415_Grab

Lab Sample ID: 440-264782-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.3	1.5	mg/L		04/22/20 05:09	04/22/20 09:04	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

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: 440-264782-1

Client Sample ID: Outfall008_20200415_Grab

Lab Sample ID: 440-264782-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			950 mL	1000 mL	605977	04/22/20 05:09	L1A	TAL IRV
Total/NA	Analysis	1664A		1			606041	04/22/20 09:04	L1A	TAL IRV

Laboratory References:

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605977/1-A
Matrix: Water
Analysis Batch: 606041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/22/20 05:09	04/22/20 09:04	1

Lab Sample ID: LCS 440-605977/2-A
Matrix: Water
Analysis Batch: 606041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	36.5		mg/L		91	78 - 114

Lab Sample ID: LCSD 440-605977/3-A
Matrix: Water
Analysis Batch: 606041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605977

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	36.1		mg/L		90	78 - 114	1	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

General Chemistry

Prep Batch: 605977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264782-1	Outfall008_20200415_Grab	Total/NA	Water	1664A	
MB 440-605977/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605977/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605977/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 606041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264782-1	Outfall008_20200415_Grab	Total/NA	Water	1664A	605977
MB 440-605977/1-A	Method Blank	Total/NA	Water	1664A	605977
LCS 440-605977/2-A	Lab Control Sample	Total/NA	Water	1664A	605977
LCSD 440-605977/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605977

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Grab

Job ID: 440-264782-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 008 Grab

Job ID: 440-264782-1

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

1

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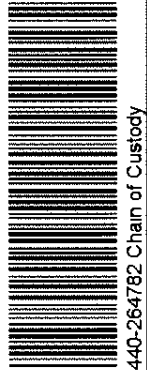
12

13

CHAIN OF CUSTODY FORM

TRACE # 798

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project Boeing-SSFL NPDES Permit 2020 Routine Outfall 008 Outfall 008 Grab</p>		<p>Field Readings (include units) Time of Readings: 0900 pH: 7.67 pH unit Temp: 54.4°C</p>		<p>Meter serial #</p>	
<p>Eurofins Calscience Irvine Contact: Christian Bondoc Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p>		<p>Field readings QC Checked by: <i>Ant Dargatzis</i> Date/Time: 4.15.2020/0900</p>		<p>Comments</p>	
<p>Sampler: Dan Smith</p>		<p>Field Manager: Mark Dominick 978.234.5033, 816.599.0702 (cell)</p>		<p>Oil & Grease (E106A-HEM)</p>		<p>Extra Bottles</p>	
<p>Sample ID</p>		<p>Sample Matrix</p>		<p>Container Type</p>		<p># of Cont.</p>	
<p>Outfall 008</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>	
<p>Outfall 008_Grab</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>	
<p>Sampling Date/Time</p>		<p>Sample Matrix</p>		<p>Preservable</p>		<p>Bottle #</p>	
<p>4/15/2020 6:40</p>		<p>WM</p>		<p>HCl</p>		<p>15</p>	
<p>4/15/2020 6:40</p>		<p>WM</p>		<p>HCl</p>		<p>15</p>	
<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>	
<p>No</p>		<p>No</p>		<p>No</p>		<p>No</p>	
<p>No</p>		<p>No</p>		<p>No</p>		<p>No</p>	



Legend: Re/Routine

Relinquished By	Date/Time	Company	Relinquished By	Date/Time	Company
<i>Ant Dargatzis</i>	4.16.2020/12:50	N/A	<i>EC-IRV</i>	4-16-20 12:50	EC-IRV
Relinquished By	Date/Time	Company	Relinquished By	Date/Time	Company
<i>EC-IRV</i>	4-16-20 12:50	EC-IRV	<i>EC-IRV</i>	4/16/20 15:30	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

4.3/4.5 1293



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264782-1

Login Number: 264782

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264783-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

29 May 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: 440-264783-1

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
OUTFALL008_2020041 5_COMP	440-264783-1	N/A	WM	4/15/20 9:10 AM	E1613B, E200.7, E200.8	II
OUTFALL008_2020041 5_COMP_F	440-264783-2	N/A	WM	4/15/20 9:10 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) 440-264783-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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- Sacramento 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.
- Strikethroughs on the original COC were initialed but not dated.



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

L. Calvin of MEC^x reviewed the SDG on June 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 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-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 total HxCDD result matched the sum of the qualified isomers, and was also qualified as a nondetect (U). The result for total HxCDF (containing both a qualified method blank isomer and a qualified EMPC isomers) was qualified as an estimated nondetect (UJ). The sample totals for HpCDD and 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 not evaluated at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not necessary, 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 at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The total PeCDF result matched the sum of the qualified isomers and was also qualified as an estimated nondetect (UJ). Total HxCDF in the sample (containing both a qualified method blank isomer and qualified EMPC isomers) was qualified as an estimated nondetect (UJ). Totals HpCDD and HpCDF flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^x reviewed the SDG on May 29, 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 OUTFALL008_20200415_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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.



IV.3.2. **INTERFERENCE CHECK SAMPLES:**

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or $\pm 2 \times$ the reporting limit, whichever is greater. Interferents in site samples were not summarized; therefore, interference was not 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 sample OUTFALL008_20200415_COMP_F by Method 200.8. Recoveries were within the QAPP control limits of 70-130% and RPDs were $\leq 20\%$. MS/MSD analyses were not performed on the samples in this SDG for Method 200.8. MS/MSD analyses were not performed on a sample in this SDG by Method 200.7.

IV.3.6. **SERIAL DILUTION**

Serial dilution analyses were not performed.

IV.4. **INTERNAL STANDARDS PERFORMANCE**

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. **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.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:

IV.6.1. **FIELD BLANKS AND EQUIPMENT BLANKS**

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

IV.6.2. **FIELD DUPLICATES**

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402647831

Analysis Method E1613B

Sample Name OUTFALL008_20200415_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/15/2020 9:10:00 AM **Validation Level:** 9

Lab Sample Name: 440-264783-1

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	0.00000091	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.0000086	0.00011	0.00000034	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000017	0.000053	0.00000042	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000013	0.000053	0.00000037	ug/L	J,DXqMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000017	0.000053	0.00000040	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.00000064	0.000053	0.00000032	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000023	0.000053	0.00000039	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.00000096	0.000053	0.00000034	ug/L	J,DXq	UJ	*III
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000053	0.00000042	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000022	0.000053	0.00000031	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.00000083	0.000053	0.00000037	ug/L	J,DXqMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.00000092	0.000053	0.00000045	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	ND	0.000053	0.00000073	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.00000073	0.000053	0.00000031	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000082	0.000053	0.00000048	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000040	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.00000015	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000033	0.000053	0.00000040	ug/L	J,DXqMB	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000022	0.000053	0.00000037	ug/L	J,DXqMB	J	B, DNQ, *III
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000045	0.000053	0.00000031	ug/L	J,DXqMB	UJ	B, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000031	0.000053	0.00000037	ug/L	J,DXqMB	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000017	0.000053	0.00000045	ug/L	J,DXq	UJ	*III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	ND	0.000053	0.00000073	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000040	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.00000015	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL008_20200415_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL008_20200415_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	D	7440-02-0	8.9	10	5.0	ug/L	J,DX	J	DNQ
Zinc	D	7440-66-6	ND	20	12	ug/L	U	U	

Analysis Method E200.8

Sample Name OUTFALL008_20200415_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

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	2.0	2.0	0.50	ug/L			
Lead	T	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2	0.57	2.0	0.50	ug/L	J,DX	J	DNQ
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 OUTFALL008_20200415_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-2

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	U	
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	1.3	2.0	0.50	ug/L	J,DX	J	DNQ
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	0.79	2.0	0.50	ug/L	J,DX	J	DNQ
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0	ND	1.0	0.20	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: 440-264783-1

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:
4/30/2020 12:40:15 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.

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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 12:40:15 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264783-1	Outfall008_20200415_Comp	Water	04/15/20 09:10	04/16/20 15:30	
440-264783-2	Outfall008_20200415_Comp_F	Water	04/15/20 09:10	04/16/20 15:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Job ID: 440-264783-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264783-1

Comments

No additional comments.

Receipt

The samples were received on 4/16/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 4.5° C.

HPLC/IC

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 FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall008_20200415_Comp_F (440-264783-2). This sample was filtered and preserved upon receipt to the laboratory.

04/16/20

2.5mL of HNO3

HNO3 Lot # 0000234822

Method 200.8: Due to the high concentration of Silver the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 440-605490 and analytical batch 440-605555 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

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.

Dioxin 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 Comp

Job ID: 440-264783-1

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.0		0.50	0.25	mg/L			04/16/20 18:12	1
Nitrate as N	ND		0.11	0.055	mg/L			04/16/20 18:12	1
Nitrite as N	ND		0.15	0.025	mg/L			04/16/20 18:12	1
Sulfate	5.0		0.50	0.25	mg/L			04/16/20 18:12	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			04/22/20 14:12	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			04/17/20 09:55	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	0.000015	ug/L		04/27/20 08:23	04/29/20 15:44	1
2,3,7,8-TCDF	ND		0.000011	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,7,8-PeCDD	ND		0.000053	0.000007	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,7,8-PeCDF	0.0000092	J,DX q	0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
2,3,4,7,8-PeCDF	0.0000082	J,DX q	0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,4,7,8-HxCDD	0.0000023	J,DX MB	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,6,7,8-HxCDD	ND		0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,7,8,9-HxCDD	0.0000083	J,DX q MB	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,4,7,8-HxCDF	0.0000064	J,DX q	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,6,7,8-HxCDF	0.0000096	J,DX q	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,7,8,9-HxCDF	0.0000022	J,DX MB	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
2,3,4,6,7,8-HxCDF	0.0000073	J,DX q	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,4,6,7,8-HpCDD	0.0000013	J,DX q MB	0.000053	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,4,6,7,8-HpCDF	0.0000017	J,DX q MB	0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
1,2,3,4,7,8,9-HpCDF	0.0000017	J,DX	0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
OCDD	0.0000086	J,DX MB	0.00011	0.000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
OCDF	0.0000037	J,DX q MB	0.00011	0.000009	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total TCDD	ND		0.000011	0.000015	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total TCDF	ND		0.000011	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total PeCDD	ND		0.000053	0.000007	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total PeCDF	0.0000017	J,DX q	0.000053	0.000004	ug/L		04/27/20 08:23	04/29/20 15:44	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	0.0000031	J,DX q MB	0.000053	0.0000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total HxCDF	0.0000045	J,DX q MB	0.000053	0.0000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total HpCDD	0.0000022	J,DX q MB	0.000053	0.0000003	ug/L		04/27/20 08:23	04/29/20 15:44	1
Total HpCDF	0.0000033	J,DX q MB	0.000053	0.0000004	ug/L		04/27/20 08:23	04/29/20 15:44	1
Isotope Dilution									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	58		25 - 164				04/27/20 08:23	04/29/20 15:44	1
13C-2,3,7,8-TCDF	65		24 - 169				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,7,8-PeCDD	53		25 - 181				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				04/27/20 08:23	04/29/20 15:44	1
13C-2,3,4,7,8-PeCDF	64		21 - 178				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,7,8,9-HxCDF	64		29 - 147				04/27/20 08:23	04/29/20 15:44	1
13C-2,3,4,6,7,8-HxCDF	61		28 - 136				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,4,6,7,8-HpCDD	65		23 - 140				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,4,6,7,8-HpCDF	62		28 - 143				04/27/20 08:23	04/29/20 15:44	1
13C-1,2,3,4,7,8,9-HpCDF	74		26 - 138				04/27/20 08:23	04/29/20 15:44	1
13C-OCDD	68		17 - 157				04/27/20 08:23	04/29/20 15:44	1
Surrogate									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	64		35 - 197				04/27/20 08:23	04/29/20 15:44	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		04/17/20 09:12	04/20/20 13:15	1
Zinc	ND		20	12	ug/L		04/17/20 09:12	04/20/20 13:15	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		04/17/20 10:39	04/17/20 17:45	1
Cadmium	ND		1.0	0.25	ug/L		04/17/20 10:39	04/17/20 17:45	1
Copper	2.0		2.0	0.50	ug/L		04/17/20 10:39	04/17/20 17:45	1
Lead	ND		1.0	0.50	ug/L		04/17/20 10:39	04/17/20 17:45	1
Antimony	ND		2.0	0.50	ug/L		04/17/20 10:39	04/17/20 17:45	1
Selenium	0.57	J,DX	2.0	0.50	ug/L		04/17/20 10:39	04/17/20 17:45	1
Thallium	ND		1.0	0.20	ug/L		04/17/20 10:39	04/17/20 17:45	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		04/17/20 12:17	04/20/20 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	140		10	5.0	mg/L			04/22/20 09:37	1
Total Suspended Solids	0.60	J,DX	1.0	0.50	mg/L			04/21/20 14:06	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/20/20 13:00	04/20/20 15:25	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/20/20 16:12	1

Client Sample ID: Outfall008_20200415_Comp_F

Lab Sample ID: 440-264783-2

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	8.9	J,DX	10	5.0	ug/L		04/17/20 12:54	04/17/20 14:30	1
Zinc	ND		20	12	ug/L		04/17/20 12:54	04/17/20 14:30	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		04/17/20 12:50	04/17/20 19:29	1
Cadmium	ND		1.0	0.25	ug/L		04/17/20 12:50	04/17/20 19:29	1
Copper	1.3	J,DX	2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:29	1
Lead	ND		1.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:29	1
Antimony	ND		2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:29	1
Selenium	0.79	J,DX	2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:29	1
Thallium	ND		1.0	0.20	ug/L		04/17/20 12:50	04/17/20 19:29	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		04/17/20 12:12	04/20/20 12:57	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

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
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:

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: 440-264783-1

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 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	300.0		1			605249	04/16/20 18:12	NTN	TAL IRV
Total/NA	Analysis	300.0		1			605250	04/16/20 18:12	NTN	TAL IRV
Total/NA	Analysis	314.0		1			606043	04/22/20 14:12	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			605480	04/17/20 09:55	TLN	TAL IRV
Total/NA	Prep	1613B			935.1 mL	20 uL	374911	04/27/20 08:23	RDR	TAL SAC
Total/NA	Analysis	1613B		1			375533	04/29/20 15:44	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	605401	04/17/20 09:12	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605713	04/20/20 13:15	TQN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605490	04/17/20 10:39	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			605555	04/17/20 17:45	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	605511	04/17/20 12:17	MEM	TAL IRV
Total/NA	Analysis	245.1		1			605746	04/20/20 15:36	EMS	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	606054	04/22/20 09:37	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	605924	04/21/20 14:06	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	605708	04/20/20 13:00	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			605732	04/20/20 15:25	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605752	04/20/20 16:12	KMY	TAL IRV

Client Sample ID: Outfall008_20200415_Comp_F

Lab Sample ID: 440-264783-2

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

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	605412	04/16/20 18:36	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605515	04/17/20 12:54	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			605530	04/17/20 14:30	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	605412	04/16/20 18:36	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605514	04/17/20 12:50	M1G	TAL IRV
Dissolved	Analysis	200.8		1			605691	04/17/20 19:29	MQP	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	605412	04/16/20 18:36	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	605507	04/17/20 12:12	MEM	TAL IRV
Dissolved	Analysis	245.1		1			605723	04/20/20 12:57	EMS	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-605249/6
Matrix: Water
Analysis Batch: 605249

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			04/16/20 06:06	1
Nitrite as N	ND		0.15	0.025	mg/L			04/16/20 06:06	1

Lab Sample ID: LCS 440-605249/5
Matrix: Water
Analysis Batch: 605249

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	1.18		mg/L		105	90 - 110
Nitrite as N	1.52	1.56		mg/L		103	90 - 110

Lab Sample ID: 440-264783-1 MS
Matrix: Water
Analysis Batch: 605249

Client Sample ID: Outfall008_20200415_Comp
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	1.15		mg/L		102	80 - 120
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120

Lab Sample ID: 440-264783-1 MSD
Matrix: Water
Analysis Batch: 605249

Client Sample ID: Outfall008_20200415_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	ND		1.13	1.14		mg/L		101	80 - 120	1	20
Nitrite as N	ND		1.52	1.48		mg/L		97	80 - 120	0	20

Lab Sample ID: MB 440-605250/6
Matrix: Water
Analysis Batch: 605250

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			04/16/20 06:06	1
Sulfate	ND		0.50	0.25	mg/L			04/16/20 06:06	1

Lab Sample ID: LCS 440-605250/5
Matrix: Water
Analysis Batch: 605250

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	4.95		mg/L		99	90 - 110
Sulfate	5.00	5.22		mg/L		104	90 - 110

Lab Sample ID: 440-264783-1 MS
Matrix: Water
Analysis Batch: 605250

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.0		5.00	10.2		mg/L		104	80 - 120
Sulfate	5.0		5.00	10.2		mg/L		103	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-264783-1 MSD
 Matrix: Water
 Analysis Batch: 605250

Client Sample ID: Outfall008_20200415_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	5.0		5.00	10.2		mg/L		104	80 - 120	0	20
Sulfate	5.0		5.00	10.2		mg/L		104	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-606043/6
 Matrix: Water
 Analysis Batch: 606043

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			04/22/20 10:08	1

Lab Sample ID: LCS 440-606043/5
 Matrix: Water
 Analysis Batch: 606043

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	25.1		ug/L		100	85 - 115

Lab Sample ID: MRL 440-606043/4
 Matrix: Water
 Analysis Batch: 606043

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 440-606043/8
 Matrix: Water
 Analysis Batch: 606043

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	3.77	J,DX	ug/L		94	75 - 125

Lab Sample ID: 440-264783-1 MS
 Matrix: Water
 Analysis Batch: 606043

Client Sample ID: Outfall008_20200415_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	27.2		ug/L		109	80 - 120

Lab Sample ID: 440-264783-1 MSD
 Matrix: Water
 Analysis Batch: 606043

Client Sample ID: Outfall008_20200415_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	28.2		ug/L		113	80 - 120	3	15

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-374911/1-A
Matrix: Water
Analysis Batch: 375533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 374911

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000014	ug/L		04/27/20 08:23	04/29/20 14:08	1
2,3,7,8-TCDF	ND		0.000010	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000007	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,4,7,8-HxCDD	0.00000179	J,DX q	0.000050	0.0000003	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,7,8,9-HxCDD	0.00000110	J,DX q	0.000050	0.0000003	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000003	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,7,8,9-HxCDF	0.00000195	J,DX	0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,4,6,7,8-HpCDD	0.00000302	J,DX	0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,4,6,7,8-HpCDF	0.00000230	J,DX q	0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
OCDD	0.0000345	J,DX	0.00010	0.0000005	ug/L		04/27/20 08:23	04/29/20 14:08	1
OCDF	0.00000755	J,DX	0.00010	0.0000011	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total TCDD	ND		0.000010	0.0000014	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total TCDF	ND		0.000010	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total PeCDD	ND		0.000050	0.0000007	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total PeCDF	ND		0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total HxCDD	0.00000289	J,DX q	0.000050	0.0000003	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total HxCDF	0.00000195	J,DX	0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total HpCDD	0.00000579	J,DX	0.000050	0.0000002	ug/L		04/27/20 08:23	04/29/20 14:08	1
Total HpCDF	0.00000372	J,DX q	0.000050	0.0000004	ug/L		04/27/20 08:23	04/29/20 14:08	1
<hr/>									
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	62		25 - 164				04/27/20 08:23	04/29/20 14:08	1
13C-2,3,7,8-TCDF	66		24 - 169				04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,7,8-PeCDD	61		25 - 181				04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,7,8-PeCDF	61		24 - 185				04/27/20 08:23	04/29/20 14:08	1
13C-2,3,4,7,8-PeCDF	69		21 - 178				04/27/20 08:23	04/29/20 14:08	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-374911/1-A
Matrix: Water
Analysis Batch: 375533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 374911

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,6,7,8-HxCDD	62		28 - 130	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,4,7,8-HxCDF	70		26 - 152	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,6,7,8-HxCDF	64		26 - 123	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	04/27/20 08:23	04/29/20 14:08	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,4,6,7,8-HpCDD	70		23 - 140	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,4,6,7,8-HpCDF	68		28 - 143	04/27/20 08:23	04/29/20 14:08	1
13C-1,2,3,4,7,8,9-HpCDF	78		26 - 138	04/27/20 08:23	04/29/20 14:08	1
13C-OCDD	69		17 - 157	04/27/20 08:23	04/29/20 14:08	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	67		35 - 197	04/27/20 08:23	04/29/20 14:08	1

Lab Sample ID: LCS 320-374911/2-A
Matrix: Water
Analysis Batch: 375533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 374911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000287		ug/L		143	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00124		ug/L		124	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00130		ug/L		130	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00122		ug/L		122	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00111	MB	ug/L		111	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00122		ug/L		122	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00117	MB	ug/L		117	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00117		ug/L		117	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00126		ug/L		126	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00125	MB	ug/L		125	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00122		ug/L		122	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00113	MB	ug/L		113	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00116	MB	ug/L		116	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00109		ug/L		109	78 - 138
OCDD	0.00200	0.00222	MB	ug/L		111	78 - 144
OCDF	0.00200	0.00247	MB	ug/L		123	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	59		20 - 175
13C-2,3,7,8-TCDF	63		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	66		13 - 328
13C-1,2,3,4,7,8-HxCDD	63		21 - 193
13C-1,2,3,6,7,8-HxCDD	56		25 - 163
13C-1,2,3,4,7,8-HxCDF	63		19 - 202
13C-1,2,3,6,7,8-HxCDF	58		21 - 159
13C-1,2,3,7,8,9-HxCDF	64		17 - 205

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-374911/2-A
Matrix: Water
Analysis Batch: 375533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 374911

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-2,3,4,6,7,8-HxCDF	61		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	64		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	71		20 - 186
13C-OCDD	66		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	67		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-605401/1-A
Matrix: Water
Analysis Batch: 605713

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605401

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/17/20 09:12	04/20/20 12:41	1
Zinc	ND		20	12	ug/L		04/17/20 09:12	04/20/20 12:41	1

Lab Sample ID: LCS 440-605401/2-A
Matrix: Water
Analysis Batch: 605713

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605401

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Nickel	500	499		ug/L		100	85 - 115
Zinc	500	498		ug/L		100	85 - 115

Lab Sample ID: 440-264787-I-7-B MS
Matrix: Water
Analysis Batch: 605624

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605401

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Nickel	130		500	601		ug/L		94	70 - 130
Zinc	4900		500	5180	BB	ug/L		46	70 - 130

Lab Sample ID: 440-264787-I-7-C MSD
Matrix: Water
Analysis Batch: 605624

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605401

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	Limits	RPD	
				Result	Qualifier					RPD	Limit
Nickel	130		500	618		ug/L		97	70 - 130	3	20
Zinc	4900		500	5390	BB	ug/L		89	70 - 130	4	20

Lab Sample ID: MB 440-605412/1-D
Matrix: Water
Analysis Batch: 605530

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605515

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/17/20 12:54	04/17/20 14:18	1
Zinc	ND		20	12	ug/L		04/17/20 12:54	04/17/20 14:18	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: LCS 440-605412/2-D
Matrix: Water
Analysis Batch: 605530

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605515

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Nickel	500	500		ug/L		100	85 - 115
Zinc	500	495		ug/L		99	85 - 115

Lab Sample ID: 440-264701-D-1-C MS
Matrix: Water
Analysis Batch: 605530

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 605515

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Nickel	ND		500	479		ug/L		96	70 - 130
Zinc	67		500	557		ug/L		98	70 - 130

Lab Sample ID: 440-264701-D-1-D MSD
Matrix: Water
Analysis Batch: 605530

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 605515

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Nickel	ND		500	481		ug/L		96	70 - 130	0	20
Zinc	67		500	559		ug/L		98	70 - 130	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-605490/1-A
Matrix: Water
Analysis Batch: 605555

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605490

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/17/20 10:39	04/17/20 16:56	1
Cadmium	ND		1.0	0.25	ug/L		04/17/20 10:39	04/17/20 16:56	1
Copper	ND		2.0	0.50	ug/L		04/17/20 10:39	04/17/20 16:56	1
Lead	ND		1.0	0.50	ug/L		04/17/20 10:39	04/17/20 16:56	1
Antimony	ND		2.0	0.50	ug/L		04/17/20 10:39	04/17/20 16:56	1
Selenium	ND		2.0	0.50	ug/L		04/17/20 10:39	04/17/20 16:56	1
Thallium	ND		1.0	0.20	ug/L		04/17/20 10:39	04/17/20 16:56	1

Lab Sample ID: LCS 440-605490/2-A
Matrix: Water
Analysis Batch: 605555

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605490

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Silver	80.0	79.1		ug/L		99	85 - 115
Cadmium	80.0	78.4		ug/L		98	85 - 115
Copper	80.0	78.2		ug/L		98	85 - 115
Lead	80.0	78.0		ug/L		97	85 - 115
Antimony	80.0	85.7		ug/L		107	85 - 115
Selenium	80.0	78.4		ug/L		98	85 - 115
Thallium	80.0	77.0		ug/L		96	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264809-A-11-B MS
Matrix: Water
Analysis Batch: 605555

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605490

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Cadmium	ND		80.0	77.6		ug/L		97	70 - 130
Copper	1300		80.0	1350	BB	ug/L		55	70 - 130
Lead	0.89	J,DX	80.0	77.5		ug/L		96	70 - 130
Antimony	0.71	J,DX	80.0	88.2		ug/L		109	70 - 130
Selenium	0.87	J,DX	80.0	78.8		ug/L		97	70 - 130
Thallium	ND		80.0	75.8		ug/L		95	70 - 130

Lab Sample ID: 440-264809-A-11-C MSD
Matrix: Water
Analysis Batch: 605555

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605490

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Cadmium	ND		80.0	75.3		ug/L		94	70 - 130	3		20
Copper	1300		80.0	1310	BB	ug/L		-3	70 - 130	3		20
Lead	0.89	J,DX	80.0	75.9		ug/L		94	70 - 130	2		20
Antimony	0.71	J,DX	80.0	85.8		ug/L		106	70 - 130	3		20
Selenium	0.87	J,DX	80.0	76.7		ug/L		95	70 - 130	3		20
Thallium	ND		80.0	73.4		ug/L		92	70 - 130	3		20

Lab Sample ID: MB 440-605412/1-C
Matrix: Water
Analysis Batch: 605691

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605514

Analyte	MB	MB	RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier									
Silver	ND		1.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Cadmium	ND		1.0	0.25	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Copper	ND		2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Lead	ND		1.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Antimony	ND		2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Selenium	ND		2.0	0.50	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1
Thallium	ND		1.0	0.20	ug/L		04/17/20 12:50	04/17/20 19:25	04/17/20 19:25		1

Lab Sample ID: LCS 440-605412/2-C
Matrix: Water
Analysis Batch: 605691

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605514

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Silver	80.0	79.9		ug/L		100	85 - 115
Cadmium	80.0	78.2		ug/L		98	85 - 115
Copper	80.0	76.6		ug/L		96	85 - 115
Lead	80.0	77.6		ug/L		97	85 - 115
Antimony	80.0	86.2		ug/L		108	85 - 115
Selenium	80.0	78.1		ug/L		98	85 - 115
Thallium	80.0	76.8		ug/L		96	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264783-2 MS
Matrix: Water
Analysis Batch: 605691

Client Sample ID: Outfall008_20200415_Comp_F
Prep Type: Dissolved
Prep Batch: 605514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Silver	ND		80.0	78.9		ug/L		99	70 - 130
Cadmium	ND		80.0	78.1		ug/L		98	70 - 130
Copper	1.3	J,DX	80.0	78.3		ug/L		96	70 - 130
Lead	ND		80.0	77.4		ug/L		97	70 - 130
Antimony	ND		80.0	86.7		ug/L		108	70 - 130
Selenium	0.79	J,DX	80.0	77.5		ug/L		96	70 - 130
Thallium	ND		80.0	77.1		ug/L		96	70 - 130

Lab Sample ID: 440-264783-2 MSD
Matrix: Water
Analysis Batch: 605691

Client Sample ID: Outfall008_20200415_Comp_F
Prep Type: Dissolved
Prep Batch: 605514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Silver	ND		80.0	78.2		ug/L		98	70 - 130	1	20
Cadmium	ND		80.0	76.6		ug/L		96	70 - 130	2	20
Copper	1.3	J,DX	80.0	77.5		ug/L		95	70 - 130	1	20
Lead	ND		80.0	76.4		ug/L		96	70 - 130	1	20
Antimony	ND		80.0	85.5		ug/L		107	70 - 130	1	20
Selenium	0.79	J,DX	80.0	76.4		ug/L		95	70 - 130	1	20
Thallium	ND		80.0	76.5		ug/L		96	70 - 130	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-605511/1-A
Matrix: Water
Analysis Batch: 605746

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605511

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/17/20 12:17	04/20/20 14:46	1

Lab Sample ID: LCS 440-605511/2-A
Matrix: Water
Analysis Batch: 605746

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605511

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.60		ug/L		90	85 - 115

Lab Sample ID: 440-264786-U-1-D MS
Matrix: Water
Analysis Batch: 605746

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605511

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.40		ug/L		85	75 - 125

Lab Sample ID: 440-264786-U-1-E MSD
Matrix: Water
Analysis Batch: 605746

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605511

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	3.56		ug/L		89	75 - 125	5	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-605412/1-B
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605507

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/17/20 12:12	04/20/20 12:53	1

Lab Sample ID: LCS 440-605412/2-B
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.96		ug/L		99	85 - 115

Lab Sample ID: 440-264783-2 MS
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Outfall008_20200415_Comp_F
Prep Type: Dissolved
Prep Batch: 605507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.86		ug/L		96	75 - 125

Lab Sample ID: 440-264783-2 MSD
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Outfall008_20200415_Comp_F
Prep Type: Dissolved
Prep Batch: 605507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	3.88		ug/L		97	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-606054/1
Matrix: Water
Analysis Batch: 606054

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			04/22/20 09:37	1

Lab Sample ID: LCS 440-606054/2
Matrix: Water
Analysis Batch: 606054

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Total Dissolved Solids	1000	982		mg/L		98	90 - 110

Lab Sample ID: 720-98193-F-10 DU
Matrix: Water
Analysis Batch: 606054

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	1400		1440		mg/L		1	5

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: LCS 440-605924/2
Matrix: Water
Analysis Batch: 605924

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: 320-60254-B-2 DU
Matrix: Water
Analysis Batch: 605924

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	45		40.7		mg/L		9	10

Method: SM 2540D - Solids, Total Suspended (TSS) - DL6

Lab Sample ID: MB 440-605924/1
Matrix: Water
Analysis Batch: 605924

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 - DL6	ND		1.0	0.50	mg/L			04/21/20 14:06	1

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-605708/1-A
Matrix: Water
Analysis Batch: 605732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605708

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/20/20 13:00	04/20/20 15:25	1

Lab Sample ID: LCS 440-605708/2-A
Matrix: Water
Analysis Batch: 605732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605708

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	98.8		ug/L		99	80 - 120

Lab Sample ID: LCSD 440-605708/3-A
Matrix: Water
Analysis Batch: 605732

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605708

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	100	99.8		ug/L		100	80 - 120	1	20

Lab Sample ID: 440-264783-1 MS
Matrix: Water
Analysis Batch: 605732

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 605708

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	95.8		ug/L		96	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: 440-264783-1 MSD
Matrix: Water
Analysis Batch: 605732

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 605708

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		100	75 - 125	4	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605752/10
Matrix: Water
Analysis Batch: 605752

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			04/20/20 13:20	1

Lab Sample ID: LCS 440-605752/11
Matrix: Water
Analysis Batch: 605752

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	4.980		mg/L		100	90 - 110

Lab Sample ID: MRL 440-605752/9
Matrix: Water
Analysis Batch: 605752

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	0.1720	J,DX	mg/L		86	50 - 150

Lab Sample ID: 440-264517-F-1 MS
Matrix: Water
Analysis Batch: 605752

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	5.270		mg/L		105	90 - 110

Lab Sample ID: 440-264517-F-1 MSD
Matrix: Water
Analysis Batch: 605752

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	5.450		mg/L		109	90 - 110	3	15

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

HPLC/IC

Analysis Batch: 605249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	300.0	
MB 440-605249/6	Method Blank	Total/NA	Water	300.0	
LCS 440-605249/5	Lab Control Sample	Total/NA	Water	300.0	
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	300.0	
440-264783-1 MSD	Outfall008_20200415_Comp	Total/NA	Water	300.0	

Analysis Batch: 605250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	300.0	
MB 440-605250/6	Method Blank	Total/NA	Water	300.0	
LCS 440-605250/5	Lab Control Sample	Total/NA	Water	300.0	
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	300.0	
440-264783-1 MSD	Outfall008_20200415_Comp	Total/NA	Water	300.0	

Analysis Batch: 605480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	NO3NO2 Calc	

Analysis Batch: 606043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	314.0	
MB 440-606043/6	Method Blank	Total/NA	Water	314.0	
LCS 440-606043/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-606043/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-606043/8	Lab Control Sample	Total/NA	Water	314.0	
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	314.0	
440-264783-1 MSD	Outfall008_20200415_Comp	Total/NA	Water	314.0	

Specialty Organics

Prep Batch: 374911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	1613B	
MB 320-374911/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-374911/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 375533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	1613B	374911
MB 320-374911/1-A	Method Blank	Total/NA	Water	1613B	374911
LCS 320-374911/2-A	Lab Control Sample	Total/NA	Water	1613B	374911

Metals

Prep Batch: 605401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total Recoverable	Water	200.2	
MB 440-605401/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605401/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264787-I-7-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264787-I-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Metals

Filtration Batch: 605412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	
MB 440-605412/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-605412/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-605412/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-605412/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-605412/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-605412/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264701-D-1-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264701-D-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 605490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total Recoverable	Water	200.2	
MB 440-605490/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605490/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264809-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264809-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 605507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605412
MB 440-605412/1-B	Method Blank	Dissolved	Water	245.1	605412
LCS 440-605412/2-B	Lab Control Sample	Dissolved	Water	245.1	605412
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605412
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605412

Prep Batch: 605511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	245.1	
MB 440-605511/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-605511/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-264786-U-1-D MS	Matrix Spike	Total/NA	Water	245.1	
440-264786-U-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Prep Batch: 605514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	200.2	605412
MB 440-605412/1-C	Method Blank	Dissolved	Water	200.2	605412
LCS 440-605412/2-C	Lab Control Sample	Dissolved	Water	200.2	605412
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	200.2	605412
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	200.2	605412

Prep Batch: 605515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	200.2	605412
MB 440-605412/1-D	Method Blank	Dissolved	Water	200.2	605412

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Metals (Continued)

Prep Batch: 605515 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-605412/2-D	Lab Control Sample	Dissolved	Water	200.2	605412
440-264701-D-1-C MS	Matrix Spike	Dissolved	Water	200.2	605412
440-264701-D-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	605412

Analysis Batch: 605530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	200.7 Rev 4.4	605515
MB 440-605412/1-D	Method Blank	Dissolved	Water	200.7 Rev 4.4	605515
LCS 440-605412/2-D	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	605515
440-264701-D-1-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	605515
440-264701-D-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	605515

Analysis Batch: 605555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total Recoverable	Water	200.8	605490
MB 440-605490/1-A	Method Blank	Total Recoverable	Water	200.8	605490
LCS 440-605490/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605490
440-264809-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.8	605490
440-264809-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	605490

Analysis Batch: 605624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264787-I-7-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	605401
440-264787-I-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	605401

Analysis Batch: 605691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	200.8	605514
MB 440-605412/1-C	Method Blank	Dissolved	Water	200.8	605514
LCS 440-605412/2-C	Lab Control Sample	Dissolved	Water	200.8	605514
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	200.8	605514
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	200.8	605514

Analysis Batch: 605713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total Recoverable	Water	200.7 Rev 4.4	605401
MB 440-605401/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	605401
LCS 440-605401/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	605401

Analysis Batch: 605723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-2	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605507
MB 440-605412/1-B	Method Blank	Dissolved	Water	245.1	605507
LCS 440-605412/2-B	Lab Control Sample	Dissolved	Water	245.1	605507
440-264783-2 MS	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605507
440-264783-2 MSD	Outfall008_20200415_Comp_F	Dissolved	Water	245.1	605507

Analysis Batch: 605746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	245.1	605511
MB 440-605511/1-A	Method Blank	Total/NA	Water	245.1	605511

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

Metals (Continued)

Analysis Batch: 605746 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-605511/2-A	Lab Control Sample	Total/NA	Water	245.1	605511
440-264786-U-1-D MS	Matrix Spike	Total/NA	Water	245.1	605511
440-264786-U-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	605511

General Chemistry

Prep Batch: 605708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	Distill/CN	
MB 440-605708/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-605708/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCSD 440-605708/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/CN	
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	Distill/CN	
440-264783-1 MSD	Outfall008_20200415_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 605732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	SM 4500 CN E	605708
MB 440-605708/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	605708
LCS 440-605708/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	605708
LCSD 440-605708/3-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	605708
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	SM 4500 CN E	605708
440-264783-1 MSD	Outfall008_20200415_Comp	Total/NA	Water	SM 4500 CN E	605708

Analysis Batch: 605752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605752/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605752/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605752/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-264517-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Analysis Batch: 605924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	SM 2540D	
MB 440-605924/1 - DL6	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605924/2	Lab Control Sample	Total/NA	Water	SM 2540D	
320-60254-B-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 606054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	SM 2540C	
MB 440-606054/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-606054/2	Lab Control Sample	Total/NA	Water	SM 2540C	
720-98193-F-10 DU	Duplicate	Total/NA	Water	SM 2540C	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-1

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
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.
α	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 008 Comp

Job ID: 440-264783-1

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
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
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	04-16-21
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.

Client Name/Address Halley & Aldrich 5333 Mission Center Rd. Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Borodic 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Boeing-SSFL NPDES Permit: 2020 Routine Outfall 008 Outfall 008 Comp		ANALYSIS REQUIRED Total Recoverable Metals (E2007), Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E183B) Perchlorate (300) TDS (SM2540C/E180) Total Dissolved Metals (E2007), Ni, Zn Gross Alpha (E900), Gross Beta (E900), Tritium (H-3) (E906), Sr-90 (E905), Total Combined Radium 226 (E903) or E903 (1) & CS-137 (E901) or E901 (1) Chronic Toxicity - Selenium (EPA-821-R-02-019) Arsenic-N (3502) Cyanide (SM4500-C/E/E3352) Total Recoverable Metals Mercury (E2451) Total Dissolved Metals Mercury (E2451)										Field Readings Comments 48 hours Holding Time NO ₃ & NO ₂ Unfiltered and unprecipitated analysis. Separate RAD onto another workorder. Analyze duplicate, not MSMSD Only test 1 liter for 80000 Lpm. Exceeds of the year					
Sample ID Outfall008_20200415_Comp	Sampling Date/Time 4/15/2020 10:40	Sample Matrix WM	Container Type 600 mL Poly	# of Cont. 1	Preservative HNO ₃	Bottles # 96	MSMSD No	Total Recoverable Metals (E2007), Ag, Cd, Cu, Pb, Sb, Se, Tl X	TCDD (and all congeners) (E183B) X	Perchlorate (300) X	TDS (SM2540C/E180) X	Total Dissolved Metals (E2007), Ni, Zn X	Gross Alpha (E900), Gross Beta (E900), Tritium (H-3) (E906), Sr-90 (E905), Total Combined Radium 226 (E903) or E903 (1) & CS-137 (E901) or E901 (1) X	Chronic Toxicity - Selenium (EPA-821-R-02-019) X	Arsenic-N (3502) X	Cyanide (SM4500-C/E/E3352) X	Total Recoverable Metals Mercury (E2451) X	Total Dissolved Metals Mercury (E2451) X	Comments 48 hours Holding Time NO ₃ & NO ₂ Unfiltered and unprecipitated analysis. Separate RAD onto another workorder. Analyze duplicate, not MSMSD Only test 1 liter for 80000 Lpm. Exceeds of the year
Sample ID Outfall008_20200415_Comp_F	Sampling Date/Time 4/15/2020 10:40	Sample Matrix WM	Container Type 1L Poly	# of Cont. 1	Preservative None	Bottles # 185	MSMSD No	Total Recoverable Metals (E2007), Ag, Cd, Cu, Pb, Sb, Se, Tl X	TCDD (and all congeners) (E183B) H	Perchlorate (300) H	TDS (SM2540C/E180) H	Total Dissolved Metals (E2007), Ni, Zn H	Gross Alpha (E900), Gross Beta (E900), Tritium (H-3) (E906), Sr-90 (E905), Total Combined Radium 226 (E903) or E903 (1) & CS-137 (E901) or E901 (1) H	Chronic Toxicity - Selenium (EPA-821-R-02-019) H	Arsenic-N (3502) H	Cyanide (SM4500-C/E/E3352) H	Total Recoverable Metals Mercury (E2451) H	Total Dissolved Metals Mercury (E2451) H	Comments Filter and preserve with 24hrs of receipt at lab Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures Hold Hold
Sample ID Outfall008_20200415_Comp_Extra	Sampling Date/Time 4/15/2020 10:40	Sample Matrix WM	Container Type 500 mL Poly	# of Cont. 2	Preservative None	Bottles # 130	MSMSD No	Total Recoverable Metals (E2007), Ag, Cd, Cu, Pb, Sb, Se, Tl H	TCDD (and all congeners) (E183B) H	Perchlorate (300) H	TDS (SM2540C/E180) H	Total Dissolved Metals (E2007), Ni, Zn H	Gross Alpha (E900), Gross Beta (E900), Tritium (H-3) (E906), Sr-90 (E905), Total Combined Radium 226 (E903) or E903 (1) & CS-137 (E901) or E901 (1) H	Chronic Toxicity - Selenium (EPA-821-R-02-019) H	Arsenic-N (3502) H	Cyanide (SM4500-C/E/E3352) H	Total Recoverable Metals Mercury (E2451) H	Total Dissolved Metals Mercury (E2451) H	Comments 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



Requisitioned By: *Paul Pinnell* Date/Time: 4/16/2020 12:50 Company: *EC IRV*
 Requisitioned By: *EC IRV* Date/Time: 4/16/20 15:30 Company: *EC IRV*
 Requisitioned By: *EC IRV* Date/Time: 4/16/20 15:30 Company: *EC IRV*

4.3/4.5 0.7/0.9 112-93





Chain of Custody Record

Client Information (Sub Contract Lab)			Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-155169-1
Client Contact: Shipping/Receiving			E-Mail: christian.bondoc@teslamicinc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.			Accreditations Required (See note): Slate Program - California	Job #: 440-264783-1	Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2OAS E - NaHSO4 Q - Na2SO3 F - MeOH R - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: U - Acetone V - MCAA W - pH 4-5 Z - other (specify)
Due Date Requested: 4/28/2020			Analysis Requested		
TAT Requested (days):			Total Number of containers		
PO #:			Perform MS/MSD (Yes or No)		
WO #:			Field Filtered Sample (Yes or No)		
Project #: 44009879			1613B/1613B_Sox_Sep_P Standard List w/ Totals		
Site: Boeing NPDES SSFL outfalls			X		
Sample Date			Sample Time		
4/15/20			09:10 Pacific		
Sample Type (C=Comp, G=grab)			Matrix (W=water, S=solid, O=oil, B=Triser, A=Air)		
			Water		
Sample Date			Preservation Code:		
4/15/20					
Sample Identification - Client ID (Lab ID)			Special Instructions/Note:		
Outfall008_20200415_Comp (440-264783-1)			See OAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.		
<p>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/test/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.</p>					
<p>Possible Hazard Identification</p> <p>Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p> <p>Special Instructions/QC Requirements:</p>					
<p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: _____ Date: 4/17/20 1200 Company: EC-100</p> <p>Relinquished by: _____ Date/Time: _____ Company:</p> <p>Relinquished by: _____ Date/Time: _____ Company:</p>					
<p>Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Seal</p> <p>Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: 3.3</p>					



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264783-1

Login Number: 264783

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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264783-1

Login Number: 264783

List Number: 2

Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/18/20 11:21 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	3.3
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 008 Comp

Job ID: 440-264783-1

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)
440-264783-1	Outfall008_20200415_Comp	58	65	53	57	64	62	55	63
MB 320-374911/1-A	Method Blank	62	66	61	61	69	70	62	70

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)
440-264783-1	Outfall008_20200415_Comp	56	64	61	65	62	74	68
MB 320-374911/1-A	Method Blank	64	71	69	70	68	78	69

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 320-374911/2-A	Lab Control Sample	59	63	57	59	66	63	56	63

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 320-374911/2-A	Lab Control Sample	58	64	61	64	64	71	66

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
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Job ID: 440-264783-1

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DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264783-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

11 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.: 1272.003H.01

Sample Delivery Group: 440-264783-2

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_20200415 _COMP	440-264783-1	N	WM	4/15/20 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) 440-264783-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$. The sample was preserved by the laboratory upon receipt.
- 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 June 11, 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 or preserved upon receipt at the laboratory and holding times were met.

III.2. CALIBRATION:

The detector efficiency for gross alpha and radium-226 was less than 20%; therefore, the results 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.

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 RER were within laboratory-established control limits.

III.3.3. LABORATORY DUPLICATES:

Laboratory duplicates were performed on the sample from this SDG for gross alpha, gross beta, cesium-137 and potassium-40. All RER duplicate criteria were met.

III.3.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE:

Matrix spike (MS) analyses were performed on the sample from this SDG for gross alpha and gross beta. Recoveries were within the laboratory control limits.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Calculations were not verified at this level of validation. 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: 4402647832

Analysis Method E900

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	0.643	0.961	3.00	1.64	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	1.49	0.643	4.00	0.865	pCi/L		J+	B

Analysis Method E901.1

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	3.99	8.80	20.0	14.9	pCi/L	U	U	
Potassium-40	13966-00-2	-91.1	172	220	220	pCi/L	U	U	

Analysis Method E903.0

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0472	0.0771	1.00	0.134	pCi/L	U	UJ	*III

Analysis Method E904.0

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.00911	0.296	1.00	0.534	pCi/L	U	U	

Analysis Method E905.0

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.208	0.343	3.00	0.582	pCi/L	U	U	

Analysis Method E906.0

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	140	176	500	290	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.0563	0.181	1.00	0.295	pCi/L	U	U	

Analysis Method RADIUM

Sample Name Outfall008_20200415_Comp Matrix Type: WM Result Type: TRG

Sample Date: 4/15/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264783-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.534	0.306			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: 440-264783-2
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:
5/14/2020 11:45:07 AM

Christian Bondoc, Project Manager I
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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.

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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
5/14/2020 11:45:07 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264783-1	Outfall008_20200415_Comp	Water	04/15/20 09:10	04/16/20 15:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Job ID: 440-264783-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264783-2

Comments

No additional comments.

Receipt

The samples were received on 4/16/2020 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 4.5° C.

RAD

Method 900.0: Gross Alpha/Beta Prep Batch 160-469497

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_20200415_Comp (440-264783-1), (LCS 160-469497/2-A), (LCSB 160-469497/3-A), (MB 160-469497/1-A), (440-264783-A-1-J DU), (440-264783-A-1-H MS) and (440-264783-A-1-I MSBT)

Method 901.1: Gamma Prep Batch 160-468438

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

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_20200415_Comp (440-264783-1), (LCS 160-468438/2-A), (MB 160-468438/1-A) and (440-264783-A-1-B DU)

Methods 903.0, 9315: Radium-226 Prep Batch 160-468574

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Job ID: 440-264783-2 (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.

Outfall008_20200415_Comp (440-264783-1), (LCS 160-468574/1-A), (LCSD 160-468574/2-A) and (MB 160-468574/20-A)

Methods 904.0, 9320: Ra-228 Prep Batch 160-468579

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_20200415_Comp (440-264783-1), (LCS 160-468579/1-A), (LCSD 160-468579/2-A) and (MB 160-468579/20-A)

Method 905: Sr-90 Prep Batch 160-468677

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_20200415_Comp (440-264783-1), (LCS 160-468677/1-A), (MB 160-468677/22-A), (440-264517-R-1-H), (440-264517-M-1-H MS) and (440-264517-M-1-I MSD)

Method 906.0: Tritium Prep Batch 160-469023

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_20200415_Comp (440-264783-1), (LCS 160-469023/2-A), (MB 160-469023/1-A), (160-37794-B-1-A), (160-37794-B-1-B DU), (440-264517-Q-1-A), (440-264517-L-1-B MS) and (440-264517-L-1-C MSD)

Methods A-01-R, U-02-RC: Isotopic Uranium Prep Batch 160-469207

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_20200415_Comp (440-264783-1), (LCS 160-469207/2-A), (MB 160-469207/1-A), (550-141005-A-1-D) and (550-141005-A-1-E DU)

Method Evaporation: Gross Alpha/Beta preparation batch 160-469497 and 160-469497

The following samples had additional volume added to reach target mass and efficiency Outfall008_20200415_Comp (440-264783-1), (440-264783-A-1 DU), (440-264783-A-1 MS) and (440-264783-A-1 MSBT). The total sample volume is reflected in the initial amount field.

Method ExtChrom: Uranium Prep Batch 160-469207:

The following sample was prepared at a reduced aliquot due to yellow discoloration: Outfall008_20200415_Comp (440-264783-1).

Method PrecSep_0: Radium 228 Prep Batch 160-468579:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20200415_Comp (440-264783-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Sample 310-179221-11 has a brown discoloration and heavy sediment levels. Samples 440-264783-1 and 550-140991-3 both have a yellow discoloration.

Method PrecSep_0: Radium 228 Prep Batch 160-468579:

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Job ID: 440-264783-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall008_20200415_Comp (440-264783-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-468574:

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall008_20200415_Comp (440-264783-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-468574:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20200415_Comp (440-264783-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Sample 310-179221-11 has a brown discoloration and heavy sediment levels. Samples 440-264783-1 and 550-140991-3 both have a yellow discoloration.

Method PrecSep-7: Strontium 90 Prep Batch 160-468677:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20200415_Comp (440-264783-1). Samples 440-264370-1, 440-264510-1, 440-264517-1, 440-264517-1 MS, 440-264517-1 MSD, 440-264634-1, and 440-264783-1 all have a yellow discoloration. Sample 310-179946-1 has brown discoloration and heavy sediment.

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 008 Comp

Job ID: 440-264783-2

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Gross Alpha	0.643	U	0.958	0.961	3.00	1.64	pCi/L	05/04/20 09:16	05/11/20 05:43	1
Gross Beta	1.49		0.625	0.643	4.00	0.865	pCi/L	05/04/20 09:16	05/11/20 05:43	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Cesium-137	3.99	U	8.79	8.80	20.0	14.9	pCi/L	04/21/20 11:24	04/21/20 12:07	1
Potassium-40	-91.1	U	172	172		220	pCi/L	04/21/20 11:24	04/21/20 12:07	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.0472	U	0.0770	0.0771	1.00	0.134	pCi/L	04/22/20 07:02	05/14/20 04:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		40 - 110					04/22/20 07:02	05/14/20 04:35	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	-0.00911	U	0.296	0.296	1.00	0.534	pCi/L	04/22/20 07:45	05/04/20 18:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		40 - 110					04/22/20 07:45	05/04/20 18:19	1
Y Carrier	88.2		40 - 110					04/22/20 07:45	05/04/20 18:19	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium-90	0.208	U	0.343	0.343	3.00	0.582	pCi/L	04/23/20 09:24	05/06/20 09:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	70.0		40 - 110					04/23/20 09:24	05/06/20 09:23	1
Y Carrier	97.6		40 - 110					04/23/20 09:24	05/06/20 09:23	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tritium	140	U	175	176	500	290	pCi/L	04/28/20 04:41	04/29/20 10:38	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Total Uranium	0.0563	U	0.181	0.181	1.00	0.295	pCi/L	04/30/20 07:29	05/07/20 08:44	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	69.7		30 - 110	04/30/20 07:29	05/07/20 08:44	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

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: 440-264783-2

Client Sample ID: Outfall008_20200415_Comp

Lab Sample ID: 440-264783-1

Date Collected: 04/15/20 09:10

Matrix: Water

Date Received: 04/16/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			202.55 mL	1.0 g	469497	05/04/20 09:16	RJD	TAL SL
Total/NA	Analysis	900.0		1			469979	05/11/20 05:43	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	468438	04/21/20 11:24	MLG	TAL SL
Total/NA	Analysis	901.1		1			468185	04/21/20 12:07	KLS	TAL SL
Total/NA	Prep	PrecSep-21			750.36 mL	1.0 g	468574	04/22/20 07:02	RBR	TAL SL
Total/NA	Analysis	903.0		1			470394	05/14/20 04:35	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.36 mL	1.0 g	468579	04/22/20 07:45	RBR	TAL SL
Total/NA	Analysis	904.0		1			469502	05/04/20 18:19	AJD	TAL SL
Total/NA	Prep	PrecSep-7			500.06 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469763	05/06/20 09:23	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.9 mL	1.0 g	469023	04/28/20 04:41	NMN	TAL SL
Total/NA	Analysis	906.0		1			469168	04/29/20 10:38	KRR	TAL SL
Total/NA	Prep	ExtChrom			250.02 mL	1.0 mL	469207	04/30/20 07:29	RJD	TAL SL
Total/NA	Analysis	A-01-R		1			469826	05/07/20 08:44	KRR	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-469497/1-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469497

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.7688	U	0.716	0.721	3.00	1.12	pCi/L	05/04/20 09:16	05/10/20 22:31	1
Gross Beta	-0.4663	U	0.444	0.447	4.00	0.870	pCi/L	05/04/20 09:16	05/10/20 22:31	1

Lab Sample ID: LCS 160-469497/2-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469497

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	57.62		8.25	3.00	2.02	pCi/L	116	75 - 125

Lab Sample ID: LCSB 160-469497/3-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469497

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	74.06		7.94	4.00	0.915	pCi/L	88	75 - 125

Lab Sample ID: 440-264783-1 MS
Matrix: Water
Analysis Batch: 469979

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 469497

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	0.643	U	48.9	33.92		5.62	3.00	2.01	pCi/L	68	60 - 140

Lab Sample ID: 440-264783-1 MSBT
Matrix: Water
Analysis Batch: 469979

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 469497

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	1.49		83.2	79.25		8.45	4.00	0.885	pCi/L	93	60 - 140

Lab Sample ID: 440-264783-1 DU
Matrix: Water
Analysis Batch: 469979

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 469497

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	0.643	U	1.050	U	1.10	3.00	1.74	pCi/L	0.20	1
Gross Beta	1.49		0.9592		0.557	4.00	0.792	pCi/L	0.44	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-468438/1-A
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468438

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	-6.329	U G	12.3	12.3	20.0	20.8	pCi/L	04/21/20 11:24	04/21/20 12:03		1	
Potassium-40	-151.1	U	137	137		236	pCi/L	04/21/20 11:24	04/21/20 12:03		1	

Lab Sample ID: LCS 160-468438/2-A
Matrix: Water
Analysis Batch: 468184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468438

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
				Uncert. (2σ+/-)					Limits	
Americium-241	136000	132500		15300		527	pCi/L	98	90 - 111	
Cesium-137	43700	42520		4270	20.0	152	pCi/L	97	90 - 111	
Cobalt-60	26200	25330		2510		99.0	pCi/L	97	89 - 110	

Lab Sample ID: 440-264783-1 DU
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Outfall008_20200415_Comp
Prep Type: Total/NA
Prep Batch: 468438

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit	
Cesium-137	3.99	U	-3.956	U	13.8	20.0	16.9	pCi/L		0.35	1
Potassium-40	-91.1	U	17.83	U	73.3		133	pCi/L		0.44	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-468574/20-A
Matrix: Water
Analysis Batch: 470394

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468574

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Radium-226	0.05071	U	0.0548	0.0550	1.00	0.0868	pCi/L	04/22/20 07:02	05/14/20 06:21		1	

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110	04/22/20 07:02	05/14/20 06:21	1

Lab Sample ID: LCS 160-468574/1-A
Matrix: Water
Analysis Batch: 470394

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468574

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
				Uncert. (2σ+/-)					Limits	
Radium-226	11.3	9.307		0.977	1.00	0.100	pCi/L	82	75 - 125	

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.5		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-468574/2-A
Matrix: Water
Analysis Batch: 470394

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 468574

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	RER Limit
									75	125	0.22	1
Radium-226	11.3	8.881		0.939	1.00	0.101	pCi/L	78	75 - 125	0.22		1
Carrier		LCS	LCS									
		%Yield	Qualifier	Limits								
Ba Carrier		99.7		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-468579/20-A
Matrix: Water
Analysis Batch: 469473

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468579

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier		MB	MB							
		%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier		95.4		40 - 110				04/22/20 07:45	05/04/20 18:25	1
Y Carrier		84.9		40 - 110				04/22/20 07:45	05/04/20 18:25	1

Lab Sample ID: LCS 160-468579/1-A
Matrix: Water
Analysis Batch: 469502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468579

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
									75	125
Radium-228	8.87	7.401		0.899	1.00	0.363	pCi/L	83	75 - 125	
Carrier		LCS	LCS							
		%Yield	Qualifier	Limits						
Ba Carrier		98.5		40 - 110						
Y Carrier		89.3		40 - 110						

Lab Sample ID: LCSD 160-468579/2-A
Matrix: Water
Analysis Batch: 469502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 468579

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	RER Limit
									75	125	0.17	1
Radium-228	8.87	7.705		0.941	1.00	0.383	pCi/L	87	75 - 125	0.17		1
Carrier		LCS	LCS									
		%Yield	Qualifier	Limits								
Ba Carrier		99.7		40 - 110								
Y Carrier		83.7		40 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	93.4		40 - 110	04/23/20 09:24	05/06/20 09:25	1
Y Carrier	92.0		40 - 110	04/23/20 09:24	05/06/20 09:25	1

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	16.9	16.93		1.79	3.00	0.626	pCi/L	100	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	91.7		40 - 110
Y Carrier	85.6		40 - 110

Lab Sample ID: 440-264517-M-1-H MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	0.284	U	16.9	16.73		1.77	3.00	0.633	pCi/L	98	19 - 150

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	88.8		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-264517-M-1-I MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468677

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	0.284	U	16.9	15.70		1.68	3.00	0.641	pCi/L	91	19 - 150	0.30	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	87.6		40 - 110
Y Carrier	92.7		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-469023/1-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469023

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-32.88	U	154	154	500	285	pCi/L	04/28/20 04:41	04/29/20 02:20	1

Lab Sample ID: LCS 160-469023/2-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Tritium	2450	2379		391	500	283	pCi/L	97	75 - 114

Lab Sample ID: 440-264517-L-1-B MS
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
						Uncert. (2σ+/-)					
Tritium	194	U	2460	2681		432	500	308	pCi/L	101	67 - 130

Lab Sample ID: 440-264517-L-1-C MSD
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
						Uncert. (2σ+/-)							
Tritium	194	U	2450	2654		424	500	297	pCi/L	100	67 - 130	0.03	1

Lab Sample ID: 160-37794-B-1-B DU
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Tritium	10.8	U	77.48	U	166	500	284	pCi/L	0.21	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-469207/1-A
Matrix: Water
Analysis Batch: 469816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469207

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	-0.03160	U	0.1066	0.1066	1.00	0.184	pCi/L	04/30/20 07:29	05/07/20 08:44	1

Tracer	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Uranium-232	76.5		30 - 110	04/30/20 07:29	05/07/20 08:44	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-469207/2-A
Matrix: Water
Analysis Batch: 469819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469207

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234	12.7	13.60		1.60	1.00	0.174	pCi/L	107	75 - 125		
Uranium-238	13.0	13.79		1.62	1.00	0.112	pCi/L	106	75 - 125		
Tracer	LCS %Yield	LCS Qualifier	Limits								
Uranium-232	69.9		30 - 110								

Lab Sample ID: 550-141005-A-1-E DU
Matrix: Water
Analysis Batch: 469831

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469207

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.831		0.8295		0.254	1.00	0.147	pCi/L	0	1
Tracer	DU %Yield	DU Qualifier	Limits							
Uranium-232	87.6		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Rad

Prep Batch: 468438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-468438/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-468438/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264783-1 DU	Outfall008_20200415_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	PrecSep-21	
MB 160-468574/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-468574/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-468574/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 468579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	PrecSep_0	
MB 160-468579/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-468579/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-468579/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-M-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264517-M-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 469023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-469023/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-469023/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
160-37794-B-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 469207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	ExtChrom	
MB 160-469207/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-469207/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
550-141005-A-1-E DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 469497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1	Outfall008_20200415_Comp	Total/NA	Water	Evaporation	
MB 160-469497/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-469497/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSCB 160-469497/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264783-1 MS	Outfall008_20200415_Comp	Total/NA	Water	Evaporation	
440-264783-1 MSBT	Outfall008_20200415_Comp	Total/NA	Water	Evaporation	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

Rad (Continued)

Prep Batch: 469497 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264783-1 DU	Outfall008_20200415_Comp	Total/NA	Water	Evaporation	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 008 Comp

Job ID: 440-264783-2

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)
MQL	Method Quantitation Limit
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 008 Comp

Job ID: 440-264783-2

Laboratory: Eurofins Calscience Irvine

The accreditations/certifications listed below are applicable to this report.

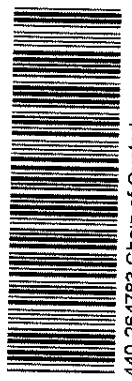
Authority	Program	Identification Number	Expiration Date
California	State	2706	06-30-20

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
Alaska (UST)	State	20-001	05-06-22
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

<p>Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project Boeing-SSFL NPDES Permit 2020 Routine Outfall 008</p>		<p>Field Readings</p>											
<p>Eurofins Calscience Irvine Contact Christian Boridoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218</p>		<p>Project Manager: Katherine Miller 520 289 5606, 520 904 5944 (cell) Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)</p>		<p>Comments</p>											
<p>TestAmerica's services under the COC shall be performed in accordance with the T&Cs with Blanket Service Agreements 2019-22; TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories LLC</p>		<p>Sampler: Dan Smith</p>		<p>ANALYSIS REQUIRED</p>											
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Total Recoverable Metals (E200 7) Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E183B)	Chronic Toxicity - Selenium (EPA-821-R-02-019)	Cyanide (SM4500-CN.E / E335 2)	Total Recoverable Metals Mercury (E245 1)	Total Dissolved Metals Mercury (E245 1)	Field Readings
Outfall008_20200415_Comp	10410	4/15/2020	WM	600 mL Poly	1	HNO ₃	96	No	X						
Outfall008_20200415_Comp_F		4/15/2020	WM	1 L Glass Amber	2	None	110	No							
Outfall008_20200415_Comp_Extra		4/15/2020	WM	500 mL Poly	2	None	130	No							
			WM	600 mL Poly	1	None	155	No							
			WM	600 mL Poly	1	H ₂ SO ₄	160	No							
			WM	600 mL Poly	1	NaOH	220	No							
			WM	2.5 Gal Cube	1	None	225	No	X						
			WM	1 L Glass Amber	1	None	230	No							
			WM	1 L Glass Amber	1	None	235	No							
			WM	1 L Poly	1	None	185	No							
			WM	1 L Poly	1	None	205	No	X						
			WM	borosilicate vials	1	None	320	No							
			WM	1 L Glass Amber	2	None	110	No							
			WM	500 mL Poly	2	None	130	No							



440-264783 Chain of Custody

Legend: EP=Expert Panel, R=Routine

Requisitioned By: [Signature] Date/Time: 4-16-20 12:50

Received By: [Signature] Date/Time: 4/16/20 15:30

Company: [Signature]

Company: [Signature]

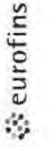
Company: [Signature]

Company: [Signature]

Handwritten notes: 4.3/4.5 0.7/0.9 112-93



Chain of Custody Record



Client Information (Sub Contract Lab)			Lab PM:	Carrier Tracking No(s):	COC No:																																																																																											
Client Contact: TestAmerica Laboratories, Inc.			Bondoc, Christian M		440-155171.1																																																																																											
Shipping/Receiving: 13715 Rider Trail North,			E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: 1 of 1																																																																																											
Company: 314-298-8566(Tel) 314-298-8757(Fax)			Accreditations Required (See note): State Program - California																																																																																													
Address:	City:	State, Zip:	Due Date Requested:	Analysis Requested																																																																																												
MO, 63045	Earth City	MO, 63045	4/28/2020	<p>Analysis Requested</p> <table border="1"> <tr> <td>901.1 Ca/Fill_Geo_0 K-40 and Cesium-137</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A01R_U/EtChrom_Actin Total Uranium</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>900.0/Evaporation Gross Alpha/Beta</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>903.0/PreSep_21 Radium-226</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>904.0/PreSep_0 Radium-228</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>905.5/90/PreSep_7 Strontium-90</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>906.0/LSC_Dist_Susp Tritium</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		901.1 Ca/Fill_Geo_0 K-40 and Cesium-137	X												A01R_U/EtChrom_Actin Total Uranium	X												900.0/Evaporation Gross Alpha/Beta	X												903.0/PreSep_21 Radium-226	X												904.0/PreSep_0 Radium-228	X												905.5/90/PreSep_7 Strontium-90	X												906.0/LSC_Dist_Susp Tritium	X											
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Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Seawater, On-water/Off, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers			Special Instructions/Note:																																																																																				
Outfall008_20200415_Comp (440-264783-1)		4/15/20	09:10 Pacific		Water		X	X	2	Boeing SSFL, DO NOT FILTER, use prep date from preservation																																																																																						
<p>Note: Since laboratory accreditations are subject to change, Euofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/test/matrix being analyzed, the samples must be shipped back to the Euofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Euofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Euofins Calscience.</p>																																																																																																
<p>Possible Hazard Identification</p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>																																																																																																
Special Instructions/QC Requirements:																																																																																																
Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____																																																																																																
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Relinquished by: FE Date/Time: 4/15/20 1706 Company: _____																																																																																																
Relinquished by: FE Date/Time: _____ Company: _____																																																																																																
Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____																																																																																																

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CONDITION UPON RECEIPT FORM

Client: Eurofins CalScience

Initiated by: mk Date: 4/18/2020 Time: 11:20 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.	<u>1540 4107 8880</u>	<u>192688461</u>	<u>2.6</u>	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	<input type="radio"/> Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Was sample received with proper pH? ¹ (If not, make note below) pH strip lot #: <u>HC911928</u>
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	<input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> 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:

Cubittainer was rec'd improperly preserved.

pH Adjustment (if needed)

Date/Time of Preservation: 4/20/2020 10:00

Initial pH and pH strip lot#: HC911928

Preservative and lot#: HNO₃ | 244827

Final pH and pH strip lot#: HC911928

Amount of Preservative: 6mL

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: 440-264783-2

Login Number: 264783

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264783-2

Login Number: 264783

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/20/20 12:12 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.	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 008 Comp

Job ID: 440-264783-2

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)
440-264783-1	Outfall008_20200415_Comp	90.9
LCS 160-468574/1-A	Lab Control Sample	98.5
LCSD 160-468574/2-A	Lab Control Sample Dup	99.7
MB 160-468574/20-A	Method Blank	95.4

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)
440-264783-1	Outfall008_20200415_Comp	90.9	88.2
LCS 160-468579/1-A	Lab Control Sample	98.5	89.3
LCSD 160-468579/2-A	Lab Control Sample Dup	99.7	83.7
MB 160-468579/20-A	Method Blank	95.4	84.9

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)
440-264517-M-1-H MS	Matrix Spike	88.8	90.8
440-264517-M-1-I MSD	Matrix Spike Duplicate	87.6	92.7
440-264783-1	Outfall008_20200415_Comp	70.0	97.6
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6
MB 160-468677/22-A	Method Blank	93.4	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	uranium-232 (30-110)
440-264783-1	Outfall008_20200415_Comp	69.7
550-141005-A-1-E DU	Duplicate	87.6
LCS 160-469207/2-A	Lab Control Sample	69.9
MB 160-469207/1-A	Method Blank	76.5

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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Tracking #: 1540-4107-8890

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.

Therm. ID: <u>AK-12</u> Corr. Factor: (+/-) <u>0</u> °C		Notes: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
Ice <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Gel _____ Other _____		
Cooler Custody Seal: <u>Seal</u>		
Cooler ID: <u>_____</u>		
Temp Observed: <u>3.3</u> °C Corrected: <u>3.3</u> °C		
From: Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>		
Opening/Processing The Shipment	Yes No NA	
Cooler compromised/tampered with?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Samples received within holding time?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Initials: <u>JL</u> Date: <u>4/18/20</u>		
Unpacking/Labeling The Samples	Yes No NA	
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Samples compromised/tampered with?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
Sample containers have legible labels?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample custody seal?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
Containers are not broken or leaking?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample date/times are provided?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Appropriate containers are used?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample bottles are completely filled?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample preservatives verified?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Samples w/o discrepancies?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Zero headspace?*	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Alkalinity has no headspace?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Multiphasic samples are not present?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")		
Initials: <u>JL</u> Date: <u>4/18/20</u>		
Login Completion	Yes No NA	
Receipt Temperature on COC?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
NCM Filed?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Log Release checked in TALS?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Initials: <u>JL</u> Date: <u>4/18/20</u>		

ANALYTICAL REPORT

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

Laboratory Job ID: 440-264080-1
Client Project/Site: Routine 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:
8/4/2020 12:05:06 PM

Christian Bondoc, Project Manager I
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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 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.

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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
8/4/2020 12:05:06 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264080-1	Outfall_20200406_Grab	Water	04/06/20 07:50	04/06/20 14:40	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

Job ID: 440-264080-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-264080-1

Comments

No additional comments.

Receipt

The samples were received on 4/6/2020 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

Organic Prep

Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-604371 and analytical batch 440-604415. 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.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

Client Sample ID: Outfall_20200406_Grab

Lab Sample ID: 440-264080-1

Date Collected: 04/06/20 07:50

Matrix: Water

Date Received: 04/06/20 14:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		04/09/20 09:52	04/09/20 13:03	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

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: 440-264080-1

Client Sample ID: Outfall_20200406_Grab

Lab Sample ID: 440-264080-1

Date Collected: 04/06/20 07:50

Matrix: Water

Date Received: 04/06/20 14:40

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	604371	04/09/20 09:52	JC1	TAL IRV
Total/NA	Analysis	1664A		1			604415	04/09/20 13:03	JC1	TAL IRV

Laboratory References:

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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-604371/1-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/09/20 09:52	04/09/20 13:03	1

Lab Sample ID: LCS 440-604371/2-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	34.8		mg/L		87	78 - 114

Lab Sample ID: LCSD 440-604371/3-A
Matrix: Water
Analysis Batch: 604415

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604371

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	33.8		mg/L		84	78 - 114	3	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

General Chemistry

Prep Batch: 604371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264080-1	Outfall_20200406_Grab	Total/NA	Water	1664A	
MB 440-604371/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-604371/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-604371/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 604415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264080-1	Outfall_20200406_Grab	Total/NA	Water	1664A	604371
MB 440-604371/1-A	Method Blank	Total/NA	Water	1664A	604371
LCS 440-604371/2-A	Lab Control Sample	Total/NA	Water	1664A	604371
LCSD 440-604371/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	604371

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264080-1

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

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CHAIN OF CUSTODY FORM

TRAEFY9B

Client Name/Address: Heley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92106		Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall 003-007, 009, 010 Outfall 009 Grab		Field Readings (Include units) Time of Readings: 0750 pH: 8.35 pH unit Temp: 51.30		Meter serial #	
Test America Contact: Christian Bontobc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Project Manager: Katherine Miller 520.288.9606, 520.904.6844 (cell)		Field readings QC Checked by: <i>[Signature]</i> Date/Time: 4.6.2020/0750		Comments	
Sampler: Dan Smith		Field Manager: Mark Dominick 978.234.5033, 818.559.0702 (cell)		Hold		Hold	
Relinquished By: <i>[Signature]</i> Date/Time: 4-6-2020/1120 Company: HIA		Received By: <i>[Signature]</i> Date/Time: 4/6/20 1115 Company: William Rivera		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	
Relinquished By: <i>[Signature]</i> Date/Time: 4/6/20 1440 Company: William Rivera		Received By: <i>[Signature]</i> Date/Time: 4/6/20 1410 Company: Olga Oirales		Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, CRSW=Quarterly Receiving Water, S=Semi-Annual		440-264080 Chain of Custody	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264080-1

Login Number: 264080

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264182-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

29 May 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: 440-264182-1

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
OUTFALL009_20200407_COMP	440-264182-1	N	WM	4/7/20 9:10 AM	E1613B, E200.7, E200.8	II
OUTFALL009_20200407_COMP_F	440-264162-2	N	WM	4/7/20 9:10 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) 440-264182-1:

- The laboratories received the samples in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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-Sacramento 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 upon receipt at TA-Sacramento.
- Strikethroughs on the original COC were initialed but not dated.



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

L. Calvin of MEC^x reviewed the SDG on June 3, 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-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. OCDD detected above the RL in the sample was also qualified as a nondetect (U) at the level of contamination. Totals HpCDD, HpCDF, HxCDD and HxCDF 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 at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. 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 at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. The concentration of total PeCDD in the sample matched the qualified isomer and was therefore also qualified as an estimated nondetect (UJ). Remaining totals flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

III. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^X reviewed the SDG on May 29, 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)*.

III.1. HOLDING TIMES

The analytical holding time, six months for metals, was met. Sample OUTFALL009_20200407_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

III.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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.

III.3. QUALITY CONTROL SAMPLES

III.3.1. METHOD BLANKS

There were no target analyte detections in the method blanks (total and dissolved) or calibration blanks.

III.3.2. INTERFERENCE CHECK SAMPLES:

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or $\pm 2\times$ the reporting limit, whichever is greater. No non-spiked target analytes were present in the ICP-MS ICSA at greater than MDL;



therefore, matrix interference was not suspected. Interferents in site samples were not summarized for ICP-AES analyses; therefore, interference was not evaluated for Method 200.7.

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 (total and dissolved). Recoveries were within the QAPP control limits of 70-130% for all target analytes except total thallium (56%/57%). The result for total thallium was qualified as estimated (U). RPDs were $\leq 20\%$.

III.3.6. *SERIAL DILUTION*

Serial dilution analyses were not performed.

III.4. INTERNAL STANDARDS PERFORMANCE

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%

III.5. 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.

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.

Validated Sample Result Forms: 4402641821

Analysis Method E1613B

Sample Name OUTFALL009_20200407_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/7/2020 9:10:00 AM **Validation Level:** 9

Lab Sample Name: 440-264182-1

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	0.000025	0.00011	0.0000016	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00016	0.00011	0.0000014	ug/L	MB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000099	0.000053	0.00000093	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000016	0.000053	0.00000060	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000037	0.000053	0.00000099	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000037	0.000053	0.00000058	ug/L	J,DXMBq	U	B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000059	0.000053	0.00000095	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000038	0.000053	0.00000057	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000045	0.000053	0.0000011	ug/L	J,DX	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000036	0.000053	0.00000051	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000051	0.000053	0.00000092	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000036	0.000053	0.00000096	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000030	0.000053	0.0000012	ug/L	J,DXq	UJ	*III
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000035	0.000053	0.00000055	ug/L	J,DX	J	DNQ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000031	0.000053	0.00000095	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000043	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	ND	0.000011	0.0000014	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000017	0.000053	0.00000093	ug/L	J,DXMBq	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000032	0.000053	0.00000060	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000015	0.000053	0.00000051	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000015	0.000053	0.00000092	ug/L	J,DXMB	J	B, DNQ
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000067	0.000053	0.00000095	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000030	0.000053	0.0000012	ug/L	J,DXq	UJ	*III
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000043	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	ND	0.000011	0.0000014	ug/L	U	U	

Analysis Method E200.7

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL009_20200407_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	D	7440-02-0	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 OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

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	3.9	2.0	0.50	ug/L			
Lead	T	7439-92-1	0.83	1.0	0.50	ug/L	J,DX	J	DNQ
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	UJ	Q

Sample Name OUTFALL009_20200407_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-2

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	U	
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	2.7	2.0	0.50	ug/L			
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	0.50	2.0	0.50	ug/L	J,DX	J	DNQ
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0	ND	1.0	0.20	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: 440-264182-1

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:
4/16/2020 1:29:47 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.

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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 1:29:47 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264182-1	Outfall009_20200407_Comp	Water	04/07/20 09:10	04/07/20 14:30	
440-264182-2	Outfall009_20200407_Comp_F	Water	04/07/20 09:10	04/07/20 14:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Job ID: 440-264182-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264182-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2020 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.6° C.

HPLC/IC

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 FILTRATION: The following sample requested dissolved metals and was not filtered in the field: Outfall009_20200407_Comp_F (440-264182-2). This sample was filtered and preserved upon receipt to the laboratory.

04/07/20

2.5mL of HNO3

HNO3 Lot # 0000234822

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries of Thallium for preparation batch 440-604188 and analytical batch 440-604271 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.

General Chemistry

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 Outfall009_20200407_Comp (440-264182-1) were provided in wide-mouth amber glass bottles.

preparation batch 320-371493

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 Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.2		0.50	0.25	mg/L			04/08/20 14:29	1
Nitrate as N	0.24		0.11	0.055	mg/L			04/08/20 14:29	1
Nitrite as N	ND		0.15	0.025	mg/L			04/08/20 14:29	1
Sulfate	4.3		0.50	0.25	mg/L			04/08/20 14:29	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.24		0.15	0.055	mg/L			04/16/20 11:05	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	0.000014	ug/L		04/10/20 07:33	04/10/20 21:56	1
2,3,7,8-TCDF	ND		0.000011	0.000004	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,7,8-PeCDD	0.000030	J,DX q	0.000053	0.000012	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,7,8-PeCDF	0.000036	J,DX	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
2,3,4,7,8-PeCDF	0.000031	J,DX	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,4,7,8-HxCDD	0.000059	J,DX MB	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,6,7,8-HxCDD	0.000045	J,DX	0.000053	0.000011	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,7,8,9-HxCDD	0.000051	J,DX MB	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,4,7,8-HxCDF	0.000037	J,DX MB q	0.000053	0.000005	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,6,7,8-HxCDF	0.000038	J,DX MB	0.000053	0.000005	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,7,8,9-HxCDF	0.000036	J,DX MB	0.000053	0.000005	ug/L		04/10/20 07:33	04/10/20 21:56	1
2,3,4,6,7,8-HxCDF	0.000035	J,DX	0.000053	0.000005	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,4,6,7,8-HpCDD	0.000016	J,DX MB	0.000053	0.000006	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,4,6,7,8-HpCDF	0.000099	J,DX MB	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
1,2,3,4,7,8,9-HpCDF	0.000037	J,DX q	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
OCDD	0.00016	MB	0.00011	0.000014	ug/L		04/10/20 07:33	04/10/20 21:56	1
OCDF	0.000025	J,DX MB	0.00011	0.000016	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total TCDD	ND		0.000011	0.000014	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total TCDF	ND		0.000011	0.000004	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total PeCDD	0.000030	J,DX q	0.000053	0.000012	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total PeCDF	0.000067	J,DX	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total HxCDD	0.000015	J,DX MB	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total HxCDF	0.000015	J,DX MB q	0.000053	0.000005	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total HpCDD	0.000032	J,DX MB	0.000053	0.000006	ug/L		04/10/20 07:33	04/10/20 21:56	1
Total HpCDF	0.000017	J,DX MB q	0.000053	0.000009	ug/L		04/10/20 07:33	04/10/20 21:56	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	67		25 - 164	04/10/20 07:33	04/10/20 21:56	1
13C-2,3,7,8-TCDF	76		24 - 169	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,7,8-PeCDD	64		25 - 181	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,7,8-PeCDF	66		24 - 185	04/10/20 07:33	04/10/20 21:56	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,4,7,8-HxCDD	69		32 - 141	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,4,7,8-HxCDF	73		26 - 152	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,6,7,8-HxCDF	68		26 - 123	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,7,8,9-HxCDF	77		29 - 147	04/10/20 07:33	04/10/20 21:56	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,4,6,7,8-HpCDD	63		23 - 140	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,4,6,7,8-HpCDF	66		28 - 143	04/10/20 07:33	04/10/20 21:56	1
13C-1,2,3,4,7,8,9-HpCDF	70		26 - 138	04/10/20 07:33	04/10/20 21:56	1
13C-OCDD	59		17 - 157	04/10/20 07:33	04/10/20 21:56	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	77		35 - 197	04/10/20 07:33	04/10/20 21:56	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		04/09/20 09:00	04/10/20 11:31	1
Zinc	ND		20	12	ug/L		04/09/20 09:00	04/10/20 11:31	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		04/08/20 09:14	04/08/20 16:14	1
Cadmium	ND		1.0	0.25	ug/L		04/08/20 09:14	04/08/20 16:14	1
Copper	3.9		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:14	1
Lead	0.83	J,DX	1.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:14	1
Antimony	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:14	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:14	1
Thallium	ND		1.0	0.20	ug/L		04/08/20 09:14	04/08/20 16:14	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		04/09/20 11:48	04/09/20 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	74		10	5.0	mg/L			04/14/20 10:00	1
Total Suspended Solids	3.2		1.0	0.50	mg/L			04/11/20 15:41	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:39	1

Client Sample ID: Outfall009_20200407_Comp_F

Lab Sample ID: 440-264182-2

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

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		04/08/20 14:56	04/08/20 22:37	1
Zinc	ND		20	12	ug/L		04/08/20 14:56	04/08/20 22:37	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Client Sample ID: Outfall009_20200407_Comp_F

Lab Sample ID: 440-264182-2

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

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		04/09/20 09:10	04/09/20 15:36	1
Cadmium	ND		1.0	0.25	ug/L		04/09/20 09:10	04/09/20 15:36	1
Copper	2.7		2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:36	1
Lead	ND		1.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:36	1
Antimony	ND		2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:36	1
Selenium	0.50	J,DX	2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:36	1
Thallium	ND		1.0	0.20	ug/L		04/09/20 09:10	04/09/20 15:36	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		04/07/20 19:51	04/07/20 22:46	1



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

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
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:

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: 440-264182-1

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

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	5 mL	1.0 mL	604172	04/08/20 14:29	NTN	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	604173	04/08/20 14:29	NTN	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			605353	04/16/20 11:05	TLN	TAL IRV
Total/NA	Prep	1613B			940.2 mL	20 uL	371493	04/10/20 07:33	RDR	TAL SAC
Total/NA	Analysis	1613B		1			371730	04/10/20 21:56	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	604209	04/09/20 09:00	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			604593	04/10/20 11:31	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	604188	04/08/20 09:14	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			604271	04/08/20 16:14	P1R	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	604401	04/09/20 11:48	EMS	TAL IRV
Total/NA	Analysis	245.1		1			604565	04/09/20 18:07	MEM	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	604929	04/14/20 10:00	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	604678	04/11/20 15:41	KL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	604575	04/10/20 11:07	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			604615	04/10/20 15:39	KMY	TAL IRV

Client Sample ID: Outfall009_20200407_Comp_F

Lab Sample ID: 440-264182-2

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

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	604093	04/07/20 18:52	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604251	04/08/20 14:56	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			604342	04/08/20 22:37	KE	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604093	04/07/20 18:52	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604254	04/09/20 09:10	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604443	04/09/20 15:36	MQP	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	604089	04/07/20 18:34	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	604095	04/07/20 19:51	DB	TAL IRV
Dissolved	Analysis	245.1		1			604111	04/07/20 22:46	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604172/6
Matrix: Water
Analysis Batch: 604172

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			04/08/20 10:51	1
Nitrite as N	ND		0.15	0.025	mg/L			04/08/20 10:51	1

Lab Sample ID: LCS 440-604172/5
Matrix: Water
Analysis Batch: 604172

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	1.09		mg/L		97	90 - 110
Nitrite as N	1.52	1.48		mg/L		97	90 - 110

Lab Sample ID: 440-264127-D-1 MS
Matrix: Water
Analysis Batch: 604172

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		5.65	5.36		mg/L		95	80 - 120
Nitrite as N	ND		7.61	6.85		mg/L		90	80 - 120

Lab Sample ID: 440-264127-D-1 MSD
Matrix: Water
Analysis Batch: 604172

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		5.65	5.38		mg/L		95	80 - 120	0	20
Nitrite as N	ND		7.61	6.92		mg/L		91	80 - 120	1	20

Lab Sample ID: MB 440-604173/6
Matrix: Water
Analysis Batch: 604173

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			04/08/20 10:51	1
Sulfate	ND		0.50	0.25	mg/L			04/08/20 10:51	1

Lab Sample ID: LCS 440-604173/5
Matrix: Water
Analysis Batch: 604173

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	4.58		mg/L		92	90 - 110
Sulfate	5.00	4.89		mg/L		98	90 - 110

Lab Sample ID: 440-264127-D-1 MS
Matrix: Water
Analysis Batch: 604173

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	1000	EY	25.0	1060	EY BB	mg/L		103	80 - 120
Sulfate	610	EY	25.0	647	EY BB	mg/L		136	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-264127-D-1 MSD
Matrix: Water
Analysis Batch: 604173

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	1000	EY	25.0	1060	EY BB	mg/L		92	80 - 120	0	20
Sulfate	610	EY	25.0	644	EY BB	mg/L		126	80 - 120	0	20

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-371493/1-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371493

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		04/10/20 07:33	04/10/20 19:32	1
2,3,7,8-TCDF	ND		0.000010	0.0000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8-HxCDD	0.00000284	J,DX	0.000050	0.0000008	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8,9-HxCDD	0.00000216	J,DX q	0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8-HxCDF	0.00000110	J,DX q	0.000050	0.0000005	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,6,7,8-HxCDF	0.00000131	J,DX	0.000050	0.0000005	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,7,8,9-HxCDF	0.00000159	J,DX q	0.000050	0.0000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,6,7,8-HpCDD	0.00000303	J,DX	0.000050	0.0000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,6,7,8-HpCDF	0.00000362	J,DX	0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
OCDD	0.0000240	J,DX	0.00010	0.0000013	ug/L		04/10/20 07:33	04/10/20 19:32	1
OCDF	0.00000970	J,DX	0.00010	0.0000013	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total TCDD	ND		0.000010	0.0000016	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total TCDF	ND		0.000010	0.0000003	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total PeCDD	ND		0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total PeCDF	ND		0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HxCDD	0.00000500	J,DX q	0.000050	0.0000007	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HxCDF	0.00000399	J,DX q	0.000050	0.0000004	ug/L		04/10/20 07:33	04/10/20 19:32	1
Total HpCDD	0.00000510	J,DX	0.000050	0.0000003	ug/L		04/10/20 07:33	04/10/20 19:32	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-371493/1-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371493

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDF	0.00000362	J,DX	0.000050	0.0000009	ug/L		04/10/20 07:33	04/10/20 19:32	1
				0					
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164				04/10/20 07:33	04/10/20 19:32	1
13C-2,3,7,8-TCDF	83		24 - 169				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8-PeCDD	70		25 - 181				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8-PeCDF	73		24 - 185				04/10/20 07:33	04/10/20 19:32	1
13C-2,3,4,7,8-PeCDF	77		21 - 178				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8-HxCDD	76		32 - 141				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,6,7,8-HxCDD	68		28 - 130				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,6,7,8-HxCDF	75		26 - 123				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,7,8,9-HxCDF	80		29 - 147				04/10/20 07:33	04/10/20 19:32	1
13C-2,3,4,6,7,8-HxCDF	83		28 - 136				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143				04/10/20 07:33	04/10/20 19:32	1
13C-1,2,3,4,7,8,9-HpCDF	82		26 - 138				04/10/20 07:33	04/10/20 19:32	1
13C-OCDD	64		17 - 157				04/10/20 07:33	04/10/20 19:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	78		35 - 197				04/10/20 07:33	04/10/20 19:32	1

Lab Sample ID: LCS 320-371493/2-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	0.000200	0.000232		ug/L		116	67 - 158
2,3,7,8-TCDF	0.000200	0.000266		ug/L		133	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00118		ug/L		118	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00126		ug/L		126	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00120		ug/L		120	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00107	MB	ug/L		107	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00118		ug/L		118	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00112	MB	ug/L		112	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00113	MB	ug/L		113	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00121	MB	ug/L		121	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	0.00120		ug/L		120	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00107	MB	ug/L		107	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00111	MB	ug/L		111	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138
OCDD	0.00200	0.00222	MB	ug/L		111	78 - 144
OCDF	0.00200	0.00262	MB	ug/L		131	63 - 170
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C-2,3,7,8-TCDD	68		20 - 175				
13C-2,3,7,8-TCDF	77		22 - 152				

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-371493/2-A
Matrix: Water
Analysis Batch: 371730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371493

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,7,8-PeCDD	65		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,7,8-PeCDF	75		13 - 328
13C-1,2,3,4,7,8-HxCDD	71		21 - 193
13C-1,2,3,6,7,8-HxCDD	63		25 - 163
13C-1,2,3,4,7,8-HxCDF	71		19 - 202
13C-1,2,3,6,7,8-HxCDF	66		21 - 159
13C-1,2,3,7,8,9-HxCDF	74		17 - 205
13C-2,3,4,6,7,8-HxCDF	74		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	61		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	69		20 - 186
13C-OCDD	59		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	78		31 - 191

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-604209/1-A
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/09/20 09:00	04/10/20 11:26	1
Zinc	ND		20	12	ug/L		04/09/20 09:00	04/10/20 11:26	1

Lab Sample ID: LCS 440-604209/2-A
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Nickel	500	512		ug/L		102	85 - 115
Zinc	500	512		ug/L		102	85 - 115

Lab Sample ID: 440-264182-1 MS
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Nickel	ND		500	492		ug/L		98	70 - 130
Zinc	ND		500	500		ug/L		100	70 - 130

Lab Sample ID: 440-264182-1 MSD
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	Limits	RPD	
				Result	Qualifier					RPD	Limit
Nickel	ND		500	501		ug/L		100	70 - 130	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-264182-1 MSD
Matrix: Water
Analysis Batch: 604593

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604209

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	ND		500	507		ug/L		101	70 - 130	1	20

Lab Sample ID: MB 440-604093/1-B
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/08/20 14:56	04/08/20 22:21	1
Zinc	ND		20	12	ug/L		04/08/20 14:56	04/08/20 22:21	1

Lab Sample ID: LCS 440-604093/2-B
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	472		ug/L		94	85 - 115
Zinc	500	475		ug/L		95	85 - 115

Lab Sample ID: 440-264162-A-3-E MS
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	462		ug/L		92	70 - 130
Zinc	ND		500	471		ug/L		94	70 - 130

Lab Sample ID: 440-264162-A-3-F MSD
Matrix: Water
Analysis Batch: 604342

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604251

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	480		ug/L		96	70 - 130	4	20
Zinc	ND		500	490		ug/L		98	70 - 130	4	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-604188/1-A
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Cadmium	ND		1.0	0.25	ug/L		04/08/20 09:14	04/08/20 16:10	1
Copper	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Lead	ND		1.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Antimony	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Selenium	ND		2.0	0.50	ug/L		04/08/20 09:14	04/08/20 16:10	1
Thallium	ND		1.0	0.20	ug/L		04/08/20 09:14	04/08/20 16:10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-604188/2-A
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Silver	80.0	89.5		ug/L		112	85 - 115
Cadmium	80.0	81.5		ug/L		102	85 - 115
Copper	80.0	83.6		ug/L		104	85 - 115
Lead	80.0	82.0		ug/L		103	85 - 115
Antimony	80.0	83.6		ug/L		105	85 - 115
Selenium	80.0	79.7		ug/L		100	85 - 115
Thallium	80.0	76.8		ug/L		96	85 - 115

Lab Sample ID: 440-264182-1 MS
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Silver	ND		80.0	88.5		ug/L		111	70 - 130
Cadmium	ND		80.0	81.0		ug/L		101	70 - 130
Copper	3.9		80.0	85.8		ug/L		102	70 - 130
Lead	0.83	J,DX	80.0	82.0		ug/L		101	70 - 130
Antimony	ND		80.0	82.9		ug/L		104	70 - 130
Selenium	ND		80.0	75.1		ug/L		94	70 - 130
Thallium	ND		80.0	44.6	LN	ug/L		56	70 - 130

Lab Sample ID: 440-264182-1 MSD
Matrix: Water
Analysis Batch: 604271

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total Recoverable
Prep Batch: 604188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Silver	ND		80.0	87.9		ug/L		110	70 - 130	1	20
Cadmium	ND		80.0	80.3		ug/L		100	70 - 130	1	20
Copper	3.9		80.0	86.9		ug/L		104	70 - 130	1	20
Lead	0.83	J,DX	80.0	81.4		ug/L		101	70 - 130	1	20
Antimony	ND		80.0	81.5		ug/L		102	70 - 130	2	20
Selenium	ND		80.0	75.6		ug/L		94	70 - 130	1	20
Thallium	ND		80.0	46.0	LN	ug/L		57	70 - 130	3	20

Lab Sample ID: MB 440-604093/1-D
Matrix: Water
Analysis Batch: 604443

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604254

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:24	1
Cadmium	ND		1.0	0.25	ug/L		04/09/20 09:10	04/09/20 15:24	1
Copper	ND		2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:24	1
Lead	ND		1.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:24	1
Antimony	ND		2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:24	1
Selenium	ND		2.0	0.50	ug/L		04/09/20 09:10	04/09/20 15:24	1
Thallium	ND		1.0	0.20	ug/L		04/09/20 09:10	04/09/20 15:24	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-604093/2-D
Matrix: Water
Analysis Batch: 604443

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604254

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Silver	80.0	86.4		ug/L		108	85 - 115
Cadmium	80.0	78.7		ug/L		98	85 - 115
Copper	80.0	80.0		ug/L		100	85 - 115
Lead	80.0	79.8		ug/L		100	85 - 115
Antimony	80.0	80.7		ug/L		101	85 - 115
Selenium	80.0	78.4		ug/L		98	85 - 115
Thallium	80.0	76.7		ug/L		96	85 - 115

Lab Sample ID: 440-264190-E-4-E MS
Matrix: Water
Analysis Batch: 604443

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604254

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Silver	ND		80.0	90.5		ug/L		113	70 - 130
Cadmium	ND		80.0	82.8		ug/L		104	70 - 130
Copper	1.5	J,DX	80.0	85.6		ug/L		105	70 - 130
Lead	0.64	J,DX	80.0	83.4		ug/L		103	70 - 130
Antimony	ND		80.0	84.8		ug/L		106	70 - 130
Selenium	0.54	J,DX	80.0	80.2		ug/L		100	70 - 130
Thallium	ND		80.0	80.5		ug/L		101	70 - 130

Lab Sample ID: 440-264190-E-4-F MSD
Matrix: Water
Analysis Batch: 604443

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604254

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Silver	ND		80.0	91.0		ug/L		114	70 - 130	1	20
Cadmium	ND		80.0	83.2		ug/L		104	70 - 130	0	20
Copper	1.5	J,DX	80.0	86.9		ug/L		107	70 - 130	1	20
Lead	0.64	J,DX	80.0	83.8		ug/L		104	70 - 130	0	20
Antimony	ND		80.0	85.4		ug/L		107	70 - 130	1	20
Selenium	0.54	J,DX	80.0	81.4		ug/L		101	70 - 130	1	20
Thallium	ND		80.0	81.2		ug/L		102	70 - 130	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604401/1-A
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604401

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/09/20 11:48	04/09/20 18:02	1

Lab Sample ID: LCS 440-604401/2-A
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604401

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.93		ug/L		98	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-264182-1 MS
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604401
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.77		ug/L		94	75 - 125

Lab Sample ID: 440-264182-1 MSD
Matrix: Water
Analysis Batch: 604565

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total/NA
Prep Batch: 604401
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	3.96		ug/L		99	75 - 125	5	20

Lab Sample ID: MB 440-604089/1-B
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604095

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/07/20 19:51	04/07/20 22:35	1

Lab Sample ID: LCS 440-604089/2-B
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604095
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.99		ug/L		100	85 - 115

Lab Sample ID: 440-264162-B-3-E MS
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 604095
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	4.09		ug/L		102	75 - 125

Lab Sample ID: 440-264162-B-3-F MSD
Matrix: Water
Analysis Batch: 604111

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 604095
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		4.00	4.10		ug/L		103	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-604929/1
Matrix: Water
Analysis Batch: 604929

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			04/14/20 10:00	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-604929/2
Matrix: Water
Analysis Batch: 604929

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: 440-264182-1 DU
Matrix: Water
Analysis Batch: 604929

Client Sample ID: Outfall009_20200407_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	74		74.0		mg/L		0	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-604678/1
Matrix: Water
Analysis Batch: 604678

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			04/11/20 15:41	1

Lab Sample ID: LCS 440-604678/2
Matrix: Water
Analysis Batch: 604678

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: 440-264314-A-2 DU
Matrix: Water
Analysis Batch: 604678

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	430		393		mg/L		8	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-604575/1-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/10/20 11:07	04/10/20 15:39	1

Lab Sample ID: LCS 440-604575/2-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	96.4		ug/L		96	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCSD 440-604575/3-A
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	100	102		ug/L		102	80 - 120	6	20

Lab Sample ID: 440-264162-J-1-B MS
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	ND		100	102		ug/L		102	75 - 125		

Lab Sample ID: 440-264162-J-1-C MSD
Matrix: Water
Analysis Batch: 604615

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604575

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	ND		100	89.4		ug/L		89	75 - 125	13	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

HPLC/IC

Analysis Batch: 604172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	300.0	
MB 440-604172/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604172/5	Lab Control Sample	Total/NA	Water	300.0	
440-264127-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264127-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 604173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	300.0	
MB 440-604173/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604173/5	Lab Control Sample	Total/NA	Water	300.0	
440-264127-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-264127-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 605353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	NO3NO2 Calc	

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Prep Batch: 371493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	1613B	
MB 320-371493/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-371493/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 371730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	1613B	371493
MB 320-371493/1-A	Method Blank	Total/NA	Water	1613B	371493
LCS 320-371493/2-A	Lab Control Sample	Total/NA	Water	1613B	371493

Metals

Filtration Batch: 604089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604089/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264162-B-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264162-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 604093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604093/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604093/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604093/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264162-A-3-E MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264162-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-264190-E-4-E MS	Matrix Spike	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Metals (Continued)

Filtration Batch: 604093 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264190-E-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 604095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	245.1	604089
MB 440-604089/1-B	Method Blank	Dissolved	Water	245.1	604089
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	245.1	604089
440-264162-B-3-E MS	Matrix Spike	Dissolved	Water	245.1	604089
440-264162-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	604089

Analysis Batch: 604111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	245.1	604095
MB 440-604089/1-B	Method Blank	Dissolved	Water	245.1	604095
LCS 440-604089/2-B	Lab Control Sample	Dissolved	Water	245.1	604095
440-264162-B-3-E MS	Matrix Spike	Dissolved	Water	245.1	604095
440-264162-B-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	604095

Prep Batch: 604188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	
MB 440-604188/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604188/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264182-1 MS	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	
440-264182-1 MSD	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	
MB 440-604209/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604209/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264182-1 MS	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	
440-264182-1 MSD	Outfall009_20200407_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	200.2	604093
MB 440-604093/1-B	Method Blank	Dissolved	Water	200.2	604093
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	200.2	604093
440-264162-A-3-E MS	Matrix Spike	Dissolved	Water	200.2	604093
440-264162-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	604093

Prep Batch: 604254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	200.2	604093
MB 440-604093/1-D	Method Blank	Dissolved	Water	200.2	604093
LCS 440-604093/2-D	Lab Control Sample	Dissolved	Water	200.2	604093
440-264190-E-4-E MS	Matrix Spike	Dissolved	Water	200.2	604093
440-264190-E-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	604093

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Metals

Analysis Batch: 604271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total Recoverable	Water	200.8	604188
MB 440-604188/1-A	Method Blank	Total Recoverable	Water	200.8	604188
LCS 440-604188/2-A	Lab Control Sample	Total Recoverable	Water	200.8	604188
440-264182-1 MS	Outfall009_20200407_Comp	Total Recoverable	Water	200.8	604188
440-264182-1 MSD	Outfall009_20200407_Comp	Total Recoverable	Water	200.8	604188

Analysis Batch: 604342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	200.7 Rev 4.4	604251
MB 440-604093/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	604251
LCS 440-604093/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	604251
440-264162-A-3-E MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	604251
440-264162-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	604251

Prep Batch: 604401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	245.1	
MB 440-604401/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-604401/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-264182-1 MS	Outfall009_20200407_Comp	Total/NA	Water	245.1	
440-264182-1 MSD	Outfall009_20200407_Comp	Total/NA	Water	245.1	

Analysis Batch: 604443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-2	Outfall009_20200407_Comp_F	Dissolved	Water	200.8	604254
MB 440-604093/1-D	Method Blank	Dissolved	Water	200.8	604254
LCS 440-604093/2-D	Lab Control Sample	Dissolved	Water	200.8	604254
440-264190-E-4-E MS	Matrix Spike	Dissolved	Water	200.8	604254
440-264190-E-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	604254

Analysis Batch: 604565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	245.1	604401
MB 440-604401/1-A	Method Blank	Total/NA	Water	245.1	604401
LCS 440-604401/2-A	Lab Control Sample	Total/NA	Water	245.1	604401
440-264182-1 MS	Outfall009_20200407_Comp	Total/NA	Water	245.1	604401
440-264182-1 MSD	Outfall009_20200407_Comp	Total/NA	Water	245.1	604401

Analysis Batch: 604593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209
MB 440-604209/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	604209
LCS 440-604209/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	604209
440-264182-1 MS	Outfall009_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209
440-264182-1 MSD	Outfall009_20200407_Comp	Total Recoverable	Water	200.7 Rev 4.4	604209

General Chemistry

Prep Batch: 604575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	Distill/CN	

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

General Chemistry (Continued)

Prep Batch: 604575 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-604575/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/CN	
440-264162-J-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-264162-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 604615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	SM 4500 CN E	604575
MB 440-604575/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	604575
LCS 440-604575/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	604575
LCSD 440-604575/3-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	604575
440-264162-J-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	604575
440-264162-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	604575

Analysis Batch: 604678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	SM 2540D	
MB 440-604678/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-604678/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264314-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 604929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	SM 2540C	
MB 440-604929/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-604929/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264182-1 DU	Outfall009_20200407_Comp	Total/NA	Water	SM 2540C	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-1

Qualifiers

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
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.
α	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: 440-264182-1

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
Pennsylvania	NELAP	68-01272	03-31-21
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.

CHAIN OF CUSTODY FORM

Test America

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2020 Routine Outfall 003-001, 009, 010 Outfall 009 Comp</p>		<p>Project Manager: Katherine Miller 520 289 8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>MSMSD</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>																											
<p>Test America Contact: Christian Bondoc 17461 Dentan Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218</p>		<p>Sample ID</p>		<p>Sampling Date/Time</p>		<p>Sample Matrix</p>		<p>Container Type</p>		<p># of Cont</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>Total Dissolved Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>TDS (SM2540C/150 1)</p>		<p>TCDD (and all congeners) (E161B)</p>		<p>Cr, SO₄, NO₃+NO₂-N (300)</p>		<p>Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E900 0), Sr-90 (E900 0), Total Combined Radium 226 (E900 0 or E900 1) & CS-137 (E901 0 or E901 1)</p>		<p>Chronic Toxicity - Selenium (EPA-821-R-02-013)</p>		<p>Cyanide (SM4500-CN-E / E335 2)</p>		<p>Total Recoverable Metals Mercury (E245 1)</p>		<p>Total Dissolved Metals Mercury (E245 1)</p>		<p>TSS (160 2 (SM2540D))</p>	
<p>Outfall009_20200407_Comp</p>		<p>4/7/2020 10:10</p>		<p>WM</p>		<p>500 mL Poly</p>		<p>2</p>		<p>None</p>		<p>95</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>48 hours Holding Time NO₃ & NO₂</p>		<p>Unfiltered and unpreserved analysis. Separates RAD into another vial for analysis. Analyze duplicate, not MSMSD</p>		<p>0.170 0.170 0.170</p>													
<p>Outfall009_20200407_Comp_F</p>		<p>4/7/2020 10:10</p>		<p>WM</p>		<p>borosilicate vial</p>		<p>1</p>		<p>None</p>		<p>320</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>Filler and preserve with 24hrs of receipt at lab</p>		<p>Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures</p>		<p>0.170 0.170</p>													
<p>Outfall009_20200407_Comp_Extra</p>		<p>4/7/2020 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>None</p>		<p>110</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>Sample integrity (Check) Intact</p>		<p>On Ice</p>		<p>11</p>													
<p>Outfall009_20200407_Comp_Extra</p>		<p>4/7/2020 10:10</p>		<p>WM</p>		<p>500 mL Poly</p>		<p>2</p>		<p>None</p>		<p>145</p>		<p>No Level IV</p>		<p>No Level IV</p>		<p>No Level IV</p>		<p>Sample integrity (Check) Intact</p>		<p>Store samples for 6 months Data Requirements (Check)</p>		<p>All Level IV</p>		<p>X</p>											

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRS=Quarterly Receiving Water, S=Semi-Annual

Received By: *William Rivera* 4/7/20 11:14
 Date/Time: 4/7/20 11:14
 Received By: *Obja Onicks* 4/7/20
 Date/Time: 4/7/20
 Received By: *William Rivera* 4/7/20
 Date/Time: 4/7/20
 Received By: *Obja Onicks* 4/7/20
 Date/Time: 4/7/20



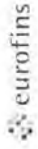
440-264182 Chain of Custody

16/1.6 0.8/0.8

IL-89

- 1
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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PW:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Bondoc, Christian M	Bondoc, Christian M	State of Origin: California	440-154829-1
Company: TestAmerica Laboratories, Inc.		E-Mail: christian.bondoc@testamericainc.com	christian.bondoc@testamericainc.com	Page: Page 1 of 1	Job #: 440-264182-1
Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Accreditations Required (See note): State Program - California		Preservation Codes: A - HCL M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - H2SO4 S - MeOH T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Other:	
Due Date Requested: 4/17/2020		Analysis Requested		Total Number of Containers	
TAT Requested (days):		Perform MS/MSD (Yes or No)		2	
PO #:		Field Filtered Sample (Yes or No)		Special Instructions/Note: See QAS, Boeing_w/1 to zero, ug/L. Use Boeing glassware.	
WO #:		1613B/1618_Sox_Sep_P Standard List w/Totals			
Project #: 44009879		Sample Date			
SSOW#:		Sample Time			
Project Name: Boeing NPDES SSFL outfalls		Sample Type (C=Comp, G=grab)			
Site:		Preservation Code:			
Sample Identification - Client ID (Lab ID)		Matrix (W=Water, S=Soil, O=wastefl, Or=wastefl)			
Outfall009_20200407_Comp (440-264182-1)		Water			
Sample Date		4/7/20			
Sample Time		09:10 Pacific			
Sample Type					
Preservation Code					
Matrix					
W=Water, S=Soil, O=wastefl, Or=wastefl					
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/test/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)		Archive For _____ Months	
Unconfirmed		Return To Client <input type="checkbox"/>		Disposal By Lab <input type="checkbox"/>	
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Special Instructions/QC Requirements	
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: <i>A. Remy</i>		4/8/20 1700		Date/Time: <i>9/16/20 955</i>	
Relinquished by:		Date/Time:		Company: <i>ETAUSE</i>	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <i>2.6°C / 3.0°C</i>	
A Yes Δ No		<i>Seal</i>			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264182-1

Login Number: 264182

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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264182-1

Login Number: 264182

List Number: 2

Creator: Her, David A

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/09/20 03:34 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	3.0c
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	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: 440-264182-1

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)
440-264182-1	Outfall009_20200407_Comp	67	76	64	66	74	69	61	73
MB 320-371493/1-A	Method Blank	71	83	70	73	77	76	68	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)
440-264182-1	Outfall009_20200407_Comp	68	77	71	63	66	70	59
MB 320-371493/1-A	Method Blank	75	80	83	71	71	82	64

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 320-371493/2-A	Lab Control Sample	68	77	65	70	75	71	63	71

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 320-371493/2-A	Lab Control Sample	66	74	74	61	64	69	59

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

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

Job ID: 440-264182-1

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440-264182 Field Sheet

Tracking #: 1540 410 77405

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-5 Corr. Factor: 0 / - 0.4 °C

Ice Wet Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: -

Temp Observed: 2.6 °C Corrected: 3.0 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: [Signature] Date: 9 April 20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: DH Date: 4/9/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264182-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

2 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.:** 1272.003H.01**Sample Delivery Group:** 440-264182-2**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
OUTFALL009_20200407_COMP	440-264182-1	N/A	WM	4/7/20 9:10 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A- 01-R
OUTFALL009_20200407_COMP	440-264182-2	N/A	WM	4/7/20 9:10 AM	RADIUM



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) 440-264182-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- The sample containers were received improperly preserved at TA-SL. The appropriate containers were preserved to $\text{pH} \leq 2$ upon receipt.
- 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.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^X reviewed the SDG on June 3, 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 A-01-R* 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 (except as noted in the Sample Management section above) and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiency for gross alpha was less than 20%; therefore, the 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 for all target isotopes except strontium-90 (strontium carrier 26%; limits 40-110%). The sample result for strontium-90 was qualified as estimated (UJ).

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 gross beta. The detected sample result for gross beta 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 tritium. The detected sample result for tritium 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 in this SDG for Method 900.0 (gross alpha and gross beta). RERs met laboratory control limits. Laboratory duplicates were not performed on the sample from this SDG for the remaining methods.

III.3.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE:

Matrix spike and matrix spike duplicate analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. 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: 4402641822

Analysis Method E900

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	-0.0913	0.730	3.00	1.46	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	1.72	0.674	4.00	0.902	pCi/L		U	B

Analysis Method E901.1

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	-4.92	14.5	20.0	18.0	pCi/L	U	U	
Potassium-40	13966-00-2	-110	164	262	262	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0516	0.0855	1.00	0.150	pCi/L	U	U	

Analysis Method E904.0

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.446	0.318	1.00	0.490	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.0975	0.774	3.00	1.35	pCi/L	U	UJ	*III

Analysis Method E906.0

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	623	220	500	284	pCi/L		J+	B

Analysis Method HASL-300 U Mod

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.0541	0.1137	1.00	0.154	pCi/L	U	U	

Analysis Method RADIUM

Sample Name OUTFALL009_20200407_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/7/2020 9:10:00 AM Validation Level: 9

Lab Sample Name: 440-264182-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.49	0.327			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: 440-264182-2
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:
5/4/2020 10:26:44 AM

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

LINKS

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www.eurofinsus.com/Env

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.

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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 10:26:44 AM

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264182-1	Outfall009_20200407_Comp	Water	04/07/20 09:10	04/07/20 14:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Job ID: 440-264182-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264182-2

Comments

No additional comments.

Receipt

The samples were received on 4/7/2020 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.6° C.

RAD

Method 900.0: Gross Alpha Beta Prep Batch 160-468140

The gross alpha-beta detection goals were not met for the following samples due to a reduction of the sample size attributed to high residual mass: (440-264451-B-4-A), (440-264451-B-4-D DU), (440-264451-B-4-B MS) and (440-264451-B-4-C MSBT). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha Beta Prep Batch 160-468140

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_20200407_Comp (440-264182-1), (LCS 160-468140/2-A), (LCSB 160-468140/3-A), (MB 160-468140/1-A), (440-264451-B-4-A), (440-264451-B-4-D DU), (440-264451-B-4-B MS) and (440-264451-B-4-C MSBT)

Method 901.1: Gamma Prep Batch 160-467695

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Job ID: 440-264182-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Th-227 Pb-211
Bi-214 Ra-226

Outfall009_20200407_Comp (440-264182-1), (LCS 160-467695/2-A), (MB 160-467695/1-A), (440-264162-K-1-J) and (440-264162-K-1-K DU)

Method 903.0: Ra-226 Prep Batch 160-467450

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_20200407_Comp (440-264182-1), (LCS 160-467450/1-A), (MB 160-467450/22-A), (440-264162-K-1-A), (440-264162-K-1-B MS) and (440-264162-K-1-C MSD)

Method 904.0: Radium-228 Prep Batch 160-467451

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_20200407_Comp (440-264182-1), (LCS 160-467451/1-A), (MB 160-467451/22-A), (440-264162-K-1-D), (440-264162-K-1-E MS) and (440-264162-K-1-F MSD)

Method 905: Strontium-90 Prep Batch 160-467509

The barium carrier recovery (26%) is outside the lower control limit (40%) for the following sample: Outfall009_20200407_Comp (440-264182-1). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference. See prep NCM 160-194709.

Method 905: Sr-90 Prep Batch 160-467509

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_20200407_Comp (440-264182-1), (LCS 160-467509/1-A), (MB 160-467509/10-A), (440-264162-K-1-G), (440-264162-K-1-H MS) and (440-264162-K-1-I MSD)

Method 906.0: LSC Tritium Prep Batch 160-468476

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_20200407_Comp (440-264182-1), (LCS 160-468476/2-A), (MB 160-468476/1-A), (160-37864-A-1-A), (160-37864-A-1-B DU), (440-264162-L-1-A), (440-264162-L-1-B MS) and (440-264162-K-1-T MSD)

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.

Outfall009_20200407_Comp (440-264182-1), (LCS 160-468046/2-A), (MB 160-468046/1-A), (440-263721-S-1-J), (440-263721-M-1-I MS) and (440-263721-M-1-J MSD)

Method ExtChrom: Uranium Prep Batch 160-468046:

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Job ID: 440-264182-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

The following samples have matrix observations: Outfall009_20200407_Comp (440-264182-1). 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.

Method PrecSep_0: Radium 228 Prep Batch 160-467451:

Samples 440-264162-1, 1 MS, & 1 MSD and 440-264182-1 were reduced due to yellow discoloration. Samples 440-264345-1 & 3 were reduced due to yellow discoloration and a cloudy appearance. Samples 440-264345-2 & 4, and samples 440-264346-1 through 10 were reduced due to limited volume: Outfall009_20200407_Comp (440-264182-1)

Method PrecSep-21: Radium 226 Prep Batch 160-467450:

Samples 440-264162-1, 1 MS, & 1 MSD and 440-264182-1 were reduced due to yellow discoloration. Samples 440-264345-1 & 3 were reduced due to yellow discoloration and a cloudy appearance. Samples 440-264345-2 & 4, and samples 440-264346-1 through 10 were reduced due to limited volume: Outfall009_20200407_Comp (440-264182-1)

Method PrecSep-7: Strontium 90 Prep Batch 160-467509:

The following sample has a slight yellow discoloration: Outfall009_20200407_Comp (440-264182-1).

Method PrecSep-7: Strontium 90 Prep Batch 160-467509:

The strontium carrier recovery is outside the lower control limit (40%) for the following sample: Outfall009_20200407_Comp (440-264182-1). There was physical evidence of matrix interference apparent during the initial preparation of the sample (see NCM #160-194704). The QC samples associated with the batch have acceptable carrier recovery indicating the possibility of matrix interference.

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 Comp

Job ID: 440-264182-2

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.0913	U	0.730	0.730	3.00	1.46	pCi/L	04/20/20 09:40	04/24/20 07:54	1
Gross Beta	1.72		0.652	0.674	4.00	0.902	pCi/L	04/20/20 09:40	04/24/20 07:54	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-4.92	U	14.5	14.5	20.0	18.0	pCi/L	04/14/20 14:27	04/15/20 08:36	1
Potassium-40	-110	U	164	164		262	pCi/L	04/14/20 14:27	04/15/20 08:36	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.0516	U	0.0853	0.0855	1.00	0.150	pCi/L	04/12/20 15:55	05/04/20 04:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					04/12/20 15:55	05/04/20 04:28	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.446	U	0.316	0.318	1.00	0.490	pCi/L	04/12/20 16:21	04/28/20 07:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					04/12/20 16:21	04/28/20 07:12	1
Y Carrier	86.0		40 - 110					04/12/20 16:21	04/28/20 07:12	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.0975	U	0.774	0.774	3.00	1.35	pCi/L	04/13/20 07:49	04/24/20 13:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	26.0	X	40 - 110					04/13/20 07:49	04/24/20 13:13	1
Y Carrier	87.5		40 - 110					04/13/20 07:49	04/24/20 13:13	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	623		213	220	500	284	pCi/L	04/22/20 04:26	04/22/20 22:15	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.0541	U	0.1137	0.1137	1.00	0.154	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	88.9		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

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: 440-264182-2

Client Sample ID: Outfall009_20200407_Comp

Lab Sample ID: 440-264182-1

Date Collected: 04/07/20 09:10

Matrix: Water

Date Received: 04/07/20 14:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.04 mL	1.0 g	468140	04/20/20 09:40	RJD	TAL SL
Total/NA	Analysis	900.0		1			468726	04/24/20 07:54	KLS	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	467695	04/14/20 14:27	MMO	TAL SL
Total/NA	Analysis	901.1		1			467839	04/15/20 08:36	KLS	TAL SL
Total/NA	Prep	PrecSep-21			749.93 mL	1.0 g	467450	04/12/20 15:55	MNH	TAL SL
Total/NA	Analysis	903.0		1			469493	05/04/20 04:28	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			749.93 mL	1.0 g	467451	04/12/20 16:21	MNH	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	469050	04/28/20 07:12	KLS	TAL SL
Total/NA	Prep	PrecSep-7			1000.89 mL	1.0 g	467509	04/13/20 07:49	EJQ	TAL SL
Total/NA	Analysis	905		1			468938	04/24/20 13:13	KLS	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.6 mL	1.0 g	468476	04/22/20 04:26	NMN	TAL SL
Total/NA	Analysis	906.0		1			468623	04/22/20 22:15	JS	TAL SL
Total/NA	Prep	ExtChrom			499.05 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468767	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-468140/1-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468140

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.01284	U	0.563	0.563	3.00	1.12	pCi/L	04/20/20 09:40	04/24/20 07:53	1
Gross Beta	0.2624	U	0.495	0.496	4.00	0.845	pCi/L	04/20/20 09:40	04/24/20 07:53	1

Lab Sample ID: LCS 160-468140/2-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468140

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	46.44		6.96	3.00	1.59	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-468140/3-A
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468140

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	82.53		8.78	4.00	0.879	pCi/L	98	75 - 125

Lab Sample ID: 440-264451-B-4-B MS
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468140

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	-12.2	U G	861	558.7		103	3.00	50.9	pCi/L	65	60 - 140

Lab Sample ID: 440-264451-B-4-C MSBT
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468140

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	8.25	U G	1470	1234	G	133	4.00	16.7	pCi/L	83	60 - 140

Lab Sample ID: 440-264451-B-4-D DU
Matrix: Water
Analysis Batch: 468726

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468140

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	-12.2	U G	24.11	U G	30.7	3.00	50.8	pCi/L	0.68	1
Gross Beta	8.25	U G	22.34	G	11.8	4.00	16.8	pCi/L	0.67	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-467695/1-A
Matrix: Water
Analysis Batch: 467836

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467695

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	1.446	U	12.2	12.2	20.0	15.4	pCi/L	04/14/20 14:27	04/15/20 08:35	1
Potassium-40	-22.63	U	154	154		222	pCi/L	04/14/20 14:27	04/15/20 08:35	1

Lab Sample ID: LCS 160-467695/2-A
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium-241	136000	126100		14600		349	pCi/L	93	90 - 111
Cesium-137	43700	43790		4390	20.0	102	pCi/L	100	90 - 111
Cobalt-60	26300	25540		2530		54.0	pCi/L	97	89 - 110

Lab Sample ID: 440-264162-K-1-K DU
Matrix: Water
Analysis Batch: 467837

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 467695

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	0.162	U	3.072	U	8.42	20.0	10.2	pCi/L		0.16
Potassium-40	9.19	U	-143.8	U	141		220	pCi/L		0.70

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467450/22-A
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467450

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.005278	U	0.0628	0.0628	1.00	0.138	pCi/L	04/12/20 15:55	05/04/20 06:18	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.6		40 - 110	04/12/20 15:55	05/04/20 06:18	1

Lab Sample ID: LCS 160-467450/1-A
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Radium-226	15.1	14.75		1.59	1.00	0.148	pCi/L	97	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	75.2		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 440-264162-K-1-B MS
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual		Result	Qual							
Radium-226	0.130		15.1	13.75		1.49	1.00	0.135	pCi/L	90	75 - 138	
	<i>MS MS</i>											
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	79.5		40 - 110									

Lab Sample ID: 440-264162-K-1-C MSD
Matrix: Water
Analysis Batch: 469493

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467450

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	Limits	RER	Limit
	Result	Qual		Result	Qual									
Radium-226	0.130		15.1	14.79		1.59	1.00	0.204	pCi/L	97	75 - 138	0.34	1	
	<i>MSD MSD</i>													
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	79.2		40 - 110											

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-467451/22-A
Matrix: Water
Analysis Batch: 469048

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467451

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.1854	U	0.264	0.264	1.00	0.442	pCi/L	04/12/20 16:21	04/28/20 07:16	1
	<i>MB MB</i>									
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.6		40 - 110					04/12/20 16:21	04/28/20 07:16	1
Y Carrier	82.6		40 - 110					04/12/20 16:21	04/28/20 07:16	1

Lab Sample ID: LCS 160-467451/1-A
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
		Result	Qual							
Radium-228	11.9	13.25		1.58	1.00	0.656	pCi/L	112	75 - 125	
	<i>LCS LCS</i>									
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	75.2		40 - 110							
Y Carrier	83.4		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 440-264162-K-1-E MS
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual						
Radium-228	0.176	U	11.9	13.18		1.55	1.00	0.624	pCi/L	110	45 - 150
MS MS											
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	79.5		40 - 110								
Y Carrier	84.5		40 - 110								

Lab Sample ID: 440-264162-K-1-F MSD
Matrix: Water
Analysis Batch: 469050

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467451

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual		Result	Qual								
Radium-228	0.176	U	11.9	14.91		1.70	1.00	0.518	pCi/L	124	45 - 150	0.53	1
MSD MSD													
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	79.2		40 - 110										
Y Carrier	85.2		40 - 110										

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-467509/10-A
Matrix: Water
Analysis Batch: 468938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467509

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.1722	U	0.208	0.208	3.00	0.343	pCi/L	04/13/20 07:49	04/24/20 13:13	1
MB MB										
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Sr Carrier	87.2		40 - 110	04/13/20 07:49	04/24/20 13:13	1				
Y Carrier	91.2		40 - 110	04/13/20 07:49	04/24/20 13:13	1				

Lab Sample ID: LCS 160-467509/1-A
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467509

Analyte	Spike Added	LCS	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
		Result	Qual						
Strontium-90	7.88	7.758		0.844	3.00	0.340	pCi/L	98	75 - 125
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Sr Carrier	91.3		40 - 110						
Y Carrier	85.2		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-264162-K-1-H MS
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467509

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual						
Strontium-90	0.217	U	7.88	7.547		0.848	3.00	0.342	pCi/L	93	19 - 150
MS MS											
Carrier	%Yield	Qualifier	Limits								
Sr Carrier	76.5		40 - 110								
Y Carrier	90.8		40 - 110								

Lab Sample ID: 440-264162-K-1-I MSD
Matrix: Water
Analysis Batch: 468937

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467509

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual		Result	Qual								
Strontium-90	0.217	U	7.89	7.398		0.860	3.00	0.414	pCi/L	91	19 - 150	0.09	1
MSD MSD													
Carrier	%Yield	Qualifier	Limits										
Sr Carrier	70.3		40 - 110										
Y Carrier	90.8		40 - 110										

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-468476/1-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468476

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Tritium	62.16	U	161	161	500	277	pCi/L	04/22/20 04:26	04/22/20 13:34	1

Lab Sample ID: LCS 160-468476/2-A
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Lab Sample ID: 440-264162-K-1-T MSD
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual		Result	Qual								
Tritium	14.9	U	2460	2655		404	500	276	pCi/L	107	67 - 130	0.74	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-264162-L-1-B MS
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Tritium	14.9	U	2470	2096		353	500	277	pCi/L	84	67 - 130	

Lab Sample ID: 160-37864-A-1-B DU
Matrix: Water
Analysis Batch: 468623

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468476

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit	
Tritium	66.7	U	77.93	U	156	500	261	pCi/L	0.04		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
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							

Lab Sample ID: 440-263721-M-1-I MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Matrix Spike
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									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263721-M-1-J MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468046

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec.	RER	RER
	Result	Qual		Result	Qual						Limits		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	MSD	Limits										
Uranium-232	65.1	Qualifier	30 - 110										

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Rad

Prep Batch: 467450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	PrecSep-21	
MB 160-467450/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467450/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264162-K-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-264162-K-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 467451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	PrecSep_0	
MB 160-467451/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-467451/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264162-K-1-E MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-264162-K-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 467509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	PrecSep-7	
MB 160-467509/10-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-467509/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264162-K-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264162-K-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 467695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-467695/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-467695/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264162-K-1-K DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_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-M-1-I MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263721-M-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 468140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	Evaporation	
MB 160-468140/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-468140/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-468140/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264451-B-4-B MS	Matrix Spike	Total/NA	Water	Evaporation	
440-264451-B-4-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-264451-B-4-D DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 468476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264182-1	Outfall009_20200407_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-468476/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

Rad (Continued)

Prep Batch: 468476 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-468476/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264162-K-1-T MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
440-264162-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-37864-A-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264182-2

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	Carrier is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: 440-264182-2

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

CHAIN OF CUSTODY FORM

Test America

Client Name/Address:		Project:		ANALYSIS REQUIRED												Comments					
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Dentan Ave Suite #100 Irvine CA 92614 Tel. 949-280-3218		Boeing-SSFL NPDES Permit 2020 Routine Outfall 003-001, 009, 010 Outfall 009 Comp		Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E161B) Cr, SO ₄ , NO ₃ +NO ₂ -N (300) TDS (SM2540C/160 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) (E900 0), Sr-90 (E900 0), Total Combined Radium 226 (E900 0 or E900 1) & CS-137 (E901 0 or E901 1) Chronic Toxicity - Selenium (EPA-821-R-02-013) Cyanide (SM4500-CN-E / E335 2) Total Recoverable Mercury (E245 1) Total Dissolved Metals Mercury (E245 1) TSS (160 2 (SM2540D))																	
Sample Description	Sample ID	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) (E161B) Cr, SO ₄ , NO ₃ +NO ₂ -N (300) TDS (SM2540C/160 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) (E900 0), Sr-90 (E900 0), Total Combined Radium 226 (E900 0 or E900 1) & CS-137 (E901 0 or E901 1) Chronic Toxicity - Selenium (EPA-821-R-02-013) Cyanide (SM4500-CN-E / E335 2) Total Recoverable Mercury (E245 1) Total Dissolved Metals Mercury (E245 1) TSS (160 2 (SM2540D))												Comments
Outfall 009	Outfall009_20200407_Comp	4/7/2020	WM	500 mL Poly	2	HNO ₃	95	No	Total Recoverable Metals (E200 7) Ni, Zn (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E161B) Cr, SO ₄ , NO ₃ +NO ₂ -N (300) TDS (SM2540C/160 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) (E900 0), Sr-90 (E900 0), Total Combined Radium 226 (E900 0 or E900 1) & CS-137 (E901 0 or E901 1) Chronic Toxicity - Selenium (EPA-821-R-02-013) Cyanide (SM4500-CN-E / E335 2) Total Recoverable Mercury (E245 1) Total Dissolved Metals Mercury (E245 1) TSS (160 2 (SM2540D))												48 hours Holding Time NO ₃ & NO ₂
				500 mL Poly	2	None	110	No													
				500 mL Poly	1	None	145	No													
				500 mL Poly	1	NaOH	220	No													Unfiltered and unpreserved analysis. Separate RAD into another vial/box. Analyze duplicate, not MS/MSD
				2.5 gal Case	1	None	225	No													Unfiltered and unpreserved analysis. Separate RAD into another vial/box. Analyze duplicate, not MS/MSD
				1 L Glass Amber	1	None	230	No													Unfiltered and unpreserved analysis. Separate RAD into another vial/box. Analyze duplicate, not MS/MSD
				1 Gallon Case	1	None	235	No													Unfiltered and unpreserved analysis. Separate RAD into another vial/box. Analyze duplicate, not MS/MSD
				1 L Poly	1	None	165	No													Filter and preserve with 24hrs of receipt at lab
				1 L Poly	1	None	205	No													Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
				borosilicate vial	1	None	320	No													Hold
				1 L Glass Amber	2	None	110	No													Hold
				500 mL Poly	2	None	145	No													Hold

Requisitioned By	Company	Date/Time	Received By	Date/Time
William Rivera	HiA	4/7/2020 1430	William Rivera	4/7/20 1114
Requisitioned By	Company	Date/Time	Received By	Date/Time
William Rivera	EC-IRU	4/7/20 1430	William Rivera	4/7/20 1114

Requisitioned By	Company	Date/Time	Received By	Date/Time
William Rivera	EC-IRU	4/7/20 1430	William Rivera	4/7/20 1114

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QS=Quarterly Receiving Water, S=Semi-Annual

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

Sample integrity (Check): Intact, On Ice

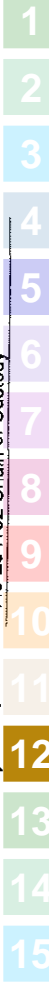
Store samples for 6 months: Data Requirements (Check): No Level IV, All Level IV, X



440-264182 Chain of Custody

16/1.6 0.8/0.8

IR-89



Chain of Custody Record



Calscience



Client Information (Sub Contract Lab)		Lab PM: Bondoc, Christian M	Carrier Tracking No(s): 440-154819.1
Client Contact: Shipping/Receiving		E-Mail: christian.bondoc@testamericainc.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California	Job #: 440-264182-1
Address: 13715 Rider Trail North,		Preservation Codes:	
City: Earth City	State: MO, Zip: 63045	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	Email:	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Project #: 44009879	SSOW#:	Analysis Requested	
Boeing NPDES SSFL outfalls		Total Number of containers: 2	
Site:		Boeing SSFL: DO NOT FILTER, use prep date from preservation	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:	
Outfall009_20200407_Comp (440-264182-1)	Sample Date: 4/7/20	901.1 Cs/Fill_Geo_0 K-40 and Cesium-137	
	Sample Time: 09:10 Pacific	A01R_U/EvChrom_Actin Total Uranium	
		900.0/Evaporation Gross Alpha/Beta	
		903.0/PrecSep_21 Radium-226	
		904.0/PrecSep_0 Radium-228	
		905.5/90/PrecSep_7 Strontium-90	
		906.0/LSC_Dist_Susp Tritium	
		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>	
		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>	
		Matrix (W=Water, S=Solid, O=Wastolol, BT=Tissue, A=Air)	
		Sample Type (C=Comp, G=grab) BT=Tissue, A=Air	
		Preservation Code: Water	

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/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
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: A. Kennedy	4/8/20	1700	Company: EC-IRV
Relinquished by: FED EX	Date/Time: 4/9/2020	09:20	Company: ETA SC
Relinquished by:	Date/Time:		Company:

Custody Seals Intact: Yes No Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks:



CONDITION UPON RECEIPT FORM

Client: ETA Irvine

Initiated by: LAM Date: 4/9/2020 Time: 09:20 Shipper: FedEx Package Quantity: 5

**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 7227 (2 of 3)	192688461	1.7	
2.	1540 4107 7210 (1 of 3)		-1.4	
3.	1540 4107 7232 (3 of 3)		1.2	
4.	1540 4107 7243 (1 of 2)		-0.1	
5.	1540 4107 7254 (2 of 2)		-1.3	
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> N	Are there custody seals present on the cooler?	8.	<input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	Y <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>HC904495</u>
4.	<input checked="" type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> N	Sample received in proper containers?
6.	Y <input checked="" type="radio"/> N	Was sample received broken?	13.	Y N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y N <input checked="" type="radio"/> 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:

Subcontainer should have been preserved

pH Adjustment (if needed)

Date/Time of Preservation: 4/10/2020 19:00

Initial pH and pH strip lot#: HC904495

Preservative and lot#: HND3 | 244827

Final pH and pH strip lot#: HC904495

Amount of Preservative: 6mL

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: 440-264182-2

Login Number: 264182

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264182-2

Login Number: 264182

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/10/20 08:22 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?	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	The cubitainer was received improperly preserved.
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 009 Comp

Job ID: 440-264182-2

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)	
440-264162-K-1-B MS	Matrix Spike	79.5	
440-264162-K-1-C MSD	Matrix Spike Duplicate	79.2	
440-264182-1	Outfall009_20200407_Comp	85.3	
LCS 160-467450/1-A	Lab Control Sample	75.2	
MB 160-467450/22-A	Method Blank	93.6	
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)
440-264162-K-1-E MS	Matrix Spike	79.5	84.5
440-264162-K-1-F MSD	Matrix Spike Duplicate	79.2	85.2
440-264182-1	Outfall009_20200407_Comp	85.3	86.0
LCS 160-467451/1-A	Lab Control Sample	75.2	83.4
MB 160-467451/22-A	Method Blank	93.6	82.6
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)
440-264162-K-1-H MS	Matrix Spike	76.5	90.8
440-264162-K-1-I MSD	Matrix Spike Duplicate	70.3	90.8
440-264182-1	Outfall009_20200407_Comp	26.0 X	87.5
LCS 160-467509/1-A	Lab Control Sample	91.3	85.2
MB 160-467509/10-A	Method Blank	87.2	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	uranium-235 (30-110)	
440-263721-M-1-I MS	Matrix Spike	65.3	
440-263721-M-1-J MSD	Matrix Spike Duplicate	65.1	
440-264182-1	Outfall009_20200407_Comp	88.9	
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 009 Comp

Job ID: 440-264182-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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440-264182 Field Sheet

Job: _____

Tracking #: 1540 410 77405

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: <u>AK-5</u> Corr. Factor: <u>0 / -</u> <u>0.4</u> °C
	Ice <input checked="" type="checkbox"/> Wet <input checked="" type="checkbox"/> Gel _____ Other _____
	Cooler Custody Seal: <u>Seal</u>
	Cooler ID: <u>-</u>
	Temp Observed: <u>2.6</u> °C Corrected: <u>3.0</u> °C From: Temp Blank <input type="checkbox"/> Sample <input type="checkbox"/>
	Opening/Processing The Shipment
	Cooler compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
	Cooler Temperature is acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
	Samples received within holding time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
	Initials: <u>[Signature]</u> Date: <u>9 April 20</u>
	Unpacking/Labeling The Samples
	CoC is complete w/o discrepancies? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
	Samples compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
	Sample containers have legible labels? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
	Sample custody seal? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
Containers are not broken or leaking? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Sample date/times are provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Appropriate containers are used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Sample bottles are completely filled? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Sample preservatives verified? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Samples w/o discrepancies? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Zero headspace?* <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Alkalinity has no headspace? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Perchlorate has headspace? (Methods 314, 331, 6850) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Multiphasic samples are not present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Non-conformance	
NCM Filed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Initials: <u>DH</u> Date: <u>4/9/20</u>	

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

ANALYTICAL REPORT

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

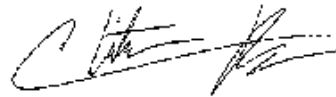
Laboratory Job ID: 440-264550-1

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:
4/21/2020 2:06:29 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.

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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 2:06:29 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264550-1	Outfall009_20200413_Grab	Water	04/13/20 09:15	04/13/20 11:28	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

Job ID: 440-264550-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative
440-264550-1

Comments

No additional comments.

Receipt

The samples were received on 4/13/2020 11:28 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

Organic Prep

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

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

Client Sample ID: Outfall009_20200413_Grab

Lab Sample ID: 440-264550-1

Date Collected: 04/13/20 09:15

Matrix: Water

Date Received: 04/13/20 11:28

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		04/21/20 05:03	04/21/20 09:49	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

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: 440-264550-1

Client Sample ID: Outfall009_20200413_Grab

Lab Sample ID: 440-264550-1

Date Collected: 04/13/20 09:15

Matrix: Water

Date Received: 04/13/20 11:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			960 mL	1000 mL	605772	04/21/20 05:03	L1A	TAL IRV
Total/NA	Analysis	1664A		1			605848	04/21/20 09:49	L1A	TAL IRV

Laboratory References:

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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605772/1-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/21/20 05:03	04/21/20 09:49	1

Lab Sample ID: LCS 440-605772/2-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	32.2		mg/L		81	78 - 114

Lab Sample ID: LCSD 440-605772/3-A
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	34.7		mg/L		87	78 - 114	7	11

Lab Sample ID: 440-264905-A-1-A MS
Matrix: Water
Analysis Batch: 605848

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605772

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	ND		40.8	39.7		mg/L		97	78 - 114

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

General Chemistry

Prep Batch: 605772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264550-1	Outfall009_20200413_Grab	Total/NA	Water	1664A	
MB 440-605772/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605772/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605772/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
440-264905-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	

Analysis Batch: 605848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264550-1	Outfall009_20200413_Grab	Total/NA	Water	1664A	605772
MB 440-605772/1-A	Method Blank	Total/NA	Water	1664A	605772
LCS 440-605772/2-A	Lab Control Sample	Total/NA	Water	1664A	605772
LCSD 440-605772/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605772
440-264905-A-1-A MS	Matrix Spike	Total/NA	Water	1664A	605772

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Grab

Job ID: 440-264550-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 Grab

Job ID: 440-264550-1

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

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CHAIN OF CUSTODY FORM

TRACE FT9B

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 Grab		Field Readings (Include units) Time of Readings: 0910 pH 7.79 Temp 54.20F		Meter serial #					
Eurofins Calscience Irvine Contact: Christian Bordoc 17461 Derran Ave Suite #100 Irvine, CA 92614 Tel: 949-280-3218		Project Manager: Katherine Miller 520.289.8606, 520.804.6944 (cell)		Field readings QC Checked by: [Signature] Date/Time: 4-13-2020 910							
Sampler: Dan Smith		Field Manager: Mark Dominick 978 234 5033, 918 598 0702 (cell)									
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Oil & Grease (E1694-HEM)	Hold	Comments
Outfall 009	Outfall009_20200413_Grab	4/13/2020 10:15	WM	1 L Glass Amber	2	HCl	15	No	X		
Outfall 009	Outfall009_20200413_Grab_Extra	4/13/2020 10:20	WM	1 L Glass Amber	2	HCl	15	No	H		



Legend: R=Routine

Relinquished By: [Signature]	Date/Time: 4-13-2020/0950 H:A	Company: [Signature]	Received By: Remy	Date/Time: 4-13-2020/0950	Company: [Signature]
Relinquished By: Remy	Date/Time: 4-13-2020/1128	Company: [Signature]	Received By: [Signature]	Date/Time: EC 112V 4/13/20	Company: [Signature]

1289 1.7/1.7



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264550-1

Login Number: 264550

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: 440-264634-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

29 May 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: 440-264634-1

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
OUTFALL009_20200414_COMP	440-264634-1	N/A	WM	4/14/20 9:45 AM	E1613B, E200.7, E200.8	II
OUTFALL009_20200414_COMP_F	440-264634-2	N/a	WM	4/14/20 9:45 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) 440-264634-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact and properly preserved, as applicable, with the following exception. Sample OUTFALL009_20200414_COMP was received for metals analysis unpreserved. The sample was preserved upon receipt at the laboratory.
- Field and/or laboratory personnel signed and dated the original and transfer COCs.
- The sample was transferred from TA-Irvine to TA-Sacramento for analysis of Method 1613B.
- According to the Login Sample Receipt Checklist, custody seals were present on the coolers upon receipt at TA-Irvine and TA-Sacramento.



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

L. Calvin of MEC^x reviewed the SDG on June 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 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,7,8-TCDF, OCDD and OCDF, and for all totals except PeCDF and TCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. Totals PeCDD and HxCDD in the sample matched the concentration or sum of concentrations of the qualified isomers and were also qualified as nondetects (U). The sample totals for HpCDD, HpCDF and HxCDF 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 at a Stage II validation.



III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. Second-column confirmation analysis for isomer 2,3,7,8-TCDF was not necessary, 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 at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Totals PeCDF and TCDD in the sample matched the concentration or sum of concentrations of the qualified isomers and were also qualified as estimated nondetects (UJ). Totals HpCDD, HpCDF and HxCDF flagged by the laboratory as including one or more EMPC peaks were qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^X reviewed the SDG on May 29, 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_20200414_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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 with the exception of total antimony (CCB: 0.775 $\mu\text{g/L}$). The associated sample result was a detect 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 $\pm 2 \times$ the reporting limit, whichever is greater. Interferents in site samples were not summarized; therefore, interference was not 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 not performed on a sample (total or dissolved) in this SDG for Method 200.7, or for total metals by Method 200.8. MS/MSD analyses were performed on the sample in this SDG for dissolved metals by Method 200.8. Recoveries were within the QAPP control limits of 70-130% and RPDs were $\leq 20\%$.

IV.3.6. **SERIAL DILUTION**

Serial dilution analyses were not performed.

IV.4. **INTERNAL STANDARDS PERFORMANCE**

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. **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.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:

IV.6.1. **FIELD BLANKS AND EQUIPMENT BLANKS**

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

IV.6.2. **FIELD DUPLICATES**

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402646341

Analysis Method E1613B

Sample Name OUTFALL009_20200414_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/14/2020 9:45:00 AM **Validation Level:** 9

Lab Sample Name: 440-264634-1

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	0.0000024	0.00011	0.00000042	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	0.00000048	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000015	0.000055	0.00000031	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000017	0.000055	0.00000039	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.00000074	0.000055	0.00000033	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.00000080	0.000055	0.00000049	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000024	0.000055	0.00000044	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.00000069	0.000055	0.00000053	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	ND	0.000055	0.00000043	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.00000074	0.000055	0.00000029	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.00000086	0.000055	0.00000039	ug/L	J,DXMBq	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.00000076	0.000055	0.00000033	ug/L	J,DXq	UJ	*III
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.00000087	0.000055	0.00000037	ug/L	J,DXMB	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.00000037	0.000055	0.00000032	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000064	0.000055	0.00000036	ug/L	J,DXq	UJ	*III
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000011	0.00000025	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	0.0000010	0.000011	0.00000037	ug/L	J,DXq	UJ	*III
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000030	0.000055	0.00000031	ug/L	J,DXMBq	J	B, DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000036	0.000055	0.00000039	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000026	0.000055	0.00000029	ug/L	J,DXMBq	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000032	0.000055	0.00000039	ug/L	J,DXMBq	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000014	0.000055	0.00000033	ug/L	J,DXq	UJ	*III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.00000087	0.000055	0.00000037	ug/L	J,DXMB	U	B
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	ND	0.000011	0.00000025	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.0000010	0.000011	0.00000037	ug/L	J,DXq	UJ	*III

Analysis Method E200.7

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	T	7440-02-0	ND	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL009_20200414_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	D	7440-02-0	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 OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	1.2	2.0	0.50	ug/L	J,DX	U	B
Cadmium	T	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	3.8	2.0	0.50	ug/L			
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 OUTFALL009_20200414_COMP_F Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	1.4	2.0	0.50	ug/L	J,DX	J	DNQ
Cadmium	D	7440-43-9	ND	1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	3.9	2.0	0.50	ug/L			
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	ND	2.0	0.50	ug/L	U	U	
Silver	D	7440-22-4	ND	1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0	ND	1.0	0.20	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: 440-264634-1

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:
4/23/2020 1:15:14 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.

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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
4/23/2020 1:15:14 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264634-1	Outfall009_20200414_Comp	Water	04/14/20 09:45	04/14/20 13:55	
440-264634-2	Outfall009_20200414_Comp_F	Water	04/14/20 09:45	04/14/20 13:55	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Job ID: 440-264634-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264634-1

Comments

No additional comments.

Receipt

The samples were received on 4/14/2020 1:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 1.0° C, 1.3° C, 1.6° C and 2.1° 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_20200414_Comp (440-264634-1), (CCV 320-373674/2), (LCS 320-372899/2-A) and (MB 320-372899/1-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: Outfall009_20200414_Comp_F (440-264634-2). This sample was filtered and preserved upon receipt to the laboratory.

04/14/20

2.5mL of HNO3

HNO3 Lot # 0000234822

Method 200.8: Due to the high concentration of Silver, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 440-605115 and analytical batch 440-605225 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 200.7 Rev 4.4: The method blank for preparation batch 440-605121 and analytical batch 440-605236 contained Zinc 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 245.1: The matrix spike (MS) sample was mistakenly double spiked by the prep analyst. (440-264634-A-2-A MS)

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.

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_20200414_Comp (440-264634-1) were received in a wide-mouth amber glass bottle.

Prep Batch: 372899

Method: 1613 (Waste Water)

Matrix: Water

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 Comp

Job ID: 440-264634-1

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.0		0.50	0.25	mg/L			04/14/20 15:32	1
Nitrate as N	ND		0.11	0.055	mg/L			04/14/20 15:32	1
Nitrite as N	ND		0.15	0.025	mg/L			04/14/20 15:32	1
Sulfate	6.5		0.50	0.25	mg/L			04/14/20 15:32	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			04/15/20 14:58	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.0000010	J,DX q	0.000011	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
2,3,7,8-TCDF	ND		0.000011	0.0000002	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,7,8-PeCDD	0.00000087	J,DX MB	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,7,8-PeCDF	0.00000076	J,DX q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
2,3,4,7,8-PeCDF	0.00000064	J,DX q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,4,7,8-HxCDD	0.00000024	J,DX MB	0.000055	0.0000004	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,6,7,8-HxCDD	ND		0.000055	0.0000004	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,7,8,9-HxCDD	0.00000086	J,DX MB q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,4,7,8-HxCDF	0.00000080	J,DX	0.000055	0.0000004	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,6,7,8-HxCDF	0.00000069	J,DX	0.000055	0.0000005	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,7,8,9-HxCDF	0.00000074	J,DX MB	0.000055	0.0000002	ug/L		04/16/20 12:05	04/20/20 19:43	1
2,3,4,6,7,8-HxCDF	0.00000037	J,DX q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,4,6,7,8-HpCDD	0.00000017	J,DX MB	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,4,6,7,8-HpCDF	0.00000015	J,DX MB	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
1,2,3,4,7,8,9-HpCDF	0.00000074	J,DX q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
OCDD	0.0000012	J,DX MB	0.00011	0.0000004	ug/L		04/16/20 12:05	04/20/20 19:43	1
OCDF	0.00000024	J,DX MB	0.00011	0.0000004	ug/L		04/16/20 12:05	04/20/20 19:43	1
Total TCDD	0.0000010	J,DX q	0.000011	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
Total TCDF	ND		0.000011	0.0000002	ug/L		04/16/20 12:05	04/20/20 19:43	1
Total PeCDD	0.00000087	J,DX MB	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
Total PeCDF	0.00000014	J,DX q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
Total HxCDD	0.00000032	J,DX MB q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDF	0.0000026	J,DX MB q	0.000055	0.0000002	ug/L		04/16/20 12:05	04/20/20 19:43	1
				9					
Total HpCDD	0.0000036	J,DX MB q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
				9					
Total HpCDF	0.0000030	J,DX MB q	0.000055	0.0000003	ug/L		04/16/20 12:05	04/20/20 19:43	1
				1					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	78		25 - 164				04/16/20 12:05	04/20/20 19:43	1
13C-2,3,7,8-TCDF	75		24 - 169				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,7,8-PeCDD	69		25 - 181				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,7,8-PeCDF	69		24 - 185				04/16/20 12:05	04/20/20 19:43	1
13C-2,3,4,7,8-PeCDF	70		21 - 178				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,4,7,8-HxCDD	69		32 - 141				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,4,7,8-HxCDF	74		26 - 152				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,6,7,8-HxCDF	72		26 - 123				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147				04/16/20 12:05	04/20/20 19:43	1
13C-2,3,4,6,7,8-HxCDF	74		28 - 136				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,4,6,7,8-HpCDD	88		23 - 140				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,4,6,7,8-HpCDF	82		28 - 143				04/16/20 12:05	04/20/20 19:43	1
13C-1,2,3,4,7,8,9-HpCDF	98		26 - 138				04/16/20 12:05	04/20/20 19:43	1
13C-OCDD	87		17 - 157				04/16/20 12:05	04/20/20 19:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197				04/16/20 12:05	04/20/20 19:43	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		04/15/20 09:51	04/15/20 17:09	1
Zinc	ND		20	12	ug/L		04/15/20 09:51	04/15/20 17:09	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		04/15/20 09:38	04/15/20 16:47	1
Cadmium	ND		1.0	0.25	ug/L		04/15/20 09:38	04/15/20 16:47	1
Copper	3.8		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:47	1
Lead	ND		1.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:47	1
Antimony	1.2	J,DX	2.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:47	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 16:47	1
Thallium	ND		1.0	0.20	ug/L		04/15/20 09:38	04/15/20 22:21	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		04/14/20 15:17	04/15/20 12:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	120		10	5.0	mg/L			04/21/20 09:35	1
Total Suspended Solids	ND		1.0	0.50	mg/L			04/21/20 13:42	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Client Sample ID: Outfall009_20200414_Comp_F

Lab Sample ID: 440-264634-2

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

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		04/15/20 10:36	04/15/20 18:03	1
Zinc	ND		20	12	ug/L		04/15/20 10:36	04/15/20 18:03	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		04/15/20 10:30	04/16/20 10:44	1
Cadmium	ND		1.0	0.25	ug/L		04/15/20 10:30	04/16/20 10:44	1
Copper	3.9		2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:44	1
Lead	ND		1.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:44	1
Antimony	1.4	J,DX	2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:44	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:44	1
Thallium	ND		1.0	0.20	ug/L		04/15/20 10:30	04/16/20 10:44	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		04/17/20 11:03	04/20/20 12:51	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

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
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:

- 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: 440-264634-1

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

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			604917	04/14/20 15:32	NTN	TAL IRV
Total/NA	Analysis	300.0		1			604918	04/14/20 15:32	NTN	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			605189	04/15/20 14:58	TLN	TAL IRV
Total/NA	Prep	1613B			911.7 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B		1			373674	04/20/20 19:43	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	605121	04/15/20 09:51	EP	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605236	04/15/20 17:09	P1R	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605115	04/15/20 09:38	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			605225	04/15/20 16:47	MQP	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	605115	04/15/20 09:38	EP	TAL IRV
Total Recoverable	Analysis	200.8		1			605293	04/15/20 22:21	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	605002	04/14/20 15:17	MEM	TAL IRV
Total/NA	Analysis	245.1		1			605167	04/15/20 12:28	MEM	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605842	04/21/20 09:35	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	605914	04/21/20 13:42	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	605119	04/15/20 09:51	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			605374	04/16/20 13:39	KMY	TAL IRV

Client Sample ID: Outfall009_20200414_Comp_F

Lab Sample ID: 440-264634-2

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

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	605017	04/14/20 17:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605131	04/15/20 10:36	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			605236	04/15/20 18:03	P1R	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	605017	04/14/20 17:29	M1G	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	605128	04/15/20 10:30	M1G	TAL IRV
Dissolved	Analysis	200.8		1			605351	04/16/20 10:44	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	605016	04/14/20 17:27	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	605496	04/17/20 11:03	MEM	TAL IRV
Dissolved	Analysis	245.1		1			605723	04/20/20 12:51	EMS	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604917/6
Matrix: Water
Analysis Batch: 604917

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			04/14/20 13:03	1
Nitrite as N	ND		0.15	0.025	mg/L			04/14/20 13:03	1

Lab Sample ID: LCS 440-604917/5
Matrix: Water
Analysis Batch: 604917

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	1.09		mg/L		96	90 - 110
Nitrite as N	1.52	1.47		mg/L		96	90 - 110

Lab Sample ID: 440-264634-1 MS
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Outfall009_20200414_Comp
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	1.09		mg/L		96	80 - 120
Nitrite as N	ND		1.52	1.46		mg/L		96	80 - 120

Lab Sample ID: 440-264634-1 MSD
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Outfall009_20200414_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	ND		1.13	1.08		mg/L		95	80 - 120	1	20
Nitrite as N	ND		1.52	1.43		mg/L		94	80 - 120	2	20

Lab Sample ID: MB 440-604918/6
Matrix: Water
Analysis Batch: 604918

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			04/14/20 13:03	1
Sulfate	ND		0.50	0.25	mg/L			04/14/20 13:03	1

Lab Sample ID: LCS 440-604918/5
Matrix: Water
Analysis Batch: 604918

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	4.62		mg/L		92	90 - 110
Sulfate	5.00	4.90		mg/L		98	90 - 110

Lab Sample ID: 440-264634-1 MS
Matrix: Water
Analysis Batch: 604918

Client Sample ID: Outfall009_20200414_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.0		5.00	10.1		mg/L		103	80 - 120
Sulfate	6.5		5.00	11.6		mg/L		103	80 - 120

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 440-264634-1 MSD
Matrix: Water
Analysis Batch: 604918

Client Sample ID: Outfall009_20200414_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	5.0		5.00	9.98		mg/L		100	80 - 120	1	20
Sulfate	6.5		5.00	11.5		mg/L		100	80 - 120	1	20

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDD	0.00000189	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDD	0.000000710	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDD	0.00000730	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDF	0.00000720	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000006	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDD	0.0000663	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDF	0.0000257	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDF	0.000000636	J,DX	0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDD	0.00000260	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	0.0000130	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
				6					
Total HpCDF	0.0000152	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
				1					

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,7,8-TCDF	72		24 - 169	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,7,8-PeCDF	72		21 - 178	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDD	70		28 - 130	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDD	72		23 - 140	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8,9-HpCDF	79		26 - 138	04/16/20 12:05	04/20/20 16:41	1
13C-OCDD	73		17 - 157	04/16/20 12:05	04/20/20 16:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	86		35 - 197	04/16/20 12:05	04/20/20 16:41	1

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	0.000200	0.000199		ug/L		99	67 - 158
2,3,7,8-TCDF	0.000200	0.000207	MB	ug/L		104	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00105	MB	ug/L		105	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00106		ug/L		106	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000992		ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000959	MB	ug/L		96	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00107		ug/L		107	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000915		ug/L		91	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00101		ug/L		101	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00103	MB	ug/L		103	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	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	0.000964		ug/L		96	78 - 138
OCDD	0.00200	0.00199	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00217	MB	ug/L		108	63 - 170

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	60		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	63		25 - 163
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	68		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	67		13 - 199
Surrogate	LCS LCS		Limits
37Cl4-2,3,7,8-TCDD	84		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD - RA	ND		0.000010	0.0000011	ug/L		04/16/20 12:05	04/21/20 13:45	1
2,3,7,8-TCDF - RA	ND		0.000010	0.0000007	ug/L		04/16/20 12:05	04/21/20 13:45	1
				6					
Isotope Dilution	MB MB		Limits			Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDF - RA	67		24 - 169			04/16/20 12:05	04/21/20 13:45	1	
Surrogate	MB MB		Limits			Prepared	Analyzed	Dil Fac	
37Cl4-2,3,7,8-TCDD - RA	85		35 - 197			04/16/20 12:05	04/21/20 13:45	1	

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-605121/1-A
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nickel	ND		10	5.0	ug/L		04/15/20 09:51	04/15/20 16:00	1
Zinc	12.0	J,DX	20	12	ug/L		04/15/20 09:51	04/15/20 16:00	1

Lab Sample ID: LCS 440-605121/2-A
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	
Nickel	500	491		ug/L		98	85 - 115	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-605121/2-A
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	500	492		ug/L		98	85 - 115

Lab Sample ID: 440-264642-E-1-B MS
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	6.8	J,DX	500	497		ug/L		98	70 - 130
Zinc	140	MB	500	655		ug/L		102	70 - 130

Lab Sample ID: 440-264642-E-1-C MSD
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605121

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nickel	6.8	J,DX	500	490		ug/L		97	70 - 130	1	20
Zinc	140	MB	500	640		ug/L		99	70 - 130	2	20

Lab Sample ID: MB 440-605017/1-C
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		04/15/20 10:36	04/15/20 17:50	1
Zinc	ND		20	12	ug/L		04/15/20 10:36	04/15/20 17:50	1

Lab Sample ID: LCS 440-605017/2-C
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	494		ug/L		99	85 - 115
Zinc	500	490		ug/L		98	85 - 115

Lab Sample ID: 440-264636-B-3-C MS
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	484		ug/L		97	70 - 130
Zinc	ND		500	491		ug/L		98	70 - 130

Lab Sample ID: 440-264636-B-3-D MSD
Matrix: Water
Analysis Batch: 605236

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 605131

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nickel	ND		500	493		ug/L		99	70 - 130	2	20
Zinc	ND		500	503		ug/L		101	70 - 130	2	20

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-605115/1-A
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Cadmium	ND		1.0	0.25	ug/L		04/15/20 09:38	04/15/20 15:49	1
Copper	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Lead	ND		1.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Antimony	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 09:38	04/15/20 15:49	1

Lab Sample ID: MB 440-605115/1-A
Matrix: Water
Analysis Batch: 605293

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.0	0.20	ug/L		04/15/20 09:38	04/15/20 22:11	1

Lab Sample ID: LCS 440-605115/2-A
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	82.0		ug/L		102	85 - 115
Cadmium	80.0	74.5		ug/L		93	85 - 115
Copper	80.0	79.4		ug/L		99	85 - 115
Lead	80.0	75.2		ug/L		94	85 - 115
Antimony	80.0	77.3		ug/L		97	85 - 115
Selenium	80.0	77.9		ug/L		97	85 - 115

Lab Sample ID: LCS 440-605115/2-A
Matrix: Water
Analysis Batch: 605293

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thallium	80.0	72.7		ug/L		91	85 - 115

Lab Sample ID: 440-264639-A-11-B MS
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	72.6		ug/L		91	70 - 130
Copper	460		80.0	488	BB	ug/L		37	70 - 130
Lead	ND		80.0	75.5		ug/L		94	70 - 130
Antimony	0.73	J,DX	80.0	77.7		ug/L		96	70 - 130
Selenium	ND		80.0	74.7		ug/L		93	70 - 130

Lab Sample ID: 440-264639-A-11-B MS
Matrix: Water
Analysis Batch: 605293

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thallium	ND		80.0	72.7		ug/L		91	70 - 130

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: 440-264639-A-11-C MSD
Matrix: Water
Analysis Batch: 605225

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Cadmium	ND		80.0	73.3		ug/L		92	70 - 130	1	20
Copper	460		80.0	519	BB	ug/L		75	70 - 130	6	20
Lead	ND		80.0	77.1		ug/L		96	70 - 130	2	20
Antimony	0.73	J,DX	80.0	79.7		ug/L		99	70 - 130	3	20
Selenium	ND		80.0	77.6		ug/L		97	70 - 130	4	20

Lab Sample ID: 440-264639-A-11-C MSD
Matrix: Water
Analysis Batch: 605293

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 605115

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Thallium	ND		80.0	74.1		ug/L		93	70 - 130	2	20

Lab Sample ID: MB 440-605017/1-B
Matrix: Water
Analysis Batch: 605351

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605128

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silver	ND		1.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:40	1
Cadmium	ND		1.0	0.25	ug/L		04/15/20 10:30	04/16/20 10:40	1
Copper	ND		2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:40	1
Lead	ND		1.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:40	1
Antimony	ND		2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:40	1
Selenium	ND		2.0	0.50	ug/L		04/15/20 10:30	04/16/20 10:40	1
Thallium	ND		1.0	0.20	ug/L		04/15/20 10:30	04/16/20 10:40	1

Lab Sample ID: LCS 440-605017/2-B
Matrix: Water
Analysis Batch: 605351

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605128

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Silver	80.0	79.5		ug/L		99	85 - 115	
Cadmium	80.0	79.3		ug/L		99	85 - 115	
Copper	80.0	80.7		ug/L		101	85 - 115	
Lead	80.0	79.8		ug/L		100	85 - 115	
Antimony	80.0	82.2		ug/L		103	85 - 115	
Selenium	80.0	78.7		ug/L		98	85 - 115	
Thallium	80.0	79.7		ug/L		100	85 - 115	

Lab Sample ID: 440-264634-2 MS
Matrix: Water
Analysis Batch: 605351

Client Sample ID: Outfall009_20200414_Comp_F
Prep Type: Dissolved
Prep Batch: 605128

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Silver	ND		80.0	82.8		ug/L		104	70 - 130	
Cadmium	ND		80.0	82.5		ug/L		103	70 - 130	
Copper	3.9		80.0	88.6		ug/L		106	70 - 130	
Lead	ND		80.0	83.2		ug/L		104	70 - 130	
Antimony	1.4	J,DX	80.0	87.5		ug/L		108	70 - 130	

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-264634-2 MS
Matrix: Water
Analysis Batch: 605351

Client Sample ID: Outfall009_20200414_Comp_F
Prep Type: Dissolved
Prep Batch: 605128

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND		80.0	77.4		ug/L		97	70 - 130
Thallium	ND		80.0	82.9		ug/L		104	70 - 130

Lab Sample ID: 440-264634-2 MSD
Matrix: Water
Analysis Batch: 605351

Client Sample ID: Outfall009_20200414_Comp_F
Prep Type: Dissolved
Prep Batch: 605128

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		80.0	79.7		ug/L		100	70 - 130	4	20
Cadmium	ND		80.0	79.8		ug/L		100	70 - 130	3	20
Copper	3.9		80.0	85.4		ug/L		102	70 - 130	4	20
Lead	ND		80.0	80.5		ug/L		101	70 - 130	3	20
Antimony	1.4	J,DX	80.0	84.2		ug/L		103	70 - 130	4	20
Selenium	ND		80.0	76.6		ug/L		96	70 - 130	1	20
Thallium	ND		80.0	80.6		ug/L		101	70 - 130	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-605002/1-A
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/14/20 15:17	04/15/20 12:13	1

Lab Sample ID: LCS 440-605002/2-A
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.64		ug/L		91	85 - 115

Lab Sample ID: 320-60074-C-1-D MS
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.75		ug/L		94	75 - 125

Lab Sample ID: 320-60074-C-1-E MSD
Matrix: Water
Analysis Batch: 605167

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605002

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	4.03		ug/L		101	75 - 125	7	20

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: MB 440-605016/1-C
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 605496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/17/20 11:03	04/20/20 12:35	1

Lab Sample ID: LCS 440-605016/2-C
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 605496

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: 440-264636-A-3-D MS
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 605496

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	4.01		ug/L		100	75 - 125

Lab Sample ID: 440-264636-A-3-E MSD
Matrix: Water
Analysis Batch: 605723

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 605496

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	ND		4.00	3.97		ug/L		99	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605842/1
Matrix: Water
Analysis Batch: 605842

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			04/21/20 09:35	1

Lab Sample ID: LCS 440-605842/2
Matrix: Water
Analysis Batch: 605842

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	984		mg/L		98	90 - 110

Lab Sample ID: 440-264865-H-1 DU
Matrix: Water
Analysis Batch: 605842

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	790		772		mg/L		2	5

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-605914/1
Matrix: Water
Analysis Batch: 605914

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			04/21/20 13:42	1

Lab Sample ID: LCS 440-605914/2
Matrix: Water
Analysis Batch: 605914

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: 440-264709-B-4 DU
Matrix: Water
Analysis Batch: 605914

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	18		17.2		mg/L		7	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-605119/1-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1

Lab Sample ID: LCS 440-605119/2-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

Lab Sample ID: 440-264517-F-1-B MS
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 605119

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	69.3	LN	ug/L		69	75 - 125

Lab Sample ID: 440-264517-F-1-C MSD
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 605119

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	68.5	LN	ug/L		69	75 - 125	1	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

HPLC/IC

Analysis Batch: 604917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	300.0	
MB 440-604917/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604917/5	Lab Control Sample	Total/NA	Water	300.0	
440-264634-1 MS	Outfall009_20200414_Comp	Total/NA	Water	300.0	
440-264634-1 MSD	Outfall009_20200414_Comp	Total/NA	Water	300.0	

Analysis Batch: 604918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	300.0	
MB 440-604918/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604918/5	Lab Control Sample	Total/NA	Water	300.0	
440-264634-1 MS	Outfall009_20200414_Comp	Total/NA	Water	300.0	
440-264634-1 MSD	Outfall009_20200414_Comp	Total/NA	Water	300.0	

Analysis Batch: 605189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 372899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	1613B	
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 373674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	372899
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	372899

Analysis Batch: 373924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	372899

Metals

Prep Batch: 605002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	245.1	
MB 440-605002/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-605002/2-A	Lab Control Sample	Total/NA	Water	245.1	
320-60074-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	
320-60074-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 605016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	FILTRATION	
MB 440-605016/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Metals (Continued)

Filtration Batch: 605016 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264636-A-3-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264636-A-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Filtration Batch: 605017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	FILTRATION	
MB 440-605017/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-605017/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-605017/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264634-2 MS	Outfall009_20200414_Comp_F	Dissolved	Water	FILTRATION	
440-264634-2 MSD	Outfall009_20200414_Comp_F	Dissolved	Water	FILTRATION	
440-264636-B-3-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-264636-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 605115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total Recoverable	Water	200.2	
MB 440-605115/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605115/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264639-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264639-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 605121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total Recoverable	Water	200.2	
MB 440-605121/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-605121/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264642-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-264642-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Prep Batch: 605128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	200.2	605017
MB 440-605017/1-B	Method Blank	Dissolved	Water	200.2	605017
LCS 440-605017/2-B	Lab Control Sample	Dissolved	Water	200.2	605017
440-264634-2 MS	Outfall009_20200414_Comp_F	Dissolved	Water	200.2	605017
440-264634-2 MSD	Outfall009_20200414_Comp_F	Dissolved	Water	200.2	605017

Prep Batch: 605131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	200.2	605017
MB 440-605017/1-C	Method Blank	Dissolved	Water	200.2	605017
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	200.2	605017
440-264636-B-3-C MS	Matrix Spike	Dissolved	Water	200.2	605017
440-264636-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	605017

Analysis Batch: 605167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	245.1	605002
MB 440-605002/1-A	Method Blank	Total/NA	Water	245.1	605002

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Metals (Continued)

Analysis Batch: 605167 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-605002/2-A	Lab Control Sample	Total/NA	Water	245.1	605002
320-60074-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	605002
320-60074-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	605002

Analysis Batch: 605225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total Recoverable	Water	200.8	605115
MB 440-605115/1-A	Method Blank	Total Recoverable	Water	200.8	605115
LCS 440-605115/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605115
440-264639-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.8	605115
440-264639-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	605115

Analysis Batch: 605236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	200.7 Rev 4.4	605131
MB 440-605017/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	605131
MB 440-605121/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	605121
LCS 440-605017/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	605131
LCS 440-605121/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264636-B-3-C MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	605131
440-264636-B-3-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	605131
440-264642-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	605121
440-264642-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	605121

Analysis Batch: 605293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total Recoverable	Water	200.8	605115
MB 440-605115/1-A	Method Blank	Total Recoverable	Water	200.8	605115
LCS 440-605115/2-A	Lab Control Sample	Total Recoverable	Water	200.8	605115
440-264639-A-11-B MS	Matrix Spike	Total Recoverable	Water	200.8	605115
440-264639-A-11-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	605115

Analysis Batch: 605351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	200.8	605128
MB 440-605017/1-B	Method Blank	Dissolved	Water	200.8	605128
LCS 440-605017/2-B	Lab Control Sample	Dissolved	Water	200.8	605128
440-264634-2 MS	Outfall009_20200414_Comp_F	Dissolved	Water	200.8	605128
440-264634-2 MSD	Outfall009_20200414_Comp_F	Dissolved	Water	200.8	605128

Prep Batch: 605496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	245.1	605016
MB 440-605016/1-C	Method Blank	Dissolved	Water	245.1	605016
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	245.1	605016
440-264636-A-3-D MS	Matrix Spike	Dissolved	Water	245.1	605016
440-264636-A-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	605016

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

Metals

Analysis Batch: 605723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-2	Outfall009_20200414_Comp_F	Dissolved	Water	245.1	605496
MB 440-605016/1-C	Method Blank	Dissolved	Water	245.1	605496
LCS 440-605016/2-C	Lab Control Sample	Dissolved	Water	245.1	605496
440-264636-A-3-D MS	Matrix Spike	Dissolved	Water	245.1	605496
440-264636-A-3-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	605496

General Chemistry

Prep Batch: 605119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	Distill/CN	
MB 440-605119/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	

Analysis Batch: 605374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	SM 4500 CN E	605119
MB 440-605119/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	605119
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	605119
440-264517-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	605119

Analysis Batch: 605842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	SM 2540C	
MB 440-605842/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605842/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264865-H-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 605914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	SM 2540D	
MB 440-605914/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605914/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264709-B-4 DU	Duplicate	Total/NA	Water	SM 2540D	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-1

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.

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
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.
α	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: 440-264634-1

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
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
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	04-16-21
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 *

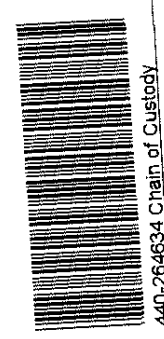
* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich 5535 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Borodic 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Boeing SSFL NPDES Permit 2020 Routine Outfall (033-007, 008, 010) Outfall 009 Comp		Project Manager Kathlene Miller 520 289 8606, 520 904 6944 (cell) Field Manager Mark Dominick 978 234 5033, 818 599 0702 (cell)		Sample ID Outfall009_20200414_Comp		Sampling Date/Time 4/14/2020 10:45		Sample Matrix WM		Container Type 500 mL Poly		# of Cont 1		Preservative HNO ₃		MSMSD No		Boyle # 85	
Total Recoverable Metals (E200 7) Ag, Cd, Cu, Pb, Sb, Se, Tl		X		TCDD (and all congeners) (E161B)		Cr, SO ₄ , NO ₃ +NO ₂ -N (300)		TDS (SM2540C/E180 1)		Total Dissolved Metals (E200 7) Ni, Zn		Total Recoverable Metals Mercury (E245 1)		Cyanide (SM4500-C/N/E / E335 2)		Total Recoverable Metals Mercury (E245 1)		Total Dissolved Metals Mercury (E245 1)		TSS (60 2 (SM2640D))	
Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Radium 226 (E903 0), Uranium (E908 0), K-40, Cs-137 (E901 0 or E901 1)		X		Total Dissolved Metals (E200 7) Ni, Zn		Total Dissolved Metals (E200 7) Ag, Cd, Cu, Pb, Sb, Se, Tl		Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Radium 226 (E903 0), Uranium (E908 0), K-40, Cs-137 (E901 0 or E901 1)		Chromic Toxicity - Selenium (EPA-821-R-02-013)		Total Recoverable Metals Mercury (E245 1)		Cyanide (SM4500-C/N/E / E335 2)		Total Recoverable Metals Mercury (E245 1)		Total Dissolved Metals Mercury (E245 1)		TSS (60 2 (SM2640D))	
48 hours Holding Time NO ₂ & NO ₃		X		None		None		None		None		None		None		None		None		None	
Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MSMSD		None		None		None		None		None		None		None		None		None		None	
Only test 1st or 2nd rain events of the year		None		None		None		None		None		None		None		None		None		None	
Filter and preserve with 24hrs of receipt at lab		None		None		None		None		None		None		None		None		None		None	
Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures		None		None		None		None		None		None		None		None		None		None	
Hold		None		None		None		None		None		None		None		None		None		None	
Hold		None		None		None		None		None		None		None		None		None		None	

Turn-around time (Check) 24 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 10 Day <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 5 Day <input type="checkbox"/> Normal <input type="checkbox"/>		Sample integrity (Check) Intact <input type="checkbox"/> On Ice <input type="checkbox"/>		Store samples for 6 months Data Requirements (Check) No Level IV <input type="checkbox"/> All Level IV <input checked="" type="checkbox"/>	
Received By: <i>[Signature]</i> Date/Time: 4-14-20 11:52		Received By: <i>[Signature]</i> Date/Time: 4/14/20 13:55		Received By: <i>[Signature]</i> Date/Time: 4/14/20 13:55	
Company: MIA		Company: EC-IRV		Company:	
Date/Time: 4-14-20 11:55		Date/Time: 4-14-20 13:55		Date/Time: 4-14-20 13:55	

1.4(1.6), 1.1(1.3), 0.8(1.0), 0.3(0.5), 1.9(2.1) IR-94
 4/14/20 13:55



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM	Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-155035.1
Client Contact: Shipping/Receiving		Phone:	E-Mail:	christian.bondoc@testamericainc.com	State of Origin:	Page: Page 1 of 1
Company: Aquatec Bioassay		Accreditations Required (See note): State Program - California		Job #: 440-264634-1		
Address: 29 North Olive Street, City: Ventura State, Zip CA, 93001 Phone: E-mail:		Due Date Requested: 4/22/2020		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - HCAA W - pH 4-5 L - EDA Other:		
Project Name: Boeing NPDES SSFL outfalls Site:		PO #:	WO #:	Analysis Requested		
Project #: 44009879		TAT Requested (days):		SUB (Chronic-Selenium) Chronic-Selenium		
SSOW#:		Field Filtered Sample (Yes or No)		Total Number of Containers		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=soil, ST=Slurry, A=Air)	Special Instructions/Note:
Outfall009_20200414_Comp (440-264634-1)		4/14/20	09:45 Pacific	Water	Water	6
<p>Possible Hazard Identification</p> <p><input type="checkbox"/> Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements:</p>						
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p>						
<p>Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____</p> <p>Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Company: _____</p>						
<p>Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____</p>						



Chain of Custody Record



Calscience

Client Information (Sub Contract Lab)		Sample:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Phone:	Bondoc, Christian M		440-155034-1
Company: Test/America Laboratories, Inc.			E-Mail: christian.bondoc@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Address: 13715 Rider Trail North,		Due Date Requested: 4/24/2020	Accreditations Required (See note): State Program - California		
City: Earth City	TAT Requested (days):	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 Other:			
State, Zip: MO, 63045	PO #:	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:	Analysis Requested			
Email:	Project #: 44009879	Total Number of containers			
Site: Boeing NPDES SSFL outfalls	SSOW#:	Perform MS/MSD (Yes or No)			
		Field Filtered Sample (Yes or No)			
		901.1 Cs/Fill_Geo_0 K-40 and Cesium-137			
		A01R_U/ExitChrom_Actin Total Uranium			
		900.0/Evaporation Gross Alpha/Beta			
		903.0/PreSep_21 Radium-226			
		904.0/PreSep_0 Radium-228			
		905.0/PreSep_7 Strontium-90			
		906.0/LSC_Dist_Susp Tritium			
		Special Instructions/Note:			
		Boeing SSFL; DO NOT FILTER; use prep date from preservation			
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Overstabil, BT= Tissue, A=Air)
Outfall009_20200414_Comp (440-264634-1)		4/14/20	09:45 Pacific		Water
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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.</p>					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Date: _____ Time: _____					
Relinquished by: <i>FEDE</i>					
Date/Time: 4/14/20 1500					
Company: EC-REV					
Relinquished by: <i>FEDE</i>					
Date/Time: _____					
Company: _____					
Relinquished by: _____					
Date/Time: _____					
Company: _____					
Custody Seals Intact: _____ Custody Seal No.: _____					
Δ Yes Δ No					
Cooler Temperature(s) °C and Other Remarks:					
Received by: <i>FEDE</i>					
Date/Time: _____					
Company: _____					
Received by: <i>Paul An</i>					
Date/Time: 4/15/2020 08:52					
Company: EIA 554					
Date/Time: _____					
Company: _____					
Method of Shipment:					
Date/Time: _____					
Company: _____					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					



CONDITION UPON RECEIPT FORM

Client: ETA IRVING

Initiated by: LAM Date: 4/15/2020 Time: 00:52 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 8342	192152620	0.3	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> N	Are there custody seals present on the cooler?	8.	Y <input checked="" type="radio"/>	Are there custody seals present on bottles?
2.	Y <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>HC905612</u>
4.	<input checked="" type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> N	Sample received in proper containers?
6.	Y <input checked="" type="radio"/>	Was sample received broken?	13.	Y N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y N <input checked="" type="radio"/> 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: 440-264634-J-1 preserved upon arrival to lab.

pH Adjustment (if needed)

Date/Time of Preservation: 4/15/2020 15:51

Initial pH and pH strip lot#: pH=7 HC905612

Preservative and lot#: HN03 000024882

Final pH and pH strip lot#: pH<2 HC905612

Amount of Preservative: 6ml

Sample Labels Applied By: LAM

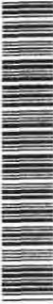
Labels 2nd Reviewed By:

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.

Chain of Custody Record



Calscience



Client Information (Sub Contract Lab)		Lab PM:		Carrier Tracking No(s)		
Shipping/Receiving		Bondoc, Christian M		440-155033.1		
Company: TestAmerica Laboratories, Inc.		E-Mail: christian.bondoc@testamericainc.com		Page: Page 1 of 1		
Address: 880 Riverside Parkway, West Sacramento, CA 95605		Accreditations Required (See note): State Program - California		Job #: 440-264634-1		
Due Date Requested: 4/24/2020		Analysis Requested		Preservation Codes:		
TAT Requested (days):		16138/16138_Sox_Sep_P Standard List w/ Totals		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 Other:		
PO #:		Field Filtered Sample (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - other (specify)		
WO #:		Perform MS/MSD (Yes or No)		Total Number of Containers		
Project #: 44009879		X		2		
SSOW#:		X		2		
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Dried, etc.)	Preservation Code:	Special Instructions/Note:
Outfall009_20200414_Comp (440-264634-1)	4/14/20	09:45 Pacific	Water	Water		See OAS, Boeig_wlu to zero, ug/L, Use Boeig glassware.
Outfall009-20200414-Comp-Extra (440-264634-3)	4/14/20	09:45 Pacific	water	water		ON hold

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/instrument/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
 Return To Client
 Disposal By Lab
 Archive For _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/OC Requirements:

Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____

Relinquished by: *SD* Date/Time: 4/14/20 1500 Company: EC-IPV
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: *Seal* Custody Seal No.: _____
 Yes No

Received by: _____ Date/Time: 04/15/20 930 Company: EYA-SAC
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: 0.7°C



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264634-1

Login Number: 264634

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.	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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264634-1

Login Number: 264634

List Number: 2

Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/15/20 11:59 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	0.7c
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?	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 <math><6\text{mm}</math> (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: 440-264634-1

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)
440-264634-1	Outfall009_20200414_Comp	78	75	69	69	70	69	72	74
MB 320-372899/1-A	Method Blank	76	72	65	64	72	70	70	72
MB 320-372899/1-A - RA	Method Blank		67						

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)
440-264634-1	Outfall009_20200414_Comp	72	78	74	88	82	98	87
MB 320-372899/1-A	Method Blank	69	68	67	72	72	79	73
MB 320-372899/1-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 320-372899/2-A	Lab Control Sample	69	64	59	60	64	62	63	64

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 320-372899/2-A	Lab Control Sample	61	63	63	68	66	75	67

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 009 Comp

$^{13}\text{CH}_x\text{CF} = ^{13}\text{C-2,3,4,6,7,8-HxCDF}$

HpCDD = $^{13}\text{C-1,2,3,4,6,7,8-HpCDD}$

HpCDF = $^{13}\text{C-1,2,3,4,6,7,8-HpCDF}$

HpCDF2 = $^{13}\text{C-1,2,3,4,7,8,9-HpCDF}$

OCDD = $^{13}\text{C-OCDD}$

Job ID: 440-264634-1

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440-264634 Field Sheet

Tracking #: 1540 4107 8353

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: 0.7 °C Corrected: 0.7 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PL Date: 04/15/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? <small>(Methods 314, 331, 6850)</small>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-conformance Yes No NA
NCM Filed?

Initials: SO Date: 4/15/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264634-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

5 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.: 1272.003H.01

Sample Delivery Group: 440-264634-2

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
OUTFALL009_20200414_COMP	440-264634-1	N	WM	4/14/20 9:45 AM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A- 01-R
OUTFALL009_20200414_COMP	440-264634-2	N	WM	4/14/20 9:45 AM	RADIUM



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) 440-264634-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- Field and laboratory personnel signed and dated the COCs.
- The sample containers were received at the laboratory without preservation. The appropriate containers were acidified to $\text{pH} \leq 2$ upon receipt.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^X reviewed the SDG on June 5, 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 (except as noted in the Sample Management section above) and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiencies for gross alpha and radium-226 were less than 20%; therefore, the detected results for gross alpha and radium-226 were qualified as an estimated with potential low bias (J-). All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits.

III.3. QUALITY CONTROL SAMPLES

III.3.1. METHOD BLANKS

Target isotopes were not detected in the method blanks above the MDC with the exception of radium-228. 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 gross alpha, gross beta and radium-228. The detected sample results for gross alpha, gross beta and radium-228 were qualified as nondetect (U). It should be noted that the result for gross alpha was previously qualified J- (see Calibration section above) and was therefore ultimately qualified as UJ.

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 Method 900.0. RERs met laboratory control limits. Laboratory duplicates were not performed on the sample from this SDG for the remaining methods.

III.3.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE:

Matrix spike and matrix spike duplicate analyses were not performed on the sample from this SDG.

III.4. SAMPLE RESULT VERIFICATION:

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. Reported nondetects are valid to the MDC. The sample was prepared at a reduced aliquot due to matrix issues for Methods 903.0, 904.0 and 905.

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: 4402646342

Analysis Method E900

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	1.44	1.01	3.00	1.38	pCi/L		UJ	*III, B
Gross Beta Analytes	GROSSBETA	1.87	0.767	4.00	1.04	pCi/L		U	B

Analysis Method E901.1

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	3.39	10.6	20.0	13.2	pCi/L	U	U	
Potassium-40	13966-00-2	-32.1	159	207	207	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	1.50	0.246	1.00	0.0987	pCi/L		J-	*III

Analysis Method E904.0

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.457	0.279	1.00	0.424	pCi/L		U	B

Analysis Method E905.0

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.375	0.407	3.00	0.664	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	23.4	169	500	307	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.127	0.392	1.00	0.523	pCi/L	U	U	

Analysis Method RADIUM

Sample Name OUTFALL009_20200414_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/14/2020 9:45:00 AM Validation Level: 9

Lab Sample Name: 440-264634-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	1.50	0.344			pCi/L		J-	*III


ANALYTICAL REPORT

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

Laboratory Job ID: 440-264634-2
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:
5/14/2020 11:31:33 AM

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

LINKS

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results through
TotalAccess

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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.

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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
5/14/2020 11:31:33 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264634-1	Outfall009_20200414_Comp	Water	04/14/20 09:45	04/14/20 13:55	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Job ID: 440-264634-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264634-2

Comments

No additional comments.

Receipt

The samples were received on 4/14/2020 1:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 1.0° C, 1.3° C, 1.6° C and 2.1° C.

RAD

Method 900.0: Gross Alpha/Beta Prep Batch 160-469494

The Gross Alpha and Gross Beta detection goals were not met for the following samples due to a reduction of the sample size attributed to high residual mass: (160-37832-C-2-A), (160-37832-C-2-D DU), (160-37832-C-2-B MS) and (160-37832-C-2-C MSBT). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha/Beta Prep Batch 160-469494

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_20200414_Comp (440-264634-1), (LCS 160-469494/2-A), (LCSB 160-469494/3-A), (MB 160-469494/1-A), (160-37832-C-2-A), (160-37832-C-2-D DU), (160-37832-C-2-B MS) and (160-37832-C-2-C MSBT)

Method 901.1: Gamma Prep Batch 160-468154

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Job ID: 440-264634-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Outfall009_20200414_Comp (440-264634-1), (LCS 160-468154/2-A), (MB 160-468154/1-A), (440-264517-R-1-F) and (440-264517-R-1-G DU)

Method 903.0: Radium-226 Prep Batch 160-467982

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_20200414_Comp (440-264634-1), (LCS 160-467982/1-A), (MB 160-467982/23-A), (440-264517-R-1-A), (440-264517-M-1-B MS) and (440-264517-M-1-C MSD)

Method 904.0: Radium-228 Prep Batch 160-468070

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_20200414_Comp (440-264634-1), (LCS 160-468070/1-A), (MB 160-468070/23-A), (440-264517-R-1-E), (440-264517-M-1-F MS) and (440-264517-M-1-G MSD)

Method 905: Sr-90 Prep Batch 160-468677

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_20200414_Comp (440-264634-1), (LCS 160-468677/1-A), (MB 160-468677/22-A), (440-264517-R-1-H), (440-264517-M-1-H MS) and (440-264517-M-1-I MSD)

Method 906.0: Tritium Prep Batch 160-469023

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_20200414_Comp (440-264634-1), (LCS 160-469023/2-A), (MB 160-469023/1-A), (160-37794-B-1-A), (160-37794-B-1-B DU), (440-264517-Q-1-A), (440-264517-L-1-B MS) and (440-264517-L-1-C MSD)

Method A-01-R: Isotopic Uranium Prep Batch 160-468046

The tracer achieved fewer (370) than 400 counts during the 240 minute count interval. While the tracer recovery was within QC limits, the lower number of counts may lead to a slightly higher than stated uncertainty. The original data is reported.

Outfall009_20200414_Comp (440-264634-1)

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.

Outfall009_20200414_Comp (440-264634-1), (LCS 160-468046/2-A), (MB 160-468046/1-A), (440-263721-S-1-J), (440-263721-M-1-I MS) and (440-263721-M-1-J MSD)

Method ExtChrom: Uranium Prep Batch 160-468046:

The following samples have matrix observations: Outfall009_20200414_Comp (440-264634-1). 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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Job ID: 440-264634-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

particulates with a sewage smell and was prepared at a reduced aliquot.

Method PrecSep-7: Strontium 90 Prep Batch 160-468677:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20200414_Comp (440-264634-1). Samples 440-264370-1, 440-264510-1, 440-264517-1, 440-264517-1 MS, 440-264517-1 MSD, 440-264634-1, and 440-264783-1 all have a yellow discoloration. Sample 310-179946-1 has brown discoloration and heavy sediment.

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

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	1.44		0.992	1.01	3.00	1.38	pCi/L	05/04/20 10:53	05/10/20 22:24	1
Gross Beta	1.87		0.744	0.767	4.00	1.04	pCi/L	05/04/20 10:53	05/10/20 22:24	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	3.39	U	10.5	10.6	20.0	13.2	pCi/L	04/19/20 14:22	04/21/20 08:31	1
Potassium-40	-32.1	U	159	159		207	pCi/L	04/19/20 14:22	04/21/20 08:31	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	1.50		0.205	0.246	1.00	0.0987	pCi/L	04/16/20 13:59	05/12/20 04:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		40 - 110					04/16/20 13:59	05/12/20 04:41	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.457		0.276	0.279	1.00	0.424	pCi/L	04/19/20 16:36	04/30/20 07:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		40 - 110					04/19/20 16:36	04/30/20 07:41	1
Y Carrier	88.6		40 - 110					04/19/20 16:36	04/30/20 07:41	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.375	U	0.406	0.407	3.00	0.664	pCi/L	04/23/20 09:24	05/06/20 09:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	79.0		40 - 110					04/23/20 09:24	05/06/20 09:28	1
Y Carrier	92.0		40 - 110					04/23/20 09:24	05/06/20 09:28	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	23.4	U	169	169	500	307	pCi/L	04/28/20 04:41	04/29/20 07:37	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.127	U	0.392	0.392	1.00	0.523	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	43.2		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

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: 440-264634-2

Client Sample ID: Outfall009_20200414_Comp

Lab Sample ID: 440-264634-1

Date Collected: 04/14/20 09:45

Matrix: Water

Date Received: 04/14/20 13:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.11 mL	1.0 g	469494	05/04/20 10:53	RJD	TAL SL
Total/NA	Analysis	900.0		1			469946	05/10/20 22:24	CJQ	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	468154	04/19/20 14:22	MLG	TAL SL
Total/NA	Analysis	901.1		1			468183	04/21/20 08:31	KLS	TAL SL
Total/NA	Prep	PrecSep-21			1000.96 mL	1.0 g	467982	04/16/20 13:59	RBR	TAL SL
Total/NA	Analysis	903.0		1			470197	05/12/20 04:41	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.96 mL	1.0 g	468070	04/19/20 16:36	MNH	TAL SL
Total/NA	Analysis	904.0		1			469238	04/30/20 07:41	KRR	TAL SL
Total/NA	Prep	PrecSep-7			500.26 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469750	05/06/20 09:28	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.3 mL	1.0 g	469023	04/28/20 04:41	NMN	TAL SL
Total/NA	Analysis	906.0		1			469168	04/29/20 07:37	KRR	TAL SL
Total/NA	Prep	ExtChrom			499.42 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468776	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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-469494/1-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469494

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.1119	U	0.445	0.446	3.00	0.866	pCi/L	05/04/20 08:52	05/10/20 13:29	1
Gross Beta	0.6416	U	0.525	0.529	4.00	0.829	pCi/L	05/04/20 08:52	05/10/20 13:29	1

Lab Sample ID: LCS 160-469494/2-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	45.79		6.94	3.00	1.72	pCi/L	92	75 - 125

Lab Sample ID: LCSB 160-469494/3-A
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	77.14		8.24	4.00	0.831	pCi/L	91	75 - 125

Lab Sample ID: 160-37832-C-2-B MS
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	8680	G	23600	31670		4720	3.00	1060	pCi/L	97	60 - 140

Lab Sample ID: 160-37832-C-2-C MSBT
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	2680	G	38300	33740	G	3630	4.00	526	pCi/L	81	60 - 140

Lab Sample ID: 160-37832-C-2-D DU
Matrix: Water
Analysis Batch: 469946

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469494

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	8680	G	9783	G	2130	3.00	1210	pCi/L	0.27	1
Gross Beta	2680	G	2894	G	606	4.00	544	pCi/L	0.18	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-468154/1-A
Matrix: Water
Analysis Batch: 468184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468154

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	9.865	U	9.03	9.08	20.0	10.3	pCi/L	04/19/20 14:22	04/21/20 07:26	1
Potassium-40	-10.82	U	156	156		222	pCi/L	04/19/20 14:22	04/21/20 07:26	1

Lab Sample ID: LCS 160-468154/2-A
Matrix: Water
Analysis Batch: 468186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium-241	136000	126300		14600		415	pCi/L	93	90 - 111
Cesium-137	43700	43710		4380	20.0	106	pCi/L	100	90 - 111
Cobalt-60	26200	25510		2530		64.4	pCi/L	97	89 - 110

Lab Sample ID: 440-264517-R-1-G DU
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	2.76	U	2.790	U	5.70	20.0	7.42	pCi/L	0	1
Potassium-40	16.6	U	-35.24	U	119		175	pCi/L	0.26	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467982/23-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467982

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05167	U	0.0787	0.0788	1.00	0.135	pCi/L	04/16/20 13:59	05/12/20 06:30	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					04/16/20 13:59	05/12/20 06:30	1

Lab Sample ID: LCS 160-467982/1-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	10.36		1.07	1.00	0.101	pCi/L	91	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.0		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-B MS
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual		Result	Qual							
Radium-226	0.136		15.1	14.73		1.53	1.00	0.124	pCi/L	96	75 - 138	
Carrier	%Yield	MS MS	Qualifier	Limits								
Ba Carrier	82.3			40 - 110								

Lab Sample ID: 440-264517-M-1-C MSD
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	Limits	RER	Limit
	Result	Qual		Result	Qual									
Radium-226	0.136		15.1	14.06		1.45	1.00	0.101	pCi/L	92	75 - 138	0.22	1	
Carrier	%Yield	MSD MSD	Qualifier	Limits										
Ba Carrier	95.4			40 - 110										

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-468070/23-A
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468070

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.3732		0.242	0.244	1.00	0.372	pCi/L	04/19/20 16:36	04/30/20 07:45	1
Carrier	%Yield	MB MB	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	87.2			40 - 110				04/19/20 16:36	04/30/20 07:45	1
Y Carrier	91.2			40 - 110				04/19/20 16:36	04/30/20 07:45	1

Lab Sample ID: LCS 160-468070/1-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
		Result	Qual							
Radium-228	8.88	8.918		1.03	1.00	0.383	pCi/L	100	75 - 125	
Carrier	LCS LCS	%Yield	Qualifier	Limits						
Ba Carrier	97.0			40 - 110						
Y Carrier	93.5			40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-F MS
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual		Result	Qual							
Radium-228	-0.0386	U	11.8	12.22		1.44	1.00	0.503	pCi/L	103		45 - 150
MS MS												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	82.3		40 - 110									
Y Carrier	92.0		40 - 110									

Lab Sample ID: 440-264517-M-1-G MSD
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	Limits	RER	RER
	Result	Qual		Result	Qual								Uncert. (2σ+/-)	Limit
Radium-228	-0.0386	U	11.8	12.99		1.49	1.00	0.505	pCi/L	110		45 - 150	0.26	1
MSD MSD														
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	95.4		40 - 110											
Y Carrier	85.6		40 - 110											

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1
MB MB										
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Sr Carrier	93.4		40 - 110	04/23/20 09:24	05/06/20 09:25	1				
Y Carrier	92.0		40 - 110	04/23/20 09:24	05/06/20 09:25	1				

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec.	Limits
		Result	Qual							
Strontium-90	16.9	16.93		1.79	3.00	0.626	pCi/L	100		75 - 125
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Sr Carrier	91.7		40 - 110							
Y Carrier	85.6		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-264517-M-1-H MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	0.284	U	16.9	16.73		1.77	3.00	0.633	pCi/L	98	19 - 150

Carrier	MS %Yield	MS Qualifier	MS Limits
Sr Carrier	88.8		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-264517-M-1-I MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468677

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	0.284	U	16.9	15.70		1.68	3.00	0.641	pCi/L	91	19 - 150	0.30	1

Carrier	MSD %Yield	MSD Qualifier	MSD Limits
Sr Carrier	87.6		40 - 110
Y Carrier	92.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-469023/1-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469023

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-32.88	U	154	154	500	285	pCi/L	04/28/20 04:41	04/29/20 02:20	1

Lab Sample ID: LCS 160-469023/2-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	2450	2379		391	500	283	pCi/L	97	75 - 114

Lab Sample ID: 440-264517-L-1-B MS
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	194	U	2460	2681		432	500	308	pCi/L	101	67 - 130

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 440-264517-L-1-C MSD
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	RER Limit
											67	130	0.03	1
Tritium	194	U	2450	2654		424	500	297	pCi/L	100	67 - 130	0.03	1	

Lab Sample ID: 160-37794-B-1-B DU
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										0.21
Tritium	10.8	U	77.48	U	166	500	284	pCi/L	0.21	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	
									12.7	13.10
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							

Lab Sample ID: 440-263721-M-1-I MS
Matrix: Water
Analysis Batch: 468757

Client Sample ID: Matrix Spike
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	
											0.0485 <th>U <th>12.7 <th>12.44</th> <th>1.46</th> <th>1.00</th> <th>0.164</th> <th>pCi/L</th> <th>97</th> <th>65 - 146</th> </th></th>	U <th>12.7 <th>12.44</th> <th>1.46</th> <th>1.00</th> <th>0.164</th> <th>pCi/L</th> <th>97</th> <th>65 - 146</th> </th>
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									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 440-263721-M-1-J MSD
Matrix: Water
Analysis Batch: 468759

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 468046

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec.		RER	Limit
	Result	Qual		Result	Qual						Limits	RER		
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	MSD	Limits											
Uranium-232	65.1	Qualifier	30 - 110											

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Rad

Prep Batch: 467982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	PrecSep-21	
MB 160-467982/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467982/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264517-M-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-264517-M-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_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-M-1-I MS	Matrix Spike	Total/NA	Water	ExtChrom	
440-263721-M-1-J MSD	Matrix Spike Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 468070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	PrecSep_0	
MB 160-468070/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-468070/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264517-M-1-F MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-264517-M-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 468154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-468154/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-468154/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264517-R-1-G DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-M-1-H MS	Matrix Spike	Total/NA	Water	PrecSep-7	
440-264517-M-1-I MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 469023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-469023/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-469023/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-264517-L-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	LSC_Dist_Susp	
160-37794-B-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 469494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264634-1	Outfall009_20200414_Comp	Total/NA	Water	Evaporation	
MB 160-469494/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-469494/2-A	Lab Control Sample	Total/NA	Water	Evaporation	

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

Rad (Continued)

Prep Batch: 469494 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSB 160-469494/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
160-37832-C-2-B MS	Matrix Spike	Total/NA	Water	Evaporation	
160-37832-C-2-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
160-37832-C-2-D DU	Duplicate	Total/NA	Water	Evaporation	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Routine Outfall 009 Comp

Job ID: 440-264634-2

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)
MQL	Method Quantitation Limit
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: 440-264634-2

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
Alaska (UST)	State	20-001	05-06-22
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

Client Name/Address:
 Haley & Aldrich
 5533 Mission Center Rd Suite 300
 San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Borobic
 17461 Denian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project: Boeing SSFL NPDES
 Permit 2020
 Routine Outfall [033-007, 009, 010]
 Outfall 009
 Comp

Project Manager: Kathlene Miller
 520 289 8606, 520 904 6944 (cell)
Field Manager: Mark Dominick
 978 234 5033, 818 599 0702 (cell)

Test methods services under this CoC shall be performed in accordance with the TSCs within blanket Service Agreement 2019-22. Test Methods by and between Haley & Aldrich, Inc. Its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler

Sample Designation	Sample / ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSRMSD
Outfall 009	Outfall009_20200414_Comp	4/14/2020 10:45	WM	500 mL Poly	1	HNO ₃	85	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	145	No
			WM	500 mL Poly	1	None	155	No
			WM	500 mL Poly	1	NaOH	220	No
			WM	2.5 Gal Cube	1	None	225	No
			WM	1 L Glass Amber	1	None	230	No
			WM	1 Gall Cube	6	None	235	No
Outfall009_20200414_Comp_F	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Poly	1	None	205	No
			WM	1 L Poly	1	None	320	No
			WM	borosilicate vials	1	None	110	No
Outfall009_20200414_Comp_Extra	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Glass Amber	2	None	145	No
			WM	500 mL Poly	2	None	145	No

Sample Designation	Sample / ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSRMSD
Outfall 009	Outfall009_20200414_Comp	4/14/2020 10:45	WM	500 mL Poly	1	HNO ₃	85	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	145	No
			WM	500 mL Poly	1	None	155	No
			WM	500 mL Poly	1	NaOH	220	No
			WM	2.5 Gal Cube	1	None	225	No
			WM	1 L Glass Amber	1	None	230	No
			WM	1 Gall Cube	6	None	235	No
Outfall009_20200414_Comp_F	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Poly	1	None	205	No
			WM	1 L Poly	1	None	320	No
			WM	borosilicate vials	1	None	110	No
Outfall009_20200414_Comp_Extra	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Glass Amber	2	None	145	No
			WM	500 mL Poly	2	None	145	No

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			WM	2.5 Gal Cube	1	None	225	No
			WM	1 L Glass Amber	1	None	230	No
			WM	1 Gall Cube	6	None	235	No
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			WM	1 L Poly	1	None	320	No
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			WM	500 mL Poly	2	None	145	No

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			WM	1 L Glass Amber	1	None	230	No
			WM	1 Gall Cube	6	None	235	No
Outfall009_20200414_Comp_F	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Poly	1	None	205	No
			WM	1 L Poly	1	None	320	No
			WM	borosilicate vials	1	None	110	No
Outfall009_20200414_Comp_Extra	Outfall009_20200414_Comp_Extra	4/14/2020 10:45	WM	1 L Glass Amber	2	None	145	No
			WM	500 mL Poly	2	None	145	No

Legend: EP=Expert Panel, R=Routine

Requisitioned By: *[Signature]* **Company:** Eurofins
Received By: *[Signature]* **Date/Time:** 4-14-20 11:50
Requisitioned By: *[Signature]* **Company:** Eurofins
Received By: *[Signature]* **Date/Time:** 4-14-20 13:55

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

1.4(1.6), 1.1(1.3), 0.8(1.0), 0.3(0.5), 1.9(2.1) IR-94
 4/14/20 20

440-264634 Chain of Custody

2019-2020 Rainy Season
 Version 2

5/14/2020



Chain of Custody Record



Client Information (Sub Contract Lab) Lab PM: Bondoc, Christian M E-Mail: christian.bondoc@testamercainc.com Accreditations Required (See note): State Program - California		Carner Tracking No(s): 440-156035.1 Page: Page 1 of 1 Job #: 440-264634-1	
Shipping/Receiving Address: 29 North Olive Street, Ventura, CA, 93001 Phone: _____ Email: _____ Project Name: Boeing NPDES SSFL outfalls Site. Project #: 44009879 SOW#: _____			
Due Date Requested: 4/22/2020 TAT Requested (days): _____		Analysis Requested: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - HCAA W - pH 4-5 L - EDA Other: _____	
Sample Identification - Client ID (Lab ID) Outfall009_20200414_Comp (440-264634-1)		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 Other: _____	
Sample Date: 4/14/20	Sample Time: 09:45 Pacific	Matrix: Water	Special Instructions/Note: Total Number of Containers: 6
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/test/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 <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2			
Empty Kit Relinquished by: _____ Date: _____		Method of Shipment: _____ Date/Time: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: _____	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264634-2

Login Number: 264634

List Number: 1

Creator: Dolidze, Lado

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264634-2

Login Number: 264634

List Number: 3

Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/15/20 03:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	440-264634-J-1 preserved upon arrival to lab.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (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 009 Comp

Job ID: 440-264634-2

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)	
440-264517-M-1-B MS	Matrix Spike	82.3	
440-264517-M-1-C MSD	Matrix Spike Duplicate	95.4	
440-264634-1	Outfall009_20200414_Comp	93.9	
LCS 160-467982/1-A	Lab Control Sample	97.0	
MB 160-467982/23-A	Method Blank	87.2	
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)
440-264517-M-1-F MS	Matrix Spike	82.3	92.0
440-264517-M-1-G MSD	Matrix Spike Duplicate	95.4	85.6
440-264634-1	Outfall009_20200414_Comp	93.9	88.6
LCS 160-468070/1-A	Lab Control Sample	97.0	93.5
MB 160-468070/23-A	Method Blank	87.2	91.2
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)
440-264517-M-1-H MS	Matrix Spike	88.8	90.8
440-264517-M-1-I MSD	Matrix Spike Duplicate	87.6	92.7
440-264634-1	Outfall009_20200414_Comp	79.0	92.0
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6
MB 160-468677/22-A	Method Blank	93.4	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	uranium-235 (30-110)	
440-263721-M-1-I MS	Matrix Spike	65.3	
440-263721-M-1-J MSD	Matrix Spike Duplicate	65.1	
440-264634-1	Outfall009_20200414_Comp	43.2	
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 009 Comp

Job ID: 440-264634-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

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ANALYTICAL REPORT

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

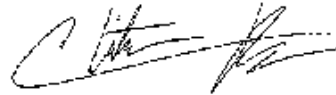
Laboratory Job ID: 440-264459-1

Client Project/Site: Quarterly Outfall 018 Grab

For:

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

Attn: Katherine Miller



Authorized for release by:
4/22/2020 12:30:01 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.

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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 12:30:01 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264459-1	Outfall018_20200409_Grab	Water	04/09/20 12:30	04/10/20 11:30	
440-264459-3	TB-20200410	Water	04/09/20 12:30	04/10/20 11:30	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Job ID: 440-264459-1

Laboratory: Eurofins Calscience Irvine

Narrative

**Job Narrative
440-264459-1**

Comments

No additional comments.

Receipt

The samples were received on 4/10/2020 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

GC/MS VOA

Method 624.1: The following volatile sample was received and analyzed with significant headspace in the sample container(s): TB-20200410 (440-264459-3). 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 440-604637.

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 440-605782 and analytical batch 440-605871. 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 Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Client Sample ID: Outfall018_20200409_Grab

Lab Sample ID: 440-264459-1

Date Collected: 04/09/20 12:30

Matrix: Water

Date Received: 04/10/20 11:30

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			04/10/20 19:20	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/10/20 19:20	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Benzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Bromomethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Chloroethane	ND		1.0	0.40	ug/L			04/10/20 19:20	1
Chloroform	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Chloromethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/10/20 19:20	1
Naphthalene	ND		1.0	0.40	ug/L			04/10/20 19:20	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Toluene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Trichloroethene	ND		0.50	0.25	ug/L			04/10/20 19:20	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/10/20 19:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		60 - 140		04/10/20 19:20	1
Dibromofluoromethane (Surr)	94		60 - 140		04/10/20 19:20	1
Toluene-d8 (Surr)	106		60 - 140		04/10/20 19:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 10:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140		04/13/20 10:12	1
Dibromofluoromethane (Surr)	107		60 - 140		04/13/20 10:12	1
Toluene-d8 (Surr)	84		60 - 140		04/13/20 10:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	2.3	J,DX	5.2	1.5	mg/L		04/21/20 06:08	04/21/20 11:20	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Client Sample ID: Outfall018_20200409_Grab

Lab Sample ID: 440-264459-1

Date Collected: 04/09/20 12:30

Matrix: Water

Date Received: 04/10/20 11:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	380		1.0	1.0	umhos/cm			04/21/20 12:35	1
Settleable Solids	ND		0.10	0.10	mL/L/Hr			04/10/20 17:48	1

Client Sample ID: TB-20200410

Lab Sample ID: 440-264459-3

Date Collected: 04/09/20 12:30

Matrix: Water

Date Received: 04/10/20 11:30

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			04/11/20 01:47	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/11/20 01:47	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Benzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Bromomethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Chloroethane	ND		1.0	0.40	ug/L			04/11/20 01:47	1
Chloroform	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Chloromethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/11/20 01:47	1
Naphthalene	ND		1.0	0.40	ug/L			04/11/20 01:47	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Toluene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Trichloroethene	ND		0.50	0.25	ug/L			04/11/20 01:47	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/11/20 01:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		60 - 140		04/11/20 01:47	1
Dibromofluoromethane (Surr)	95		60 - 140		04/11/20 01:47	1
Toluene-d8 (Surr)	106		60 - 140		04/11/20 01:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 09:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		60 - 140		04/13/20 09:48	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Client Sample ID: TB-20200410

Date Collected: 04/09/20 12:30

Date Received: 04/10/20 11:30

Lab Sample ID: 440-264459-3

Matrix: Water

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Dibromofluoromethane (Surr)</i>	107		60 - 140		04/13/20 09:48	1
<i>Toluene-d8 (Surr)</i>	102		60 - 140		04/13/20 09:48	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Client Sample ID: Outfall018_20200409_Grab

Lab Sample ID: 440-264459-1

Date Collected: 04/09/20 12:30

Matrix: Water

Date Received: 04/10/20 11:30

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	RA	1	10 mL	10 mL	604735	04/13/20 10:12	OH1	TAL IRV
Total/NA	Analysis	624.1		1	10 mL	10 mL	604634	04/10/20 19:20	GMA	TAL IRV
Total/NA	Analysis	120.1		1			605665	04/21/20 12:35	XL	TAL IRV
Total/NA	Prep	1664A			960 mL	1000 mL	605782	04/21/20 06:08	L1A	TAL IRV
Total/NA	Analysis	1664A		1			605871	04/21/20 11:20	L1A	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	604637	04/10/20 17:48	HZ	TAL IRV

Client Sample ID: TB-20200410

Lab Sample ID: 440-264459-3

Date Collected: 04/09/20 12:30

Matrix: Water

Date Received: 04/10/20 11:30

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	RA	1	10 mL	10 mL	604735	04/13/20 09:48	OH1	TAL IRV
Total/NA	Analysis	624.1		1	10 mL	10 mL	604634	04/11/20 01:47	GMA	TAL IRV

Laboratory References:

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

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

Lab Sample ID: MB 440-604634/4
Matrix: Water
Analysis Batch: 604634

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			04/10/20 18:52	1
1,1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			04/10/20 18:52	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Benzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Bromomethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chlorobenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Dibromochloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chloroethane	ND		1.0	0.40	ug/L			04/10/20 18:52	1
Chloroform	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Chloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Bromodichloromethane	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Ethylbenzene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Methylene Chloride	ND		2.0	0.88	ug/L			04/10/20 18:52	1
Naphthalene	ND		1.0	0.40	ug/L			04/10/20 18:52	1
Tetrachloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Toluene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Trichloroethene	ND		0.50	0.25	ug/L			04/10/20 18:52	1
Vinyl chloride	ND		0.50	0.25	ug/L			04/10/20 18:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		60 - 140		04/10/20 18:52	1
Dibromofluoromethane (Surr)	96		60 - 140		04/10/20 18:52	1
Toluene-d8 (Surr)	102		60 - 140		04/10/20 18:52	1

Lab Sample ID: LCS 440-604634/1002
Matrix: Water
Analysis Batch: 604634

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	18.4		ug/L		73	69 - 151
1,1,1,2,2-Tetrachloroethane	25.0	30.3		ug/L		121	68 - 136
1,1,2-Trichloroethane	25.0	28.9		ug/L		116	75 - 136
1,1-Dichloroethane	25.0	25.2		ug/L		101	71 - 143
1,1-Dichloroethene	25.0	22.5		ug/L		90	19 - 212
1,2-Dichlorobenzene	25.0	25.9		ug/L		103	59 - 174

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

Lab Sample ID: LCS 440-604634/1002

Matrix: Water

Analysis Batch: 604634

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	22.6		ug/L		90	72 - 137
1,2-Dichloropropane	25.0	27.1		ug/L		108	19 - 181
1,3-Dichlorobenzene	25.0	25.8		ug/L		103	75 - 144
1,4-Dichlorobenzene	25.0	25.8		ug/L		103	59 - 174
Benzene	25.0	27.5		ug/L		110	75 - 125
Bromomethane	25.0	23.0		ug/L		92	10 - 206
Carbon tetrachloride	25.0	17.9		ug/L		72	65 - 125
Chlorobenzene	25.0	25.0		ug/L		100	82 - 137
Dibromochloromethane	25.0	20.4		ug/L		82	69 - 133
Chloroethane	25.0	26.5		ug/L		106	42 - 202
Chloroform	25.0	21.1		ug/L		84	68 - 121
Chloromethane	25.0	28.2		ug/L		113	10 - 230
cis-1,2-Dichloroethene	25.0	24.2		ug/L		97	60 - 140
cis-1,3-Dichloropropene	25.0	26.9		ug/L		108	5 - 195
Bromodichloromethane	25.0	22.4		ug/L		89	50 - 140
Ethylbenzene	25.0	23.7		ug/L		95	75 - 134
Methylene Chloride	25.0	24.3		ug/L		97	10 - 205
Naphthalene	25.0	26.4		ug/L		106	60 - 140
Tetrachloroethene	25.0	22.7		ug/L		91	70 - 130
Toluene	25.0	25.9		ug/L		103	75 - 134
trans-1,2-Dichloroethene	25.0	24.6		ug/L		98	70 - 130
trans-1,3-Dichloropropene	25.0	26.8		ug/L		107	38 - 162
Trichloroethene	25.0	24.1		ug/L		96	75 - 138
Vinyl chloride	25.0	28.3		ug/L		113	10 - 218

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		60 - 140
Dibromofluoromethane (Surr)	94		60 - 140
Toluene-d8 (Surr)	102		60 - 140

Lab Sample ID: 440-264459-1 MS

Matrix: Water

Analysis Batch: 604634

Client Sample ID: Outfall018_20200409_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	7.70		ug/L		77	52 - 162
1,1,2,2-Tetrachloroethane	ND		10.0	13.2		ug/L		132	46 - 157
1,1,2-Trichloroethane	ND		10.0	12.5		ug/L		125	52 - 150
1,1-Dichloroethane	ND		10.0	10.5		ug/L		105	59 - 155
1,1-Dichloroethene	ND		10.0	9.82		ug/L		98	10 - 234
1,2-Dichlorobenzene	ND		10.0	11.1		ug/L		111	18 - 190
1,2-Dichloroethane	ND		10.0	9.34		ug/L		93	49 - 155
1,2-Dichloropropane	ND		10.0	11.6		ug/L		116	10 - 210
1,3-Dichlorobenzene	ND		10.0	10.9		ug/L		109	59 - 156
1,4-Dichlorobenzene	ND		10.0	10.9		ug/L		109	18 - 190
Benzene	ND		10.0	11.7		ug/L		117	37 - 151
Bromomethane	ND		10.0	9.98		ug/L		100	10 - 242
Carbon tetrachloride	ND		10.0	7.36		ug/L		74	70 - 140

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

Lab Sample ID: 440-264459-1 MS

Client Sample ID: Outfall018_20200409_Grab

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604634

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	ND		10.0	10.9		ug/L		109	37 - 160
Dibromochloromethane	ND		10.0	8.39		ug/L		84	53 - 149
Chloroethane	ND		10.0	11.6		ug/L		116	14 - 230
Chloroform	ND		10.0	8.75		ug/L		88	51 - 138
Chloromethane	ND		10.0	12.1		ug/L		121	10 - 273
cis-1,2-Dichloroethene	ND		10.0	10.3		ug/L		103	60 - 140
cis-1,3-Dichloropropene	ND		10.0	11.2		ug/L		112	10 - 227
Bromodichloromethane	ND		10.0	9.29		ug/L		93	35 - 155
Ethylbenzene	ND		10.0	10.2		ug/L		102	37 - 162
Methylene Chloride	ND		10.0	10.1		ug/L		101	10 - 221
Naphthalene	ND		10.0	11.0		ug/L		110	60 - 140
Tetrachloroethene	ND		10.0	9.78		ug/L		98	64 - 148
Toluene	ND		10.0	11.3		ug/L		113	47 - 150
trans-1,2-Dichloroethene	ND		10.0	10.2		ug/L		102	54 - 156
trans-1,3-Dichloropropene	ND		10.0	10.9		ug/L		109	17 - 183
Trichloroethene	ND		10.0	10.4		ug/L		104	70 - 157
Vinyl chloride	ND		10.0	11.5		ug/L		115	10 - 251

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		60 - 140
Dibromofluoromethane (Surr)	92		60 - 140
Toluene-d8 (Surr)	105		60 - 140

Lab Sample ID: 440-264459-1 MSD

Client Sample ID: Outfall018_20200409_Grab

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604634

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	7.32		ug/L		73	52 - 162	5	36
1,1,2,2-Tetrachloroethane	ND		10.0	13.3		ug/L		133	46 - 157	1	61
1,1,2-Trichloroethane	ND		10.0	11.7		ug/L		117	52 - 150	7	45
1,1-Dichloroethane	ND		10.0	9.86		ug/L		99	59 - 155	7	40
1,1-Dichloroethene	ND		10.0	9.17		ug/L		92	10 - 234	7	32
1,2-Dichlorobenzene	ND		10.0	10.8		ug/L		108	18 - 190	3	57
1,2-Dichloroethane	ND		10.0	8.97		ug/L		90	49 - 155	4	49
1,2-Dichloropropane	ND		10.0	11.0		ug/L		110	10 - 210	5	55
1,3-Dichlorobenzene	ND		10.0	10.4		ug/L		104	59 - 156	4	43
1,4-Dichlorobenzene	ND		10.0	10.7		ug/L		107	18 - 190	2	57
Benzene	ND		10.0	11.1		ug/L		111	37 - 151	5	61
Bromomethane	ND		10.0	9.33		ug/L		93	10 - 242	7	61
Carbon tetrachloride	ND		10.0	6.93	LN	ug/L		69	70 - 140	6	41
Chlorobenzene	ND		10.0	10.3		ug/L		103	37 - 160	5	53
Dibromochloromethane	ND		10.0	7.99		ug/L		80	53 - 149	5	50
Chloroethane	ND		10.0	10.6		ug/L		106	14 - 230	9	78
Chloroform	ND		10.0	8.22		ug/L		82	51 - 138	6	54
Chloromethane	ND		10.0	11.3		ug/L		113	10 - 273	7	60
cis-1,2-Dichloroethene	ND		10.0	9.58		ug/L		96	60 - 140	7	35
cis-1,3-Dichloropropene	ND		10.0	10.8		ug/L		108	10 - 227	3	58

Eurofins Calscience Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

Lab Sample ID: 440-264459-1 MSD
Matrix: Water
Analysis Batch: 604634

Client Sample ID: Outfall018_20200409_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromodichloromethane	ND		10.0	8.71		ug/L		87	35 - 155	6	56
Ethylbenzene	ND		10.0	9.84		ug/L		98	37 - 162	4	63
Methylene Chloride	ND		10.0	9.43		ug/L		94	10 - 221	7	28
Naphthalene	ND		10.0	11.3		ug/L		113	60 - 140	2	35
Tetrachloroethene	ND		10.0	9.61		ug/L		96	64 - 148	2	39
Toluene	ND		10.0	10.7		ug/L		107	47 - 150	5	41
trans-1,2-Dichloroethene	ND		10.0	9.52		ug/L		95	54 - 156	7	45
trans-1,3-Dichloropropene	ND		10.0	10.6		ug/L		106	17 - 183	3	86
Trichloroethene	ND		10.0	9.71		ug/L		97	70 - 157	7	48
Vinyl chloride	ND		10.0	11.1		ug/L		111	10 - 251	4	66

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		60 - 140
Dibromofluoromethane (Surr)	92		60 - 140
Toluene-d8 (Surr)	104		60 - 140

Lab Sample ID: MB 440-604735/4
Matrix: Water
Analysis Batch: 604735

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	0.40	ug/L			04/13/20 08:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		60 - 140		04/13/20 08:36	1
Dibromofluoromethane (Surr)	112		60 - 140		04/13/20 08:36	1
Toluene-d8 (Surr)	116		60 - 140		04/13/20 08:36	1

Lab Sample ID: LCS 440-604735/1002
Matrix: Water
Analysis Batch: 604735

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	25.1		ug/L		100	57 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		60 - 140
Dibromofluoromethane (Surr)	104		60 - 140
Toluene-d8 (Surr)	98		60 - 140

Lab Sample ID: 440-264459-1 MS
Matrix: Water
Analysis Batch: 604735

Client Sample ID: Outfall018_20200409_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	ND		10.0	10.5		ug/L		105	45 - 169

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

Lab Sample ID: 440-264459-1 MS
Matrix: Water
Analysis Batch: 604735

Client Sample ID: Outfall018_20200409_Grab
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	81		60 - 140
Dibromofluoromethane (Surr)	107		60 - 140
Toluene-d8 (Surr)	120		60 - 140

Lab Sample ID: 440-264459-1 MSD
Matrix: Water
Analysis Batch: 604735

Client Sample ID: Outfall018_20200409_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromoform	ND		10.0	9.99		ug/L		100	45 - 169	5	42

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		60 - 140
Dibromofluoromethane (Surr)	105		60 - 140
Toluene-d8 (Surr)	102		60 - 140

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-605665/3
Matrix: Water
Analysis Batch: 605665

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			04/21/20 12:34	1

Lab Sample ID: LCS 440-605665/4
Matrix: Water
Analysis Batch: 605665

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	917		umhos/cm		97	90 - 110

Lab Sample ID: 440-264678-A-1 DU
Matrix: Water
Analysis Batch: 605665

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	110		110		umhos/cm		0	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-605782/1-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605782

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		04/21/20 06:08	04/21/20 11:20	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 440-605782/2-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605782
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	32.3		mg/L		81	78 - 114

Lab Sample ID: LCSD 440-605782/3-A
Matrix: Water
Analysis Batch: 605871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605782
%Rec.

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM (Oil & Grease)	40.0	34.0		mg/L		85	78 - 114	5	11



QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

GC/MS VOA

Analysis Batch: 604634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1	Outfall018_20200409_Grab	Total/NA	Water	624.1	
440-264459-3	TB-20200410	Total/NA	Water	624.1	
MB 440-604634/4	Method Blank	Total/NA	Water	624.1	
LCS 440-604634/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264459-1 MS	Outfall018_20200409_Grab	Total/NA	Water	624.1	
440-264459-1 MSD	Outfall018_20200409_Grab	Total/NA	Water	624.1	

Analysis Batch: 604735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1 - RA	Outfall018_20200409_Grab	Total/NA	Water	624.1	
440-264459-3 - RA	TB-20200410	Total/NA	Water	624.1	
MB 440-604735/4	Method Blank	Total/NA	Water	624.1	
LCS 440-604735/1002	Lab Control Sample	Total/NA	Water	624.1	
440-264459-1 MS	Outfall018_20200409_Grab	Total/NA	Water	624.1	
440-264459-1 MSD	Outfall018_20200409_Grab	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 604637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1	Outfall018_20200409_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 605665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1	Outfall018_20200409_Grab	Total/NA	Water	120.1	
MB 440-605665/3	Method Blank	Total/NA	Water	120.1	
LCS 440-605665/4	Lab Control Sample	Total/NA	Water	120.1	
440-264678-A-1 DU	Duplicate	Total/NA	Water	120.1	

Prep Batch: 605782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1	Outfall018_20200409_Grab	Total/NA	Water	1664A	
MB 440-605782/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-605782/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-605782/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 605871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264459-1	Outfall018_20200409_Grab	Total/NA	Water	1664A	605782
MB 440-605782/1-A	Method Blank	Total/NA	Water	1664A	605782
LCS 440-605782/2-A	Lab Control Sample	Total/NA	Water	1664A	605782
LCSD 440-605782/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	605782

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
α	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: Quarterly Outfall 018 Grab

Job ID: 440-264459-1

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

CHAIN OF CUSTODY FORM

TRAE-1783

R Q/S R R ANALYSIS REQUIRED

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project Boeing-SSFL NPDES Permit 2020 Quarterly Outfall (001, 002, 011, 018) Outfall 018 Grab		Field Readings (Include units) Time of Readings: 12:30 DO 12.25 mg/L pH 7.76 pH unit Temp 55.3 °C		Field Readings QC Checked by: <i>MAB</i> Date/Time: 4-9-2020/1230		Comments 01/10/20					
Eurofins Calsciencé Irvine Contact: Christian Bondoc 17461 Derain 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)		VOCs + 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) (E624)		Off & Grease (E1694-HEM)					
Sample Description Outfall 018		Sample Matrix WM		Container Type 1 L Glass Amber		# of Cont. 2		Preservative HCl		Bottle # 15		MS/MSD No	
Outfall 018_20200410_Grab		4/10/2020 1230		40 mL VOA		9		HCl		20		Yes	
Outfall 018_20200410_Grab_Extra		4/10/2020 1230		1 L Poly		1		None		70		No	
Trip Blank TB-20200410		4/10/2020 1230		500 mL Poly		1		None		75		No	
				1 L Glass Amber		2		HCl		15		No	
				40 mL VOA		3		HCl		20		No	
				500 mL Poly		1		None		75		No	
				40 mL VOA		2		HCl		20		No	



440-264459 Chain of Custody

Legend: R=Routine, Q=Quarterly, S=Semi-Annual

Relinquished By: <i>Mark Dominick</i> Date/Time: 4-10-2020/0900 Company: MIA	Received By: <i>SELETTU</i> Date/Time: 4-10-20 9 00 Company:	Turn-around time (Check) 24 Hour: <input checked="" type="checkbox"/> 10 Day: <input checked="" type="checkbox"/> 48 Hour: <input type="checkbox"/> 5 Day: <input type="checkbox"/> Normal: <input type="checkbox"/> Sample Integrity (Check) Intact: <input type="checkbox"/> On Ice: 14/14 Store samples for 6 months. Data Requirements: (Check) No Level IV: <input type="checkbox"/> All Level IV: <input checked="" type="checkbox"/>
Relinquished By: <i>Christian Bondoc</i> Date/Time: 4-10-20 11:30 Company:	Received By: <i>EC IRV</i> Date/Time: 4/10/20 1130 Company:	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264459-1

Login Number: 264459

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-264517-1

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

29 May 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:** 440-264517-1**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
OUTFALL018_20200410_COMP	440-264517-1	N/A	WM	4/10/20 12:50 PM	E1613B, E200.7, E200.8	II
OUTFALL018_20200410_COMP_F	440-264517-3	N/A	WM	4/10/20 12:50 PM	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) 440-264517-1:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- 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- Sacramento for analysis of Method 1613B.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers upon receipt at TA-Irvine and TA-Sacramento. No evidence of tampering was noted.
- Strikethroughs on the original COC were initialed but not dated.



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

L. Calvin of MEC^X reviewed the SDG on June 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 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 at a Stage II validation.

III.3. CALIBRATION

Calibration criteria were not evaluated at 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, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,7,8-TCDF, OCDD and OCDF, and for all totals except PeCDF and TCDD. The sample results for the isomer method blank contaminants detected below the RL were qualified as nondetects (U) at the level of contamination. Totals PeCDD and TCDF in the sample matched the concentration of the qualified isomer (isomer 2,3,7,8-TCDF would have been qualified if retained) and were also qualified as nondetects (U). The result for total HxCDD (containing both qualified method blank isomers and a qualified EMPC isomer) was qualified as an estimated nondetect (UJ). The sample totals for HpCDD, HpCDF and HxCDF 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 at a Stage II validation.

III.7. COMPOUND IDENTIFICATION

Compound identification was not evaluated at a Stage II validation. The second-column confirmation analysis for isomer 2,3,7,8-TCDF did not confirm the initial result. As the confirmation column is more specific for the detection of 2,3,7,8-TCDF, the nondetect confirmation result was retained and the initial result rejected (R) as duplicate data.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was not evaluated at 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.

Isomers previously qualified as method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects (UJ) at the level of the EMPC. Total HxCDD in the sample (containing both qualified method blank isomers and a qualified EMPC isomer) was qualified as an estimated nondetect (UJ). The concentration of total TCDD in the sample matched the qualified isomer and was therefore also qualified as an estimated nondetect (UJ). Total HxCDF flagged by the laboratory as including one or more EMPC peaks was qualified as estimated (J).

IV. METHODS 200.7 AND 200.8— METALS

M. Hilchey of MEC^x reviewed the SDG on May 29, 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 OUTFALL018_20200410_COMP_F was filtered and preserved within 24 hours of receipt, as required on the COC.

IV.2. CALIBRATION

ICP-MS mass calibrations were within 0.1 atomic mass units of the true value. The %RSDs were $\leq 5\%$.

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.

IV.3.2. INTERFERENCE CHECK SAMPLES:

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or $\pm 2 \times$ the reporting limit, whichever is greater. Interferents in site samples were not summarized; therefore, interference was not 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 in this SDG (total and dissolved) for both methods. Recoveries were within the QAPP control limits of 70-130% and RPDs were $\leq 20\%$.

IV.3.6. SERIAL DILUTION

Serial dilution analyses were not performed.

IV.4. INTERNAL STANDARDS PERFORMANCE

Internal standard summaries indicated that sample internal standard recoveries met QAPP control limits of 60-125%.

IV.5. 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.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:

IV.6.1. FIELD BLANKS AND EQUIPMENT BLANKS

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

IV.6.2. FIELD DUPLICATES

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4402645171

Analysis Method E1613B

Sample Name OUTFALL018_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 12:50:00 PM **Validation Level:** 9

Lab Sample Name: 440-264517-1

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	0.000014	0.00010	0.00000064	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.000029	0.00010	0.00000068	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000050	0.000052	0.00000048	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.0000060	0.000052	0.00000050	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.0000047	0.000052	0.00000052	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000031	0.000052	0.00000083	ug/L	J,DX	J	DNQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000055	0.000052	0.00000058	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.0000029	0.000052	0.00000089	ug/L	J,DXq	UJ	*III
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000030	0.000052	0.00000058	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.0000042	0.000052	0.00000051	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000038	0.000052	0.00000053	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.0000029	0.000052	0.00000045	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.0000023	0.000052	0.00000049	ug/L	J,DXqMB	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.0000031	0.000052	0.00000056	ug/L	J,DXq	UJ	*III
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.0000025	0.000052	0.00000047	ug/L	J,DX	J	DNQ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.00000071	0.000010	0.00000030	ug/L	J,DXqMB	R	D
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	ND	0.000010	0.00000074	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	0.00000088	0.000010	0.00000046	ug/L	J,DXq	UJ	*III
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000011	0.000052	0.00000048	ug/L	J,DXqMB	J	B, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.0000085	0.000052	0.00000050	ug/L	J,DXMB	J	B, DNQ
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.000013	0.000052	0.00000051	ug/L	J,DXqMB	J	B, DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.000012	0.000052	0.00000053	ug/L	J,DXqMB	UJ	B, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000053	0.000052	0.00000045	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.0000023	0.000052	0.00000049	ug/L	J,DXqMB	U	B
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.00000071	0.000010	0.00000030	ug/L	J,DXqMB	U	B

Analysis Method E1613B

Total Tetrachlorodibenzo-p-dioxin N 41903-57-5 0.00000088 0.000010 0.00000046 ug/L J,DXq UJ *III
(TCDD)

Analysis Method E200.7

Sample Name OUTFALL018_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 12:50:00 PM **Validation Level:** 9

Lab Sample Name: 440-264517-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	520	100	50	ug/L			
Zinc	T	7440-66-6	ND	20	12	ug/L	U	U	

Sample Name OUTFALL018_20200410_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 12:50:00 PM **Validation Level:** 9

Lab Sample Name: 440-264517-3

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	D	7429-90-5	250	100	50	ug/L			
Zinc	D	7440-66-6	74	20	12	ug/L			

Analysis Method E200.8

Sample Name OUTFALL018_20200410_COMP **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 12:50:00 PM **Validation Level:** 9

Lab Sample Name: 440-264517-1

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	ND	1.0	0.50	ug/L	U	U	
Selenium	T	7782-49-2	0.55	2.0	0.50	ug/L	J,DX	J	DNQ

Sample Name OUTFALL018_20200410_COMP_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/10/2020 12:50:00 PM **Validation Level:** 9

Lab Sample Name: 440-264517-3

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	U	
Copper	D	7440-50-8	2.0	2.0	0.50	ug/L			
Lead	D	7439-92-1	ND	1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	0.66	2.0	0.50	ug/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: 440-264517-1
Client Project/Site: Quarterly Outfall 018 Comp
Revision: 1

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

Attn: Katherine Miller



Authorized for release by:
6/5/2020 8:21:34 AM
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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.

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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
6/5/2020 8:21:35 AM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264517-1	Outfall018_20200410_Comp	Water	04/10/20 12:50	04/10/20 16:45	
440-264517-3	Outfall018_20200410_Comp_F	Water	04/10/20 12:50	04/10/20 16:45	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Job ID: 440-264517-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264517-1

Comments

This report was revised to exclude Hardness results for sample Outfall018_20200410_Comp_F (440-264517-3) not requested on the COC

Receipt

The samples were received on 4/10/2020 4:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 1.3° C, 1.4° C, 1.7° C, 2.1° C, 2.4° C and 2.6° C.

GC/MS Semi VOA

Method 625.1: Surrogate Phenol-d5 recovery for the following sample was outside control limits: Outfall018_20200410_Comp (440-264517-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Low recovery is possibly due to less than optimal extraction conditions. Data is reported with a possible low bias.

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 440-604707 and analytical batch 440-604795. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-604707/5-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 and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall018_20200410_Comp (440-264517-1), (CCV 320-373674/2), (LCS 320-372899/2-A) and (MB 320-372899/1-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_20200410_Comp_F (440-264517-3), Outfall018_20200410_Comp_F (440-264517-3[MS]) and Outfall018_20200410_Comp_F (440-264517-3[MSD]). These samples were filtered and preserved upon receipt to the laboratory.

04/11/20 by CDH/HZ
2.5mL of HNO3
HNO3 Lot # 0000234822

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.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Job ID: 440-264517-1 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

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_20200410_Comp (440-264517-1) were received in a wide-mouth amber glass bottle.

Prep Batch: 372899

Method: 1613 (Waste Water)

Matrix: Water

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

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

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		04/13/20 08:58	04/15/20 10:29	1
Bis(2-ethylhexyl) phthalate	ND		5.3	2.1	ug/L		04/13/20 08:58	04/15/20 10:29	1
N-Nitrosodimethylamine	ND		5.3	0.32	ug/L		04/13/20 08:58	04/15/20 10:29	1
Pentachlorophenol	ND		5.3	1.1	ug/L		04/13/20 08:58	04/15/20 10:29	1
2,4-Dinitrotoluene	ND		5.3	2.1	ug/L		04/13/20 08:58	04/15/20 10:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		60 - 120	04/13/20 08:58	04/15/20 10:29	1
2-Fluorobiphenyl	76		51 - 120	04/13/20 08:58	04/15/20 10:29	1
2-Fluorophenol	81		43 - 120	04/13/20 08:58	04/15/20 10:29	1
Nitrobenzene-d5	87		53 - 150	04/13/20 08:58	04/15/20 10:29	1
Terphenyl-d14	104		12 - 142	04/13/20 08:58	04/15/20 10:29	1
Phenol-d5	32	LG	45 - 150	04/13/20 08:58	04/15/20 10:29	1

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0052	0.0026	ug/L		04/13/20 05:29	04/14/20 14:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	48		10 - 104	04/13/20 05:29	04/14/20 14:36	1
DCB Decachlorobiphenyl (Surr)	71		18 - 134	04/13/20 05:29	04/14/20 14:36	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.15		0.11	0.055	mg/L			04/10/20 22:40	1
Nitrite as N	ND		0.15	0.025	mg/L			04/10/20 22:40	1

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.9		2.5	1.3	mg/L			04/10/20 23:09	5
Sulfate	88		2.5	1.3	mg/L			04/10/20 23:09	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			04/14/20 10:35	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			04/14/20 12:16	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.0000088	J,DX q	0.000010	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,7,8-PeCDD	0.0000023	J,DX q MB	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,7,8-PeCDF	0.0000029	J,DX	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
2,3,4,7,8-PeCDF	0.0000025	J,DX	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,4,7,8-HxCDD	0.0000055	J,DX MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

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	0.0000030	J,DX q	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,7,8,9-HxCDD	0.0000038	J,DX MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,4,7,8-HxCDF	0.0000031	J,DX	0.000052	0.0000008	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,6,7,8-HxCDF	0.0000029	J,DX q	0.000052	0.0000008	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,7,8,9-HxCDF	0.0000042	J,DX MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
2,3,4,6,7,8-HxCDF	0.0000031	J,DX q	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,4,6,7,8-HpCDD	0.0000060	J,DX MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,4,6,7,8-HpCDF	0.0000050	J,DX q MB	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
1,2,3,4,7,8,9-HpCDF	0.0000047	J,DX	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
OCDD	0.000029	J,DX MB	0.00010	0.0000006	ug/L		04/16/20 12:05	04/20/20 18:57	1
OCDF	0.000014	J,DX MB	0.00010	0.0000006	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total TCDD	0.0000088	J,DX q	0.000010	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total TCDF	0.0000071	J,DX q MB	0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total PeCDD	0.0000023	J,DX q MB	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total PeCDF	0.0000053	J,DX	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total HxCDD	0.000012	J,DX q MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total HxCDF	0.000013	J,DX q MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total HpCDD	0.0000085	J,DX MB	0.000052	0.0000005	ug/L		04/16/20 12:05	04/20/20 18:57	1
Total HpCDF	0.000011	J,DX q MB	0.000052	0.0000004	ug/L		04/16/20 12:05	04/20/20 18:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164	04/16/20 12:05	04/20/20 18:57	1
13C-2,3,7,8-TCDF	66		24 - 169	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,7,8-PeCDD	58		25 - 181	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,7,8-PeCDF	59		24 - 185	04/16/20 12:05	04/20/20 18:57	1
13C-2,3,4,7,8-PeCDF	60		21 - 178	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,6,7,8-HxCDD	65		28 - 130	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,4,7,8-HxCDF	67		26 - 152	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,6,7,8-HxCDF	65		26 - 123	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,7,8,9-HxCDF	69		29 - 147	04/16/20 12:05	04/20/20 18:57	1
13C-2,3,4,6,7,8-HxCDF	66		28 - 136	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,4,6,7,8-HpCDD	78		23 - 140	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/16/20 12:05	04/20/20 18:57	1
13C-1,2,3,4,7,8,9-HpCDF	85		26 - 138	04/16/20 12:05	04/20/20 18:57	1
13C-OCDD	76		17 - 157	04/16/20 12:05	04/20/20 18:57	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	84		35 - 197	04/16/20 12:05	04/20/20 18:57	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		0.000010	0.0000007	ug/L		04/16/20 12:05	04/21/20 15:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	62		24 - 169	04/16/20 12:05	04/21/20 15:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	85		35 - 197	04/16/20 12:05	04/21/20 15:01	1

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		04/14/20 09:09	04/15/20 12:42	1
Aluminum	520		100	50	ug/L		04/14/20 09:09	04/15/20 12:42	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		04/13/20 16:07	04/13/20 20:43	1
Copper	2.1		2.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:43	1
Lead	ND		1.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:43	1
Selenium	0.55	J,DX	2.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:43	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		04/13/20 13:07	04/13/20 17:12	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	91		0.33	0.17	mg/L			04/23/20 23:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	0.71		0.10	0.040	NTU			04/10/20 19:22	1
Total Dissolved Solids	270		10	5.0	mg/L			04/16/20 10:34	1
Total Suspended Solids	1.3		1.0	0.50	mg/L			04/16/20 12:59	1
Cyanide, Total	ND		5.0	2.5	ug/L		04/15/20 09:51	04/16/20 13:39	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/20/20 13:31	1
Methylene Blue Active Substances	0.086	J,DX	0.10	0.050	mg/L			04/11/20 11:05	1
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			04/12/20 08:14	1

Client Sample ID: Outfall018_20200410_Comp_F

Lab Sample ID: 440-264517-3

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

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		04/13/20 05:29	04/14/20 15:21	1
Dieldrin	ND		0.0052	0.0021	ug/L		04/13/20 05:29	04/14/20 15:21	1
Toxaphene	ND		0.52	0.25	ug/L		04/13/20 05:29	04/14/20 15:21	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp_F

Lab Sample ID: 440-264517-3

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0052	0.0042	ug/L		04/13/20 05:29	04/14/20 15:21	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		04/13/20 05:29	04/14/20 15:21	1
4,4'-DDT	ND		0.010	0.0042	ug/L		04/13/20 05:29	04/14/20 15:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	47		10 - 104				04/13/20 05:29	04/14/20 15:21	1

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		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1221	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1232	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1242	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1248	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1254	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Aroclor 1260	ND		0.52	0.26	ug/L		04/13/20 05:29	04/13/20 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	111		18 - 134				04/13/20 05:29	04/13/20 15:56	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	74		20	12	ug/L		04/13/20 14:57	04/13/20 19:16	1
Aluminum	250		100	50	ug/L		04/13/20 14:57	04/13/20 19:16	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		04/13/20 15:01	04/13/20 15:32	1
Copper	2.0		2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:32	1
Lead	ND		1.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:32	1
Selenium	0.66	J,DX	2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:32	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		04/13/20 16:56	04/13/20 19:59	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

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
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 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	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:

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: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

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	604752	04/13/20 08:58	NAM	TAL IRV
Total/NA	Analysis	625.1		1			605078	04/15/20 10:29	L1B	TAL IRV
Total/NA	Prep	608			960 mL	2 mL	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604824	04/14/20 14:36	D1D	TAL IRV
Total/NA	Analysis	300.0		1			604533	04/10/20 22:40	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			604533	04/10/20 23:09	NTN	TAL IRV
Total/NA	Analysis	300.0	DL	5			604534	04/10/20 23:09	NTN	TAL IRV
Total/NA	Analysis	314.0		1			604895	04/14/20 10:35	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			604964	04/14/20 12:16	TLN	TAL IRV
Total/NA	Prep	1613B			960 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B		1			373674	04/20/20 18:57	ALM	TAL SAC
Total/NA	Prep	1613B	RA		960 mL	20.0 uL	372899	04/16/20 12:05	NR	TAL SAC
Total/NA	Analysis	1613B	RA	1			373924	04/21/20 15:01	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	604822	04/14/20 09:09	M1G	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			605180	04/15/20 12:42	TQN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	604821	04/13/20 16:07	M1G	TAL IRV
Total Recoverable	Analysis	200.8		1			604923	04/13/20 20:43	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	604651	04/13/20 13:07	DB	TAL IRV
Total/NA	Analysis	245.1		1			604855	04/13/20 17:12	MEM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			606179	04/23/20 23:29	P1R	TAL IRV
Total/NA	Analysis	180.1		1			604643	04/10/20 19:22	HZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	605340	04/16/20 10:34	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	605370	04/16/20 12:59	XL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	605119	04/15/20 09:51	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			605374	04/16/20 13:39	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8.0 mL	605752	04/20/20 13:31	KMY	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	604672	04/11/20 11:05	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1	300 mL	300 mL	604686	04/12/20 08:14	KYP	TAL IRV

Client Sample ID: Outfall018_20200410_Comp_F

Lab Sample ID: 440-264517-3

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			960 mL	2 mL	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604824	04/14/20 15:21	D1D	TAL IRV
Total/NA	Prep	608			960 mL	2 mL	604707	04/13/20 05:29	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604795	04/13/20 15:56	JM	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	604667	04/11/20 10:07	A1S	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604811	04/13/20 14:57	M1G	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			604849	04/13/20 19:16	P1R	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Client Sample ID: Outfall018_20200410_Comp_F

Lab Sample ID: 440-264517-3

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

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	604667	04/11/20 10:07	A1S	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	604812	04/13/20 15:01	M1G	TAL IRV
Dissolved	Analysis	200.8		1			604819	04/13/20 15:32	MQP	TAL IRV
Dissolved	Filtration	FILTRATION			80 mL	80 mL	604794	04/13/20 12:41	M1G	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	604830	04/13/20 16:56	DB	TAL IRV
Dissolved	Analysis	245.1		1			604853	04/13/20 19:59	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



QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-604752/1-A
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		6.0	0.10	ug/L		04/13/20 08:58	04/15/20 09:40	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		04/13/20 08:58	04/15/20 09:40	1
N-Nitrosodimethylamine	ND		5.0	0.30	ug/L		04/13/20 08:58	04/15/20 09:40	1
Pentachlorophenol	ND		5.0	1.0	ug/L		04/13/20 08:58	04/15/20 09:40	1
2,4-Dinitrotoluene	ND		5.0	2.0	ug/L		04/13/20 08:58	04/15/20 09:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		60 - 120	04/13/20 08:58	04/15/20 09:40	1
2-Fluorobiphenyl	73		51 - 120	04/13/20 08:58	04/15/20 09:40	1
2-Fluorophenol	89		43 - 120	04/13/20 08:58	04/15/20 09:40	1
Nitrobenzene-d5	85		53 - 150	04/13/20 08:58	04/15/20 09:40	1
Terphenyl-d14	116		12 - 142	04/13/20 08:58	04/15/20 09:40	1
Phenol-d5	83		45 - 150	04/13/20 08:58	04/15/20 09:40	1

Lab Sample ID: LCS 440-604752/2-A
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	15.0	12.3		ug/L		82	52 - 129
Bis(2-ethylhexyl) phthalate	15.0	14.5		ug/L		97	29 - 137
N-Nitrosodimethylamine	15.0	13.4		ug/L		89	60 - 140
Pentachlorophenol	30.0	27.3		ug/L		91	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	88		60 - 120
2-Fluorobiphenyl	74		51 - 120
2-Fluorophenol	89		43 - 120
Nitrobenzene-d5	91		53 - 150
Terphenyl-d14	113		12 - 142
Phenol-d5	82		45 - 150

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2,4,6-Trichlorophenol	ND		16.0	13.0		ug/L		81	37 - 144
Bis(2-ethylhexyl) phthalate	ND		16.0	15.4		ug/L		96	8 - 158
N-Nitrosodimethylamine	ND		16.0	13.2		ug/L		82	60 - 140
Pentachlorophenol	ND		32.1	31.7		ug/L		99	14 - 176

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	83		60 - 120
2-Fluorobiphenyl	67		51 - 120
2-Fluorophenol	81		43 - 120
Nitrobenzene-d5	85		53 - 150

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604752

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14	108		12 - 142
Phenol-d5	74		45 - 150

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 605078

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604752

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	ND		16.0	13.6		ug/L		85	37 - 144	5	58
Bis(2-ethylhexyl) phthalate	ND		16.0	16.0		ug/L		100	8 - 158	3	82
N-Nitrosodimethylamine	ND		16.0	14.3		ug/L		89	60 - 140	8	35
Pentachlorophenol	ND		32.1	33.4		ug/L		104	14 - 176	5	86

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	87		60 - 120
2-Fluorobiphenyl	69		51 - 120
2-Fluorophenol	82		43 - 120
Nitrobenzene-d5	87		53 - 150
Terphenyl-d14	114		12 - 142
Phenol-d5	71		45 - 150

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-604707/1-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0050	0.0025	ug/L		04/13/20 05:29	04/14/20 13:36	1
Chlordane (technical)	ND		0.10	0.080	ug/L		04/13/20 05:29	04/14/20 13:36	1
Dieldrin	ND		0.0050	0.0020	ug/L		04/13/20 05:29	04/14/20 13:36	1
Toxaphene	ND		0.50	0.24	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/13/20 05:29	04/14/20 13:36	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/13/20 05:29	04/14/20 13:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	89		18 - 134	04/13/20 05:29	04/14/20 13:36	1
Tetrachloro-m-xylene	64		10 - 104	04/13/20 05:29	04/14/20 13:36	1

Lab Sample ID: LCS 440-604707/2-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.400	0.281		ug/L		70	42 - 140
alpha-BHC	0.400	0.254		ug/L		64	37 - 140
beta-BHC	0.400	0.271		ug/L		68	17 - 147

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 440-604707/2-A
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
delta-BHC	0.400	0.275		ug/L		69	19 - 140
Dieldrin	0.400	0.293		ug/L		73	36 - 146
Endosulfan I	0.400	0.276		ug/L		69	45 - 153
Endosulfan II	0.400	0.292		ug/L		73	10 - 202
Endosulfan sulfate	0.400	0.290		ug/L		73	26 - 144
Endrin	0.400	0.272		ug/L		68	30 - 147
Endrin aldehyde	0.400	0.276		ug/L		69	60 - 140
gamma-BHC (Lindane)	0.400	0.274		ug/L		69	32 - 140
Heptachlor	0.400	0.269		ug/L		67	34 - 140
Heptachlor epoxide	0.400	0.281		ug/L		70	37 - 142
4,4'-DDD	0.400	0.322		ug/L		80	31 - 141
4,4'-DDE	0.400	0.298		ug/L		75	30 - 145
4,4'-DDT	0.400	0.310		ug/L		78	25 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	96		18 - 134
Tetrachloro-m-xylene	72		10 - 104

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
alpha-BHC	ND		0.408	0.233		ug/L		57	37 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	67		10 - 104
DCB Decachlorobiphenyl (Surr)	89		18 - 134

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604824

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
alpha-BHC	ND		0.415	0.242		ug/L		58	37 - 140	4	36

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	68		10 - 104
DCB Decachlorobiphenyl (Surr)	90		18 - 134

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-604707/1-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: MB 440-604707/1-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1221	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1232	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1242	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1248	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1254	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1
Aroclor 1260	ND		0.50	0.25	ug/L		04/13/20 05:29	04/13/20 14:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	80		18 - 134	04/13/20 05:29	04/13/20 14:46	1

Lab Sample ID: LCS 440-604707/5-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor 1016	4.00	3.02		ug/L		75	50 - 140
Aroclor 1260	4.00	3.33		ug/L		83	8 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	97		18 - 134

Lab Sample ID: LCSD 440-604707/6-A
Matrix: Water
Analysis Batch: 604795

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604707

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Aroclor 1016	4.00	2.96		ug/L		74	50 - 140	2	36
Aroclor 1260	4.00	3.27		ug/L		82	8 - 140	2	38

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	93		18 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-604533/6
Matrix: Water
Analysis Batch: 604533

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			04/10/20 10:00	1
Nitrite as N	ND		0.15	0.025	mg/L			04/10/20 10:00	1

Lab Sample ID: LCS 440-604533/5
Matrix: Water
Analysis Batch: 604533

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Nitrate as N	1.13	1.07		mg/L		95	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 440-604533/5
Matrix: Water
Analysis Batch: 604533

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	1.52	1.51		mg/L		99	90 - 110

Lab Sample ID: MB 440-604534/6
Matrix: Water
Analysis Batch: 604534

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			04/10/20 10:00	1
Sulfate	ND		0.50	0.25	mg/L			04/10/20 10:00	1

Lab Sample ID: LCS 440-604534/5
Matrix: Water
Analysis Batch: 604534

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
Sulfate	5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604534

Client Sample ID: Outfall018_20200410_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	5.9		25.0	28.8		mg/L		92	80 - 120	0	20
Sulfate	88		25.0	115		mg/L		110	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604533

Client Sample ID: Outfall018_20200410_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	5.34		mg/L		95	80 - 120
Nitrite as N - DL	ND		7.61	7.03		mg/L		92	80 - 120

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604533

Client Sample ID: Outfall018_20200410_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	5.33		mg/L		94	80 - 120	0	20
Nitrite as N - DL	ND		7.61	7.01		mg/L		92	80 - 120	0	20

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604534

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride - DL	5.9		25.0	28.9		mg/L		92	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 300.0 - Anions, Ion Chromatography - DL (Continued)

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604534

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL	88		25.0	115		mg/L		110	80 - 120

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-604895/6
Matrix: Water
Analysis Batch: 604895

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			04/14/20 09:39	1

Lab Sample ID: LCS 440-604895/5
Matrix: Water
Analysis Batch: 604895

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	9.37		ug/L		94	85 - 115

Lab Sample ID: MRL 440-604895/4
Matrix: Water
Analysis Batch: 604895

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	1.01	J,DX	ug/L		101	75 - 125

Lab Sample ID: MRL 440-604895/8
Matrix: Water
Analysis Batch: 604895

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	3.74	J,DX	ug/L		93	75 - 125

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604895

Client Sample ID: Outfall018_20200410_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	9.76		ug/L		98	80 - 120

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604895

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Perchlorate	ND		10.0	9.83		ug/L		98	80 - 120	1	15

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000003	ug/L	-	04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDD	0.00000189	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDD	0.000000710	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,7,8,9-HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDD	0.00000730	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,6,7,8-HpCDF	0.00000720	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000006	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDD	0.0000663	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
OCDF	0.0000257	J,DX	0.00010	0.0000007	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDD	ND		0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total TCDF	0.000000636	J,DX	0.000010	0.0000003	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDD	0.000000862	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total PeCDF	ND		0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDD	0.00000260	J,DX q	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HxCDF	0.000000893	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDD	0.0000130	J,DX	0.000050	0.0000004	ug/L		04/16/20 12:05	04/20/20 16:41	1
Total HpCDF	0.0000152	J,DX	0.000050	0.0000005	ug/L		04/16/20 12:05	04/20/20 16:41	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,7,8-TCDF	72		24 - 169	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	04/16/20 12:05	04/20/20 16:41	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	72		21 - 178	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDD	70		28 - 130	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	04/16/20 12:05	04/20/20 16:41	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDD	72		23 - 140	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/16/20 12:05	04/20/20 16:41	1
13C-1,2,3,4,7,8,9-HpCDF	79		26 - 138	04/16/20 12:05	04/20/20 16:41	1
13C-OCDD	73		17 - 157	04/16/20 12:05	04/20/20 16:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl-2,3,7,8-TCDD	86		35 - 197	04/16/20 12:05	04/20/20 16:41	1

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	0.000200	0.000199		ug/L		99	67 - 158
2,3,7,8-TCDF	0.000200	0.000207	MB	ug/L		104	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00105	MB	ug/L		105	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00106		ug/L		106	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000992		ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000959	MB	ug/L		96	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00107		ug/L		107	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000915		ug/L		91	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00101		ug/L		101	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00103	MB	ug/L		103	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	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	0.000964		ug/L		96	78 - 138
OCDD	0.00200	0.00199	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00217	MB	ug/L		108	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	60		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	63		25 - 163
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-372899/2-A
Matrix: Water
Analysis Batch: 373674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 372899

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	68		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	67		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	84		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-372899/1-A
Matrix: Water
Analysis Batch: 373924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 372899

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF - RA	ND		0.000010	0.0000007	ug/L		04/16/20 12:05	04/21/20 13:45	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,7,8-TCDF - RA	67		24 - 169	04/16/20 12:05	04/21/20 13:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD - RA	85		35 - 197	04/16/20 12:05	04/21/20 13:45	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-604822/1-A
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		04/14/20 09:09	04/15/20 12:37	1
Aluminum	ND		100	50	ug/L		04/14/20 09:09	04/15/20 12:37	1

Lab Sample ID: LCS 440-604822/2-A
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Zinc	500	513		ug/L		103	85 - 115
Aluminum	500	491		ug/L		98	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Zinc	ND		500	518		ug/L		104	70 - 130
Aluminum	520		500	1030		ug/L		102	70 - 130

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 605180

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604822

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Zinc	ND		500	538		ug/L		108	70 - 130	4	20
Aluminum	520		500	1050		ug/L		107	70 - 130	3	20

Lab Sample ID: MB 440-604667/1-B
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	12	ug/L		04/13/20 14:57	04/13/20 19:10	1
Aluminum	ND		100	50	ug/L		04/13/20 14:57	04/13/20 19:10	1

Lab Sample ID: LCS 440-604667/2-B
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Zinc	500	494		ug/L		99	85 - 115
Aluminum	500	488		ug/L		98	85 - 115

Lab Sample ID: 440-264517-3 MS
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Outfall018_20200410_Comp_F
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Zinc	74		500	503		ug/L		86	70 - 130
Aluminum	250		500	745		ug/L		98	70 - 130

Lab Sample ID: 440-264517-3 MSD
Matrix: Water
Analysis Batch: 604849

Client Sample ID: Outfall018_20200410_Comp_F
Prep Type: Dissolved
Prep Batch: 604811

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Zinc	74		500	497		ug/L		85	70 - 130	1	20
Aluminum	250		500	744		ug/L		98	70 - 130	0	20

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-604821/1-A
Matrix: Water
Analysis Batch: 604923

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604821

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		04/13/20 16:07	04/13/20 20:39	1
Copper	ND		2.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:39	1
Lead	ND		1.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:39	1
Selenium	ND		2.0	0.50	ug/L		04/13/20 16:07	04/13/20 20:39	1

Lab Sample ID: LCS 440-604821/2-A
Matrix: Water
Analysis Batch: 604923

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604821

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	72.6		ug/L		91	85 - 115
Copper	80.0	74.9		ug/L		94	85 - 115
Lead	80.0	74.5		ug/L		93	85 - 115
Selenium	80.0	73.1		ug/L		91	85 - 115

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604923

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604821

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	72.3		ug/L		90	70 - 130
Copper	2.1		80.0	77.6		ug/L		94	70 - 130
Lead	ND		80.0	74.7		ug/L		93	70 - 130
Selenium	0.55	J,DX	80.0	71.1		ug/L		88	70 - 130

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604923

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total Recoverable
Prep Batch: 604821

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND		80.0	72.5		ug/L		91	70 - 130	0	20
Copper	2.1		80.0	78.1		ug/L		95	70 - 130	1	20
Lead	ND		80.0	75.0		ug/L		94	70 - 130	0	20
Selenium	0.55	J,DX	80.0	71.4		ug/L		89	70 - 130	0	20

Lab Sample ID: MB 440-604667/1-C
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 604812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		04/13/20 15:01	04/13/20 15:27	1
Copper	ND		2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27	1
Lead	ND		1.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27	1
Selenium	ND		2.0	0.50	ug/L		04/13/20 15:01	04/13/20 15:27	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-604667/2-C
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	80.0	71.5		ug/L		89	85 - 115
Copper	80.0	72.5		ug/L		91	85 - 115
Lead	80.0	71.8		ug/L		90	85 - 115
Selenium	80.0	70.3		ug/L		88	85 - 115

Lab Sample ID: 440-264517-3 MS
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Outfall018_20200410_Comp_F
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		80.0	70.0		ug/L		88	70 - 130
Copper	2.0		80.0	74.4		ug/L		91	70 - 130
Lead	ND		80.0	71.4		ug/L		89	70 - 130
Selenium	0.66	J,DX	80.0	72.2		ug/L		89	70 - 130

Lab Sample ID: 440-264517-3 MSD
Matrix: Water
Analysis Batch: 604819

Client Sample ID: Outfall018_20200410_Comp_F
Prep Type: Dissolved
Prep Batch: 604812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND		80.0	68.1		ug/L		85	70 - 130	3	20
Copper	2.0		80.0	72.1		ug/L		88	70 - 130	3	20
Lead	ND		80.0	69.9		ug/L		87	70 - 130	2	20
Selenium	0.66	J,DX	80.0	65.8		ug/L		81	70 - 130	9	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-604651/1-A
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/13/20 13:07	04/13/20 17:07	1

Lab Sample ID: LCS 440-604651/2-A
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	4.00	3.82		ug/L		95	85 - 115

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604855

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 604651

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		4.00	3.89		ug/L		97	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-264517-1 MSD
 Matrix: Water
 Analysis Batch: 604855

Client Sample ID: Outfall018_20200410_Comp
 Prep Type: Total/NA
 Prep Batch: 604651

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 440-604794/1-B
 Matrix: Water
 Analysis Batch: 604853

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 604830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		04/13/20 16:56	04/13/20 19:55	1

Lab Sample ID: LCS 440-604794/2-B
 Matrix: Water
 Analysis Batch: 604853

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved
 Prep Batch: 604830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.00	3.78		ug/L		94	85 - 115

Lab Sample ID: 440-264517-3 MS
 Matrix: Water
 Analysis Batch: 604853

Client Sample ID: Outfall018_20200410_Comp_F
 Prep Type: Dissolved
 Prep Batch: 604830

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		4.00	3.81		ug/L		95	75 - 125

Lab Sample ID: 440-264517-3 MSD
 Matrix: Water
 Analysis Batch: 604853

Client Sample ID: Outfall018_20200410_Comp_F
 Prep Type: Dissolved
 Prep Batch: 604830

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		4.00	3.68		ug/L		92	75 - 125	3	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-604643/5
 Matrix: Water
 Analysis Batch: 604643

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			04/10/20 19:22	1

Lab Sample ID: 440-264517-1 DU
 Matrix: Water
 Analysis Batch: 604643

Client Sample ID: Outfall018_20200410_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.71		0.730		NTU		3	20

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-605340/1
Matrix: Water
Analysis Batch: 605340

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	-		04/16/20 10:34	1

Lab Sample ID: LCS 440-605340/2
Matrix: Water
Analysis Batch: 605340

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: 440-264517-1 DU
Matrix: Water
Analysis Batch: 605340

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	270		257		mg/L	-	4	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-605370/1
Matrix: Water
Analysis Batch: 605370

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	-		04/16/20 12:59	1

Lab Sample ID: LCS 440-605370/2
Matrix: Water
Analysis Batch: 605370

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	981		mg/L	-	98	85 - 115

Lab Sample ID: 440-264754-A-1 DU
Matrix: Water
Analysis Batch: 605370

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	2.5		2.40		mg/L	-	4	10

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-605119/1-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L	-	04/15/20 09:51	04/16/20 13:39	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCS 440-605119/2-A
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	100	101		ug/L		101	80 - 120

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	ND		100	69.3	LN	ug/L		69	75 - 125

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 605374

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 605119
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	ND		100	68.5	LN	ug/L		69	75 - 125	1	20

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-605752/10
Matrix: Water
Analysis Batch: 605752

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			04/20/20 13:20	1

Lab Sample ID: LCS 440-605752/11
Matrix: Water
Analysis Batch: 605752

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Ammonia (as N)	5.00	4.980		mg/L		100	90 - 110

Lab Sample ID: MRL 440-605752/9
Matrix: Water
Analysis Batch: 605752

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	Limits
Ammonia (as N)	0.200	0.1720	J,DX	mg/L		86	50 - 150

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 605752

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Ammonia (as N)	ND		5.00	5.270		mg/L		105	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 605752

Client Sample ID: Outfall018_20200410_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	5.450		mg/L		109	90 - 110	3	15

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 440-604672/4
Matrix: Water
Analysis Batch: 604672

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			04/11/20 11:04	1

Lab Sample ID: LCS 440-604672/5
Matrix: Water
Analysis Batch: 604672

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	0.263		mg/L		105	90 - 110

Lab Sample ID: MRL 440-604672/3
Matrix: Water
Analysis Batch: 604672

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	0.122		mg/L		122	50 - 150

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 604672

Client Sample ID: Outfall018_20200410_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	0.086	J,DX	0.250	0.349		mg/L		105	50 - 125

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 604672

Client Sample ID: Outfall018_20200410_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	0.086	J,DX	0.250	0.320		mg/L		94	50 - 125	9	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-604686/3
Matrix: Water
Analysis Batch: 604686

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			04/12/20 08:14	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 440-604686/7
Matrix: Water
Analysis Batch: 604686

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	193		mg/L		97	85 - 115

Lab Sample ID: LCSD 440-604686/8
Matrix: Water
Analysis Batch: 604686

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	3	20

Lab Sample ID: LCSD 440-604686/9
Matrix: Water
Analysis Batch: 604686

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	5	20

Lab Sample ID: 440-264510-O-1 DU
Matrix: Water
Analysis Batch: 604686

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: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

GC/MS Semi VOA

Prep Batch: 604752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	625	
MB 440-604752/1-A	Method Blank	Total/NA	Water	625	
LCS 440-604752/2-A	Lab Control Sample	Total/NA	Water	625	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	625	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	625	

Analysis Batch: 605078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	625.1	604752
MB 440-604752/1-A	Method Blank	Total/NA	Water	625.1	604752
LCS 440-604752/2-A	Lab Control Sample	Total/NA	Water	625.1	604752
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	625.1	604752
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	625.1	604752

GC Semi VOA

Prep Batch: 604707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	608	
440-264517-3	Outfall018_20200410_Comp_F	Total/NA	Water	608	
MB 440-604707/1-A	Method Blank	Total/NA	Water	608	
LCS 440-604707/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-604707/5-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-604707/6-A	Lab Control Sample Dup	Total/NA	Water	608	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	608	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	608	

Analysis Batch: 604795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Total/NA	Water	608.3	604707
MB 440-604707/1-A	Method Blank	Total/NA	Water	608.3	604707
LCS 440-604707/5-A	Lab Control Sample	Total/NA	Water	608.3	604707
LCS 440-604707/6-A	Lab Control Sample Dup	Total/NA	Water	608.3	604707

Analysis Batch: 604824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	608.3	604707
440-264517-3	Outfall018_20200410_Comp_F	Total/NA	Water	608.3	604707
MB 440-604707/1-A	Method Blank	Total/NA	Water	608.3	604707
LCS 440-604707/2-A	Lab Control Sample	Total/NA	Water	608.3	604707
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	608.3	604707
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	608.3	604707

HPLC/IC

Analysis Batch: 604533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	300.0	
440-264517-1 - DL	Outfall018_20200410_Comp	Total/NA	Water	300.0	
MB 440-604533/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604533/5	Lab Control Sample	Total/NA	Water	300.0	
440-264517-1 MS - DL	Outfall018_20200410_Comp	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

HPLC/IC (Continued)

Analysis Batch: 604533 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1 MSD - DL	Outfall018_20200410_Comp	Total/NA	Water	300.0	

Analysis Batch: 604534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1 - DL	Outfall018_20200410_Comp	Total/NA	Water	300.0	
MB 440-604534/6	Method Blank	Total/NA	Water	300.0	
LCS 440-604534/5	Lab Control Sample	Total/NA	Water	300.0	
440-264517-1 MS - DL	Outfall018_20200410_Comp	Total/NA	Water	300.0	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	300.0	

Analysis Batch: 604895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	314.0	
MB 440-604895/6	Method Blank	Total/NA	Water	314.0	
LCS 440-604895/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604895/4	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-604895/8	Lab Control Sample	Total/NA	Water	314.0	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	314.0	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	314.0	

Analysis Batch: 604964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 372899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	1613B	
440-264517-1 - RA	Outfall018_20200410_Comp	Total/NA	Water	1613B	
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	

Analysis Batch: 373674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A	Method Blank	Total/NA	Water	1613B	372899
LCS 320-372899/2-A	Lab Control Sample	Total/NA	Water	1613B	372899

Analysis Batch: 373924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1 - RA	Outfall018_20200410_Comp	Total/NA	Water	1613B	372899
MB 320-372899/1-A - RA	Method Blank	Total/NA	Water	1613B	372899

Metals

Prep Batch: 604651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	245.1	
MB 440-604651/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-604651/2-A	Lab Control Sample	Total/NA	Water	245.1	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Metals (Continued)

Prep Batch: 604651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	245.1	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	245.1	

Filtration Batch: 604667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604667/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-604667/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 604794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	
MB 440-604794/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 604811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667
MB 440-604667/1-B	Method Blank	Dissolved	Water	200.2	604667
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	200.2	604667
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667

Prep Batch: 604812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667
MB 440-604667/1-C	Method Blank	Dissolved	Water	200.2	604667
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	200.2	604667
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	200.2	604667

Analysis Batch: 604819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	200.8	604812
MB 440-604667/1-C	Method Blank	Dissolved	Water	200.8	604812
LCS 440-604667/2-C	Lab Control Sample	Dissolved	Water	200.8	604812
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	200.8	604812
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	200.8	604812

Prep Batch: 604821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	
MB 440-604821/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604821/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264517-1 MS	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Metals (Continued)

Prep Batch: 604821 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1 MSD	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	
MB 440-604822/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-604822/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-264517-1 MS	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	
440-264517-1 MSD	Outfall018_20200410_Comp	Total Recoverable	Water	200.2	

Prep Batch: 604830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604794
MB 440-604794/1-B	Method Blank	Dissolved	Water	245.1	604794
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	245.1	604794
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604794
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604794

Analysis Batch: 604849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	200.7 Rev 4.4	604811
MB 440-604667/1-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	604811
LCS 440-604667/2-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	604811
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	200.7 Rev 4.4	604811
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	200.7 Rev 4.4	604811

Analysis Batch: 604853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-3	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604830
MB 440-604794/1-B	Method Blank	Dissolved	Water	245.1	604830
LCS 440-604794/2-B	Lab Control Sample	Dissolved	Water	245.1	604830
440-264517-3 MS	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604830
440-264517-3 MSD	Outfall018_20200410_Comp_F	Dissolved	Water	245.1	604830

Analysis Batch: 604855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	245.1	604651
MB 440-604651/1-A	Method Blank	Total/NA	Water	245.1	604651
LCS 440-604651/2-A	Lab Control Sample	Total/NA	Water	245.1	604651
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	245.1	604651
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	245.1	604651

Analysis Batch: 604923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total Recoverable	Water	200.8	604821
MB 440-604821/1-A	Method Blank	Total Recoverable	Water	200.8	604821
LCS 440-604821/2-A	Lab Control Sample	Total Recoverable	Water	200.8	604821
440-264517-1 MS	Outfall018_20200410_Comp	Total Recoverable	Water	200.8	604821
440-264517-1 MSD	Outfall018_20200410_Comp	Total Recoverable	Water	200.8	604821

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Metals

Analysis Batch: 605180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604822
MB 440-604822/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	604822
LCS 440-604822/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	604822
440-264517-1 MS	Outfall018_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604822
440-264517-1 MSD	Outfall018_20200410_Comp	Total Recoverable	Water	200.7 Rev 4.4	604822

Analysis Batch: 606179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 604643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	180.1	
MB 440-604643/5	Method Blank	Total/NA	Water	180.1	
440-264517-1 DU	Outfall018_20200410_Comp	Total/NA	Water	180.1	

Analysis Batch: 604672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM 5540C	
MB 440-604672/4	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-604672/5	Lab Control Sample	Total/NA	Water	SM 5540C	
MRL 440-604672/3	Lab Control Sample	Total/NA	Water	SM 5540C	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	SM 5540C	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 604686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM5210B	
USB 440-604686/3	Method Blank	Total/NA	Water	SM5210B	
LCS 440-604686/7	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-604686/8	Lab Control Sample Dup	Total/NA	Water	SM5210B	
LCSD 440-604686/9	Lab Control Sample Dup	Total/NA	Water	SM5210B	
440-264510-O-1 DU	Duplicate	Total/NA	Water	SM5210B	

Prep Batch: 605119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	Distill/CN	
MB 440-605119/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	Distill/CN	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 605340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM 2540C	
MB 440-605340/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-605340/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-264517-1 DU	Outfall018_20200410_Comp	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

General Chemistry

Analysis Batch: 605370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM 2540D	
MB 440-605370/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-605370/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-264754-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 605374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 CN E	605119
MB 440-605119/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	605119
LCS 440-605119/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	605119
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 CN E	605119
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 CN E	605119

Analysis Batch: 605752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-605752/10	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-605752/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-605752/9	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 NH3 G	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	SM 4500 NH3 G	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
LG	LG=Surrogate recovery below the acceptance 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

General Chemistry

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.
α	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)
MQL	Method Quantitation Limit
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: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

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	07-01-21
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-31-22
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-21
New Jersey	NELAP	CA005	05-03-20
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
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	04-16-21
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.

CHAIN OF CUSTODY FORM

JUL 4 11:17 AM

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

Eurofins Calscience Irvine Contact: Christian Bondoc
 17461 Denan Ave Suite #100
 Irvine CA 92614
 Tel 848-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2020
 Quarterly Outfall 001, 002, 011, 018J
 Outfall 018
 Comp

Project Manager: Katherine Miller
 520.289.8606, 520.904.6844 (cell)
 Field Manager: Mark Dominick
 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MSMSD	Total Recoverable Metals (E200) Zn (E200) Cu, Pb, Cd, Se	TCDD (and all congeners) (E13B)	BOD5 (20 degrees C) (E405) (SM5710B, BODCalc)	Surfactants (MBAS) (SM540C/E425 1)	Chloride, Sulfate, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2) (SM2540C)	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6-TCP, 2,4-Dinitrochloro, Benzothiazylthiourea, NDMA, PCP (SVOCs E825)	Total Recoverable Metals Mercury (E245 1)
Outfall 018	Outfall018_20200410_Comp	4/10/2020 1:30	WM	500 mL Poly	3	HNO3	90	Yes	X										
			WM	1L Glass Amber	2	None	110	No											
			WM	1L Poly	1	None	115	No											
			WM	500 mL Poly	6	None	120	Yes				X							
			WM	500 mL Poly	6	None	130	Yes						X					
			WM	500 mL Poly	1	None	150	No											
			WM	500 mL Poly	3	H2SO4	160	Yes											
			WM	1L Glass Amber	6	None	170	Yes									X		
			WM	1L Glass Amber	6	None	180	Yes											
			WM	1L Poly	1	None	185	No											
			WM	1L Glass Amber	2	None	110	No											
			WM	500 mL Poly	2	None	120	No											
			WM	500 mL Poly	2	None	130	No											
			WM	1L Glass Amber	2	None	170	No											
			WM	1L Glass Amber	2	None	180	No											

440-264517 Chain of Custody

48 hours Holding Time NO₂ & NO₃
 48 hours Holding Time for Turbidity

Legend: C=Conditional, EP=Expert Panel, ReRoutine

Requisitioned By: *Mark Dominick* Date/Time: 4-10-2020/14:45
 Company: HIA

Received By: *[Signature]* Date/Time: 4-10-20
 Company: [Signature]

Requisitioned By: *[Signature]* Date/Time: 4-10-20
 Company: EC-FIU

Received By: *[Signature]* Date/Time: 4-10-20
 Company: EC-FIU

1289 1.4/1.4 1.7/1.7 1.3/1.3 2.1/2.1 2.4/2.4 2.6/2.6

Turn-around time (Check): 24 Hour 72 Hour 10 Day
 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

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD		ANALYSIS REQUIRED										Comments									
								MSMSD	No	Cyanide (SM4500-CN-E / E335 2)	Gross Alpha (E900 0), Gross Beta (E900 0), Tritium (H-3) (E906 0), Sr-90 (E905 0), Total Radium 228 (E904 0), Uranium (E908 0), K-40, CS-137 (E901 0 or E901 1)	Chronic Toxicity - Selenium (EPA-821-R-02-013)	Total Dissolved Metals Mercury (E245 1)	Pesticides Chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, Dieldrin, Toxaphene + PCBs only (E609)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)		DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)	DTX (Monsanto)			
Outfall 018	Outfall 018_20200410_Comp_F	4/10/2020 11:20	WM	1 L Poly	1	None	180	✓	No															Chlordane, DDT, DDE, DDT, Dieldrin PCBs, toxaphene at OF001 (002,011, or 018) Sample received DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures Unfiltered and unprocessed analysis. Sample RAD onto another container. Analyze duplicate, not MSMSD Only test in first or second consecutive years					
				500 mL Poly	1	HNO ₃	80		No																				
				1 L Poly	3	None	200		Yes																				
				1 L Glass Amber	2	None	250	*	No																				
				borosilicate vials	3	None	320		Yes																				
				500 mL Poly	3	HNO ₃	220		Yes																				
				2.5 Gal Cube	3	None	220		Yes																				
				1 L Glass Amber	3	None	230		Yes																				
				1 Gal Cube	6	None	250		No																				

Legend: C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly Recurring Water

Relinquished By: [Signature] Date/Time: 4-10-2020 14:45 Company: HIA

Relinquished By: [Signature] Date/Time: 4-10-2020 16:45 Company: EC-FAL

Relinquished By: [Signature] Date/Time: 4-10-2020 16:45 Company: EC-FAL

Received By: [Signature] Date/Time: 4-10-2020 14:45 Company: EC-FAL

Received By: [Signature] Date/Time: 4-10-2020 16:45 Company: EC-FAL

Received By: [Signature] Date/Time: 4-10-2020 16:45 Company: EC-FAL

Turn-around time (Check): 24 Hour 72 Hour 10 Day
 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

1645

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Bondoc, Christian M	Gamer Tracking No(s): 440-154964.1
Client Contact: Shipping/Receiving		E-Mail: christian.bondoc@testamericainc.com	State of Origin: California
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): Slate Program - California	
Address: 880 Riverside Parkway,		Job #: 440-264517-1	
City: West Sacramento		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Arnechlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip: CA, 95605		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		Due Date Requested: 4/22/2020	
Email:		TAT Requested (days):	
Project Name: Boeing NPDES SSFL outfalls		PO #:	
Site:		WO #:	
Project #: 44009879		Field Filtered Sample (Yes or No)	
SSOW#:		Perform MS/MSD (Yes or No)	
Sample Identification - Client ID (Lab ID)		1613B/1613B_Sox_Sep_P Standard List w/ Totals	
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, 5-solid, On-water, B1-Tissue, A-Ar)
4/10/20	12:50 Pacific		Water
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)	Special Instructions/Note:
Outfall018_20200410_Comp (440-264517-1)		X	See OAS, Boeing_wlu to zero, ug/L. Use Boeing glassware
<p>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/test/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.</p>			
Possible Hazard Identification			
Unconfirmed			
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	
Empty Kit Relinquished by:		Special Instructions/OC Requirements:	
Date/Time: 4/13/20 1700		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Company: EC-124		Method of Shipment:	
Date/Time: 4/14/20 935		Received by: [Signature]	
Company: [Blank]		Date/Time: [Blank]	
Date/Time: [Blank]		Received by: [Blank]	
Company: [Blank]		Date/Time: [Blank]	
Date/Time: [Blank]		Received by: [Blank]	
Company: [Blank]		Date/Time: [Blank]	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 1.1°C	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264517-1

Login Number: 264517

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
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	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264517-1

Login Number: 264517

List Number: 2

Creator: Nuval, Mark-Anthony M

List Source: Eurofins TestAmerica, Sacramento

List Creation: 04/14/20 02:03 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.	N/A	
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	1.1C
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: Quarterly Outfall 018 Comp

Job ID: 440-264517-1

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)
440-264517-1	Outfall018_20200410_Comp	71	66	58	59	60	62	65	67
440-264517-1 - RA	Outfall018_20200410_Comp		62						
MB 320-372899/1-A	Method Blank	76	72	65	64	72	70	70	72
MB 320-372899/1-A - RA	Method Blank		67						

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)
440-264517-1	Outfall018_20200410_Comp	65	69	66	78	72	85	76
440-264517-1 - RA	Outfall018_20200410_Comp							
MB 320-372899/1-A	Method Blank	69	68	67	72	72	79	73
MB 320-372899/1-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 320-372899/2-A	Lab Control Sample	69	64	59	60	64	62	63	64

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 320-372899/2-A	Lab Control Sample	61	63	63	68	66	75	67

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

Eurofins Calscience Irvine

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Quarterly Outfall 018 Comp

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

Job ID: 440-264517-1

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440-264517 Field Sheet

Job: _____

Tracking #: 1540 4107 8033

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: _____

Cooler ID: _____

Temp Observed: 1.1 °C Corrected: 1.1 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PK Date: 04/14/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-conformance
NCM Filed? Yes No NA

Initials: MAN Date: 04/14/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W20C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264517-2

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

5 June 2020

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

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.: 1272.003H.01

Sample Delivery Group: 440-264517-2

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
OUTFALL018_20200410_COMP	440-264517-1	N	WM	4/10/20 12:50 PM	E900, E901.1, E903.0, E904.0, E905.0, E906.0, A-01-R
OUTFALL018_20200410_COMP	440-264517-2	N	WM	4/10/20 12:50 PM	RADIUM



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) 440-264517-2:

- The laboratories received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratories received the sample containers intact.
- The sample containers were received improperly preserved at TA-SL. The appropriate containers were preserved to $\text{pH} \leq 2$ upon receipt.
- Field and laboratory personnel signed and dated the COCs with the following exception. The COC for TA-SL was not signed and dated for receipt.
- Sample containers were transferred to TestAmerica – St. Louis laboratory for all radionuclide analyses.
- Strikethroughs on the original COC were initialed but not dated.
- 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 upon receipt at TA-SL.



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

M. Hilchey of MEC^x reviewed the SDG on June 5, 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 A-01-R*, 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 (except as noted in the Sample Management section above) and holding time requirements were met.

III.2. CALIBRATION:

The detector efficiencies for gross alpha and radium-226 were less than 20%; therefore, the results for gross alpha and radium-226 were qualified as an estimated with low potential bias (J- for radium-226 and UJ for gross alpha). Please note that the detected result for radium-226 was subsequently qualified as nondetect (see Method Blanks section); therefore, the ultimate qualifier for this result is UJ. All other detector efficiencies were greater than 20% and no further qualifications were required. Carrier/tracer recoveries were within the laboratory control limits.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target isotopes were not detected in the method blanks above the MDC with the exception of radium-228. The sample result for radium-228 was nondetect and was not qualified. 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 radium-226 and total uranium. The detected sample results for total uranium and radium-226 were 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 duplicate analyses were performed for Method 900.0. The RERs met laboratory control limits. Laboratory duplicates were not performed on the sample from this SDG for the remaining methods.

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

Matrix spike and matrix spike duplicate (MS/MSD) analyses were performed on the sample from this SDG for Methods 900.0, 904.0 and A-01-R. Recoveries were within the laboratory control limits and RERs were within laboratory control limits except for gross alpha (MSD: 57%). MS/MSD analyses were not performed on the sample from this SDG for the remaining methods.

**III.4. SAMPLE RESULT VERIFICATION:**

An EPA Level II review was performed on the sample in this data package. Sample results are not verified at this level of validation. Reported nondetects are valid to the MDC. The sample was prepared at a reduced aliquot due to matrix issues for Methods 903.0, 904.0 and 905. For Method 900.0, the sample had additional volume added to reach target mass and efficiency.

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: 4402645172

Analysis Method E900

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	0.775	1.23	3.00	2.11	pCi/L	U	UJ	*III
Gross Beta Analytes	GROSSBETA	1.95	0.719	4.00	0.920	pCi/L		J+	B

Analysis Method E901.1

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	2.76	2.34	20.0	3.59	pCi/L	U	U	
Potassium-40	13966-00-2	16.6	80.7	143	143	pCi/L	U	U	

Analysis Method E903.0

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.136	0.0895	1.00	0.119	pCi/L		UJ	*III, B

Analysis Method E904.0

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	-0.0386	0.257	1.00	0.465	pCi/L	U	U	

Analysis Method E905.0

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.284	0.387	3.00	0.643	pCi/L	U	U	

Analysis Method E906.0

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	194	178	500	283	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-1

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.337	0.167	1.00	0.117	pCi/L		U	B

Analysis Method RADIUM

Sample Name OUTFALL018_20200410_COMP Matrix Type: WM Result Type: TRG

Sample Date: 4/10/2020 12:50:00 PM Validation Level: 9

Lab Sample Name: 440-264517-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226 & 228	RADIUM226228	0.465	0.272			pCi/L		UJ	*III, B

ANALYTICAL REPORT

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

Laboratory Job ID: 440-264517-2

Client Project/Site: Quarterly Outfall 018 Comp

For:

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

Attn: Katherine Miller



Authorized for release by:
5/12/2020 4:31:53 PM

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

LINKS

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results through
TotalAccess

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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.

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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
5/12/2020 4:31:53 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264517-1	Outfall018_20200410_Comp	Water	04/10/20 12:50	04/10/20 16:45	

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Job ID: 440-264517-2

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264517-2

Comments

No additional comments.

Receipt

The samples were received on 4/10/2020 4:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 1.3° C, 1.4° C, 1.7° C, 2.1° C, 2.4° C and 2.6° C.

RAD

Method 900.0: Gross Alpha/Beta Prep Batch 160-468961

The matrix spike duplicate recovery (MSD, 57%) was outside the lower control limit (60%). Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 900.0: Gross Alpha/Beta Prep Batch 160-468961

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_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MSJ]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-468961/2-A), (LCSB 160-468961/3-A), (MB 160-468961/1-A), (440-264517-R-1-N DU), (440-264517-R-1-L MSBT) and (440-264517-R-1-M MSBTD)

Method 901.1: Gamma Prep Batch 160-468154

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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Job ID: 440-264517-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

Bi-214 Ra-226
Outfall018_20200410_Comp (440-264517-1), (LCS 160-468154/2-A), (MB 160-468154/1-A) and (440-264517-R-1-G DU)

Method 903.0: Radium-226 Prep Batch 160-467982

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_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-467982/1-A) and (MB 160-467982/23-A)

Method 904.0: Radium-228 Prep Batch 160-468070

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_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-468070/1-A) and (MB 160-468070/23-A)

Method 905: Sr-90 Prep Batch 160-468677

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_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-468677/1-A) and (MB 160-468677/22-A)

Method 906.0: Tritium Prep Batch 160-469023

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_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-469023/2-A), (MB 160-469023/1-A), (160-37794-B-1-A) and (160-37794-B-1-B DU)

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.

Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (LCS 160-468046/2-A) and (MB 160-468046/1-A)

Method Evaporation: Gross Alpha/Beta preparation batch 160-468961 and 160-468961

The following samples had additional volume added to reach target mass and efficiency Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]), Outfall018_20200410_Comp (440-264517-1[MSD]), (440-264517-R-1 DU), (440-264517-R-1 MSBT) and (440-264517-R-1 MSBTD). The total sample volume is reflected in the initial amount field.

Method ExtChrom: Uranium Prep Batch 160-468046:

The following samples have matrix observations: Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MS]) and Outfall018_20200410_Comp (440-264517-1[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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Job ID: 440-264517-2 (Continued)

Laboratory: Eurofins Calscience Irvine (Continued)

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.

Method PrecSep_0: Radium 228 Prep Batch 160-468070:

The following samples were prepared at a reduced aliquot due to yellow discoloration: Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MSJ]) and Outfall018_20200410_Comp (440-264517-1[MSD])

Method PrecSep-21: Radium 226 Prep Batch 160-467982:

The following samples were prepared at a reduced aliquot due to yellow discoloration: Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MSJ]) and Outfall018_20200410_Comp (440-264517-1[MSD])

Method PrecSep-7: Strontium 90 Prep Batch 160-468677:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall018_20200410_Comp (440-264517-1), Outfall018_20200410_Comp (440-264517-1[MSJ]) and Outfall018_20200410_Comp (440-264517-1[MSD]). Samples 440-264370-1, 440-264510-1, 440-264517-1, 440-264517-1 MS, 440-264517-1 MSD, 440-264634-1, and 440-264783-1 all have a yellow discoloration. Sample 310-179946-1 has brown discoloration and heavy sediment.

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: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Gross Alpha	0.775	U	1.22	1.23	3.00	2.11	pCi/L	04/27/20 07:57	05/01/20 11:49	1
Gross Beta	1.95		0.692	0.719	4.00	0.920	pCi/L	04/27/20 07:57	05/01/20 11:49	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Cesium-137	2.76	U	2.32	2.34	20.0	3.59	pCi/L	04/19/20 14:22	04/21/20 06:17	1
Potassium-40	16.6	U	80.7	80.7		143	pCi/L	04/19/20 14:22	04/21/20 06:17	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.136		0.0886	0.0895	1.00	0.119	pCi/L	04/16/20 13:59	05/12/20 06:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					04/16/20 13:59	05/12/20 06:30	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	-0.0386	U	0.257	0.257	1.00	0.465	pCi/L	04/19/20 16:36	04/30/20 07:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					04/19/20 16:36	04/30/20 07:45	1
Y Carrier	93.5		40 - 110					04/19/20 16:36	04/30/20 07:45	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium-90	0.284	U	0.386	0.387	3.00	0.643	pCi/L	04/23/20 09:24	05/06/20 09:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.5		40 - 110					04/23/20 09:24	05/06/20 09:27	1
Y Carrier	93.1		40 - 110					04/23/20 09:24	05/06/20 09:27	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tritium	194	U	177	178	500	283	pCi/L	04/28/20 04:41	04/29/20 06:07	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Total Uranium	0.337		0.165	0.167	1.00	0.117	pCi/L	04/17/20 17:03	04/24/20 09:34	1

Eurofins Calscience Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

<i>Tracer</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	78.2		30 - 110	04/17/20 17:03	04/24/20 09:34	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

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: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Client Sample ID: Outfall018_20200410_Comp

Lab Sample ID: 440-264517-1

Date Collected: 04/10/20 12:50

Matrix: Water

Date Received: 04/10/20 16:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.54 mL	1.0 g	468961	04/27/20 07:57	RJD	TAL SL
Total/NA	Analysis	900.0		1			469304	05/01/20 11:49	AJD	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	468154	04/19/20 14:22	MLG	TAL SL
Total/NA	Analysis	901.1		1			468186	04/21/20 06:17	KLS	TAL SL
Total/NA	Prep	PrecSep-21			749.52 mL	1.0 g	467982	04/16/20 13:59	RBR	TAL SL
Total/NA	Analysis	903.0		1			470197	05/12/20 06:30	KLS	TAL SL
Total/NA	Prep	PrecSep_0			749.52 mL	1.0 g	468070	04/19/20 16:36	MNH	TAL SL
Total/NA	Analysis	904.0		1			469237	04/30/20 07:45	KRR	TAL SL
Total/NA	Prep	PrecSep-7			500.22 mL	1.0 g	468677	04/23/20 09:24	RBR	TAL SL
Total/NA	Analysis	905		1			469750	05/06/20 09:27	CJQ	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.4 mL	1.0 g	469023	04/28/20 04:41	NMN	TAL SL
Total/NA	Analysis	906.0		1			469168	04/29/20 06:07	KRR	TAL SL
Total/NA	Prep	ExtChrom			499.42 mL	1.0 mL	468046	04/17/20 17:03	CMM	TAL SL
Total/NA	Analysis	A-01-R		1			468773	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-468961/1-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468961

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.03693	U	0.429	0.429	3.00	0.907	pCi/L	04/27/20 07:57	05/01/20 11:47	1
Gross Beta	-0.2609	U	0.442	0.443	4.00	0.850	pCi/L	04/27/20 07:57	05/01/20 11:47	1

Lab Sample ID: LCS 160-468961/2-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Alpha	49.6	39.96		6.22	3.00	1.69	pCi/L	81	75 - 125

Lab Sample ID: LCSB 160-468961/3-A
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Gross Beta	84.4	76.62		8.19	4.00	0.852	pCi/L	91	75 - 125

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Alpha	0.775	U	49.4	31.18		5.42	3.00	2.19	pCi/L	62	60 - 140

Lab Sample ID: 440-264517-1 MSBT
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec.
						Uncert. (2σ+/-)					Limits
Gross Beta	1.95		84.1	80.47		8.58	4.00	0.892	pCi/L	93	60 - 140

Lab Sample ID: 440-264517-1 MSBTD
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER Limit
						Uncert. (2σ+/-)					Limits	0.27	1
Gross Beta	1.95		84.2	85.21		9.05	4.00	0.965	pCi/L	99	60 - 140	0.27	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	Spike Added	MSD		Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	Limit
				Result	Qual									
Gross Alpha	0.775	U	49.5	29.21	F1	5.12	3.00	2.13	pCi/L	57	60 - 140	0.19	1	

Lab Sample ID: 440-264517-1 DU
Matrix: Water
Analysis Batch: 469304

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468961

Analyte	Sample Result	Sample Qual	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
			Result	Qual						
Gross Alpha	0.775	U	-0.3564	U	1.20	3.00	2.47	pCi/L	0.47	1
Gross Beta	1.95		2.274		0.719	4.00	0.853	pCi/L	0.22	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-468154/1-A
Matrix: Water
Analysis Batch: 468184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468154

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier						Time	Time			
Cesium-137	9.865	U	9.03	9.08	20.0	10.3	pCi/L	04/19/20 14:22	04/21/20 07:26		1	
Potassium-40	-10.82	U	156	156		222	pCi/L	04/19/20 14:22	04/21/20 07:26		1	

Lab Sample ID: LCS 160-468154/2-A
Matrix: Water
Analysis Batch: 468186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Spike Added	LCS		Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
		Result	Qual							
Americium-241	136000	126300		14600		415	pCi/L	93	90 - 111	
Cesium-137	43700	43710		4380	20.0	106	pCi/L	100	90 - 111	
Cobalt-60	26200	25510		2530		64.4	pCi/L	97	89 - 110	

Lab Sample ID: 440-264517-1 DU
Matrix: Water
Analysis Batch: 468183

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468154

Analyte	Sample Result	Sample Qual	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
			Result	Qual						
Cesium-137	2.76	U	2.790	U	5.70	20.0	7.42	pCi/L	0	1
Potassium-40	16.6	U	-35.24	U	119		175	pCi/L	0.26	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467982/23-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467982

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05167	U	0.0787	0.0788	1.00	0.135	pCi/L	04/16/20 13:59	05/12/20 06:30	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					04/16/20 13:59	05/12/20 06:30	1

Lab Sample ID: LCS 160-467982/1-A
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.36		1.07	1.00	0.101	pCi/L	91	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.0		40 - 110						

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
						Uncert. (2σ+/-)					
Radium-226	0.136		15.1	14.73		1.53	1.00	0.124	pCi/L	96	75 - 138
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	82.3		40 - 110								

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 470197

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 467982

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
						Uncert. (2σ+/-)							
Radium-226	0.136		15.1	14.06		1.45	1.00	0.101	pCi/L	92	75 - 138	0.22	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	95.4		40 - 110										

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-468070/23-A
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468070

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.3732		0.242	0.244	1.00	0.372	pCi/L	04/19/20 16:36	04/30/20 07:45	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	87.2		40 - 110	04/19/20 16:36	04/30/20 07:45	1
Y Carrier	91.2		40 - 110	04/19/20 16:36	04/30/20 07:45	1

Lab Sample ID: LCS 160-468070/1-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Ba Carrier	97.0		40 - 110
Y Carrier	93.5		40 - 110

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	MS MS		Limits
	%Yield	Qualifier	
Ba Carrier	82.3		40 - 110
Y Carrier	92.0		40 - 110

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468070

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Ba Carrier	95.4		40 - 110
Y Carrier	85.6		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.2727	U	0.395	0.395	3.00	0.660	pCi/L	04/23/20 09:24	05/06/20 09:25	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: MB 160-468677/22-A
Matrix: Water
Analysis Batch: 469763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468677

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Sr Carrier	93.4		40 - 110	04/23/20 09:24	05/06/20 09:25	1
Y Carrier	92.0		40 - 110	04/23/20 09:24	05/06/20 09:25	1

Lab Sample ID: LCS 160-468677/1-A
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Sr Carrier	91.7		40 - 110
Y Carrier	85.6		40 - 110

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits

Carrier	MS MS		Limits
	%Yield	Qualifier	
Sr Carrier	88.8		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 469750

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468677

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Sr Carrier	87.6		40 - 110
Y Carrier	92.7		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-469023/1-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469023

Analyte	MB MB Result	MB MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: LCS 160-469023/2-A
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Tritium	2450	2379		391	500	283	pCi/L	97	75 - 114	

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Tritium	194	U	2460	2681		432	500	308	pCi/L	101	67 - 130	

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	Limit
Tritium	194	U	2450	2654		424	500	297	pCi/L	100	67 - 130	0.03	1	

Lab Sample ID: 160-37794-B-1-B DU
Matrix: Water
Analysis Batch: 469168

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 469023

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
Tritium	10.8	U	77.48	U	166	500	284	pCi/L	0.21	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	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

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

<i>Tracer</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	81.2		30 - 110

Lab Sample ID: 440-264517-1 MS
Matrix: Water
Analysis Batch: 468774

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468046

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	
Uranium-234	0.0879	U	12.8	12.53		1.45	1.00	0.141	pCi/L	98	65 - 146	
Uranium-238	0.233		13.0	12.60		1.46	1.00	0.111	pCi/L	95	68 - 143	

<i>Tracer</i>	<i>MS MS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	69.9		30 - 110

Lab Sample ID: 440-264517-1 MSD
Matrix: Water
Analysis Batch: 468775

Client Sample ID: Outfall018_20200410_Comp
Prep Type: Total/NA
Prep Batch: 468046

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec. Limits</i>		<i>RER</i>	<i>Limit</i>
Uranium-234	0.0879	U	12.7	11.98		1.37	1.00	0.182	pCi/L	93	65 - 146	0.20	1	
Uranium-238	0.233		13.0	13.16		1.47	1.00	0.186	pCi/L	99	68 - 143	0.19	1	

<i>Tracer</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
<i>Uranium-232</i>	78.1		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Rad

Prep Batch: 467982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-21	
MB 160-467982/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467982/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-21	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 468046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_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	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	ExtChrom	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 468070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	PrecSep_0	
MB 160-468070/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-468070/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	PrecSep_0	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 468154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-468154/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-468154/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-264517-1 DU	Outfall018_20200410_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 468677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-7	
MB 160-468677/22-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-468677/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-7	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 468961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	
MB 160-468961/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-468961/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-468961/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	
440-264517-1 MSBT	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	
440-264517-1 MSBTD	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	
440-264517-1 DU	Outfall018_20200410_Comp	Total/NA	Water	Evaporation	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Rad

Prep Batch: 469023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264517-1	Outfall018_20200410_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-469023/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-469023/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-264517-1 MS	Outfall018_20200410_Comp	Total/NA	Water	LSC_Dist_Susp	
440-264517-1 MSD	Outfall018_20200410_Comp	Total/NA	Water	LSC_Dist_Susp	
160-37794-B-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control 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)
MQL	Method Quantitation Limit
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: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

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
Alaska (UST)	State	20-001	05-06-22
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

CHAIN OF CUSTODY FORM

JUL 4 11:17 AM

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

Eurofins Calscience Irvine Contact: Christian Bondoc
 17461 Denan Ave Suite #100
 Irvine CA 92614
 Tel 848-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2020
 Quarterly Outfall 001, 002, 011, 018J
 Outfall 018
 Comp

Project Manager: Katherine Miller
 520.289.8606, 520.904.6844 (cell)
 Field Manager: Mark Dominick
 978.234.5033, 818.599.0702 (cell)

Residence's services under this CoC shall be performed in accordance with the TSC's water Blanket Service Agreement 2018-19. The responsibility for and between Haley & Aldrich, Inc. its subsidiaries and its clients and Eurofins Calscience Irvine is defined in the attached documents.

Sampler: Dan Smith



Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MSMSD	Total Recoverable Metals (E200) Zn (E200) Cu, Pb, Cd, Se	TCDD (and all congeners) (E13B)	BOD5 (20 degrees C) (E405) (SM5710B, BODCalc)	Surfactants (MBAS) (SM5540C/E425 1)	Chloride, Sulfate, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180 1)	TSS (160 2) (SM2540C)	Ammonia-N (350 2)	alpha-BHC (E608)	2,4,6-TCP, 2,4-Dinitrochloro, Benzothiazole, NDMA, PCP (SVOCs E825)	Total Recoverable Metals Mercury (E245 1)
Outfall 018	Outfall018_20200410_Comp	4/10/2020 1:30	WM	500 mL Poly	3	HNO3	90	Yes	X										X
			WM	1L Glass Amber	2	None	110	No											
			WM	1L Poly	1	None	115	No											
			WM	500 mL Poly	6	None	120	Yes				X							
			WM	500 mL Poly	6	None	130	Yes						X					
			WM	500 mL Poly	1	None	150	No											
			WM	500 mL Poly	3	H2SO4	160	Yes								X			
			WM	1L Glass Amber	6	None	170	Yes									X		
			WM	1L Glass Amber	6	None	180	Yes										X	
			WM	1L Poly	1	None	185	No											
			WM	1L Glass Amber	2	None	110	No		H									
			WM	500 mL Poly	2	None	120	No											
			WM	500 mL Poly	2	None	130	No											
			WM	1L Glass Amber	2	None	170	No											
			WM	1L Glass Amber	2	None	180	No											

Requisitioned By: *Mark Dominick* Date/Time: 4-10-2020/14:45
 Company: HIA

Received By: *[Signature]* Date/Time: 4-10-20
 Company: [Signature]

Requisitioned By: *[Signature]* Date/Time: 4-10-20
 Company: EC-FIL

Received By: *[Signature]* Date/Time: 4-10-20
 Company: EC-FIL

Legend: C=Conditional, EP=Expert Panel, ReRoutine

Turn-around time (Check): 24 Hour 72 Hour 10 Day
 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

1289 1.4/1.4 1.7/1.7 1.3/1.3 2.1/2.1 2.4/2.4 2.6/2.6 2.0/2.2
 EC 120 4/10/20 1045
 J.S.W.

CONDITION UPON RECEIPT FORM

Client: ETA Irvine

Initiated by: LAM Date: 4/14/2020 Time: 09:19 Shipper: FedEx Package Quantity: 5

**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 7910	192152620	0.1	
2.	1540 4107 7909	192152631	0.7	
3.	1540 4107 7920	181311317	0.5	
4.	1540 4107 7894	181311325	0.2	
5.	1540 4107 7931	181311317	0.3	
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	Y <input type="radio"/> <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2.	Y <input type="radio"/> <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y <input type="radio"/> <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #: <u>HC904495</u>
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	Y <input type="radio"/> <input checked="" type="radio"/> N	Was sample received broken?	13.	Y <input type="radio"/> <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y <input type="radio"/> <input type="radio"/> N <input checked="" type="radio"/> 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:

Containers were rec'd improperly preserved.

pH Adjustment (if needed)

Date/Time of Preservation: 4/14/2020 16:30

Initial pH and pH strip lot#: HC904495

Preservative and lot#: HNO₃ / 244827

Final pH and pH strip lot#: HC904495

Amount of Preservative: 6mL

Sample Labels Applied By: DK

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.

CONDITION UPON RECEIPT FORM

Client: Perma-Fix

Initiated by: LAM Date: 4/14/2020 Time: 09:54 Shipper: Fed Ex 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.	<u>7702 0188 9699</u>	<u>192152631</u>	<u>11.7</u>	
2.				
3.				
4.				
5.				
6.				
7.				

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on bottles?
2.	Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below) pH strip lot #:
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	Y <input checked="" type="radio"/> N	Was sample received broken?	13.	Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	Y <input type="radio"/> N <input checked="" type="radio"/> 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:

pH Adjustment (if needed)

Date/Time of Preservation:

Initial pH and pH strip lot#:

Preservative and lot#:

Final pH and pH strip lot#:

Amount of Preservative:

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.

Chain of Custody - Test America

Project #: Ambient (Env.) H-3 Monitoring

COC Number (1): 40920
PO Number: 819217

Client Name: Perma-Fix Northwest

Test America Work Order #:

Test America
 2800 George Washington Way
 Richland, WA, 99354
 Phone: (509) 375-3131

Phone #: (509) 375-7083

Project/Site Name: January, February, March 2020 "Ambient H-3"

Sample Analysis Requested (2) (Fill in the number of containers for each test)

Address: 2025 Battelle Blvd., Richland, WA, 99354

Collected by: S. Call

Send Results To: Curt Cannon

ccannon@perma-fix.com

<--- Preservative Type (6)

Should this sample be considered:

Radioactive

TSCA Regulated

Total number of containers

COMMENTS:

N/A

Sample ID
** For composites - indicate start and stop date/time*

*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code #	Field Filtered (3)	Sample Matrix Silica Gel VOLUME (liters) (4)
2/4/2020	9:10	N/A	N/A	4,030
2/4/2020	9:25	N/A	N/A	4,030
3/3/2020	8:35	N/A	N/A	4,029
3/3/2020	8:45	N/A	N/A	4,029
3/31/2020	7:10	N/A	N/A	4,024
3/31/2020	7:20	N/A	N/A	4,024

OFF-SITE West Column (Silica Gel) "A"

East Column (Silica Gel) "A"

OFF-SITE West Column (Silica Gel) "B"

East Column (Silica Gel) "B"

OFF-SITE West Column (Silica Gel) "A"

East Column (Silica Gel) "A"

N/A

TAT Requested: Normal; Rush: Specify: (Subject to Surcharge)

FAX Results: Yes No

Circle Deliverable: C of A

Level 1 / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards. NO

Sample Collection Time Zone Eastern Mountain Pacific Other _____

Relinquished By (Signed) _____ Date 4/08/2020 Time ~ 14:00

Received by (Signed) *Scott Call* Date 4/14/2020 Time 09:54

Sample Shipping and Delivery Details

Test America PM: Rhonda Wagar

Date Shipped: 4/09/2020

Method of Shipment: Delivered by PFNW to Richland Lab

Airbill #:

Airbill #:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SD=Soil, SD=Soil, SD=Soil, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1)

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate. If no preservative is added = leave field blank

WHITE = LABORATORY

YELLOW = FILE

PINK = CLIENT

For Lab Receiving Use Only

Custody Seal Intact?

YES NO

Cooler Temp:

N/A



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264517-2

Login Number: 264517

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
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	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264517-2

Login Number: 264517

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/14/20 07:38 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba Carrier (40-110)	
440-264517-1	Outfall018_20200410_Comp	98.5	
440-264517-1 MS	Outfall018_20200410_Comp	82.3	
440-264517-1 MSD	Outfall018_20200410_Comp	95.4	
LCS 160-467982/1-A	Lab Control Sample	97.0	
MB 160-467982/23-A	Method Blank	87.2	

Tracer/Carrier Legend
Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba Carrier (40-110)	Y Carrier (40-110)
440-264517-1	Outfall018_20200410_Comp	98.5	93.5
440-264517-1 MS	Outfall018_20200410_Comp	82.3	92.0
440-264517-1 MSD	Outfall018_20200410_Comp	95.4	85.6
LCS 160-468070/1-A	Lab Control Sample	97.0	93.5
MB 160-468070/23-A	Method Blank	87.2	91.2

Tracer/Carrier Legend
Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Sr Carrier (40-110)	Y Carrier (40-110)
440-264517-1	Outfall018_20200410_Comp	87.5	93.1
440-264517-1 MS	Outfall018_20200410_Comp	88.8	90.8
440-264517-1 MSD	Outfall018_20200410_Comp	87.6	92.7
LCS 160-468677/1-A	Lab Control Sample	91.7	85.6
MB 160-468677/22-A	Method Blank	93.4	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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		uranium-235 (30-110)	
440-264517-1	Outfall018_20200410_Comp	78.2	
440-264517-1 MS	Outfall018_20200410_Comp	69.9	
440-264517-1 MSD	Outfall018_20200410_Comp	78.1	
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: Quarterly Outfall 018 Comp

Job ID: 440-264517-2

Tracer/Carrier Legend

Uranium-232 = Uranium-232

1

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440-264517 Field Sheet

Tracking #: 1540 4107 8033

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: _____

Cooler ID: _____

Temp Observed: 1.1 °C Corrected: 1.1 °C

From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: PK Date: 04/14/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-conformance	Yes	No	NA
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: MAN Date: 04/14/20

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W20C

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-264079-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

28 May 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: 440-264079-1

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	Validation Level
ARROYO_SIMI_20200406 _GRAB	440-264079-1	N	WM	4/6/20 8:35 AM	SM2340	II



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) 440-264079-1:

- The laboratory received the sample in this SDG on ice and within the temperature limits of ≤ 6 degrees Celsius ($^{\circ}\text{C}$) and $> 0^{\circ}\text{C}$.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and/or 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. No evidence of tampering was noted.
- Strikethroughs on the COC were initialed but not dated.



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. METHODS SM2340B—HARDNESS

M. Hilchey of MEC^X reviewed the SDG on May 28, 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 Metals (DVP-5, Rev. 2)*, *EPA Methods 200.7, 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.

III.2. CALIBRATION

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. Continuing calibration verification recoveries were within QAPP control limits of 90-110%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. METHOD BLANKS

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

III.3.2. INTERFERENCE CHECK SAMPLES:

ICSAB recoveries were within the control limits of 80-120% or $\pm 2 \times$ the reporting limit, whichever is greater. As the target analytes were also ICS spike analytes, interference was not evaluated.

III.3.3. LABORATORY CONTROL SAMPLES

Laboratory control sample recoveries were within the QAPP control limits of 85-115%.

III.3.4. LABORATORY DUPLICATES:

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

III.3.5. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

III.3.6. SERIAL DILUTION

Serial dilution analyses were not performed.

III.4. INTERNAL STANDARDS PERFORMANCE

Internal standard review is not applicable to these methods.

III.5. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Analyte quantification is not evaluated for Stage II validation. 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.

Validated Sample Result Forms: 4402640791

Analysis Method *SM2340*

Sample Name ARROYO_SIMI_20200406_GRAB **Matrix Type:** WM **Result Type:**

Sample Date: 4/6/2020 8:35:00 AM **Validation Level:** 9

Lab Sample Name: 440-264079-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness		HARDNESSCA CO3	45	0.33	0.17	mg/L			

ANALYTICAL REPORT

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

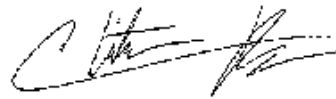
Laboratory Job ID: 440-264079-1

Client Project/Site: Quarterly Arroyo Simi-Frontier Park
Revision: 1

For:

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

Attn: Katherine Miller



Authorized for release by:
4/23/2020 4:56:21 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.

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- 14

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
4/23/2020 4:56:21 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-264079-1	Arroyo_Simi_20200406_Grab	Water	04/06/20 08:35	04/06/20 14:40	

- 1
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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Job ID: 440-264079-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-264079-1

Comments

No additional comments.

Receipt

The samples were received on 4/6/2020 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

GC Semi VOA

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 analytical batch 440-604343 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.

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.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Client Sample ID: Arroyo_Simi_20200406_Grab

Lab Sample ID: 440-264079-1

Date Collected: 04/06/20 08:35

Matrix: Water

Date Received: 04/06/20 14:40

Method: 608.3 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.082	ug/L		04/08/20 07:20	04/08/20 15:19	1
Dieldrin	ND		0.0052	0.0021	ug/L		04/08/20 07:20	04/08/20 15:19	1
Toxaphene	ND		0.52	0.25	ug/L		04/08/20 07:20	04/08/20 15:19	1
4,4'-DDD	ND		0.0052	0.0041	ug/L		04/08/20 07:20	04/08/20 15:19	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		04/08/20 07:20	04/08/20 15:19	1
4,4'-DDT	ND		0.010	0.0041	ug/L		04/08/20 07:20	04/08/20 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	55		10 - 104	04/08/20 07:20	04/08/20 15:19	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	45		0.33	0.17	mg/L			04/08/20 18:04	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Method	Method Description	Protocol	Laboratory
608.3	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
Subcontract	608_LL-PCB- Lancaster Labs	None	ELLE
Subcontract	Weck-525.2-Diazinon and Chlorpyrifos	None	Weck Lab
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
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: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Client Sample ID: Arroyo_Simi_20200406_Grab

Lab Sample ID: 440-264079-1

Date Collected: 04/06/20 08:35

Matrix: Water

Date Received: 04/06/20 14:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			970 mL	2 mL	604144	04/08/20 07:20	L1H	TAL IRV
Total/NA	Analysis	608.3		1			604226	04/08/20 15:19	D1D	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			604285	04/08/20 18:04	P1R	TAL IRV

Laboratory References:

ELLE = Eurofins Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-604144/1-A
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		04/08/20 07:20	04/08/20 13:49	1
Dieldrin	ND		0.0050	0.0020	ug/L		04/08/20 07:20	04/08/20 13:49	1
Toxaphene	ND		0.50	0.24	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/08/20 07:20	04/08/20 13:49	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/08/20 07:20	04/08/20 13:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	70		10 - 104	04/08/20 07:20	04/08/20 13:49	1

Lab Sample ID: LCS 440-604144/2-A
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Dieldrin	0.400	0.318		ug/L		80	36 - 146
4,4'-DDD	0.400	0.353		ug/L		88	31 - 141
4,4'-DDE	0.400	0.318		ug/L		80	30 - 145
4,4'-DDT	0.400	0.304		ug/L		76	25 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	76		10 - 104

Lab Sample ID: 440-264162-F-1-A MS
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Dieldrin	ND		0.404	0.273		ug/L		68	36 - 146
4,4'-DDD	ND		0.404	0.295		ug/L		73	31 - 141
4,4'-DDE	ND		0.404	0.267		ug/L		66	30 - 145
4,4'-DDT	ND		0.404	0.263		ug/L		65	25 - 160

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	71		10 - 104

Lab Sample ID: 440-264162-F-1-B MSD
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604144

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Dieldrin	ND		0.421	0.279		ug/L		66	36 - 146	2	49
4,4'-DDD	ND		0.421	0.305		ug/L		72	31 - 141	3	39
4,4'-DDE	ND		0.421	0.273		ug/L		65	30 - 145	2	35
4,4'-DDT	ND		0.421	0.271		ug/L		64	25 - 160	3	42

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-264162-F-1-B MSD
Matrix: Water
Analysis Batch: 604226

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 604144

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>Tetrachloro-m-xylene</i>	72		10 - 104

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

GC Semi VOA

Prep Batch: 604144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264079-1	Arroyo_Simi_20200406_Grab	Total/NA	Water	608	
MB 440-604144/1-A	Method Blank	Total/NA	Water	608	
LCS 440-604144/2-A	Lab Control Sample	Total/NA	Water	608	
440-264162-F-1-A MS	Matrix Spike	Total/NA	Water	608	
440-264162-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608	

Analysis Batch: 604226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264079-1	Arroyo_Simi_20200406_Grab	Total/NA	Water	608.3	604144
MB 440-604144/1-A	Method Blank	Total/NA	Water	608.3	604144
LCS 440-604144/2-A	Lab Control Sample	Total/NA	Water	608.3	604144
440-264162-F-1-A MS	Matrix Spike	Total/NA	Water	608.3	604144
440-264162-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608.3	604144

Metals

Analysis Batch: 604285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-264079-1	Arroyo_Simi_20200406_Grab	Total Recoverable	Water	SM 2340B	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: Quarterly Arroyo Simi-Frontier Park

Job ID: 440-264079-1

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Work Orders: OD06075

Project: [none]

Attn: TestAmerica, Irvine

Client: Eurofins Calscience - Irvine
17461 Derian Ave, Suite 100
Irvine, CA 92614

Report Date: 4/09/2020
Received Date: 4/6/2020
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 4/06/20 with the Chain-of-Custody document. The samples were received in good condition, at 4.2 °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_20200406_Grab
0D06075-01 (Water) Sampled: 04/06/20 8:35 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M	Batch ID: W0D0223	Instr: GCMS13	Prepared: 04/06/20 17:30	Analyst: EFC			
Chlorpyrifos	ND	6.9	10	ng/l	1	04/08/20	
Diazinon	ND	5.2	10	ng/l	1	04/08/20	
<i>Surrogate(s)</i>							
1,3-Dimethyl-2-nitrobenzene	85%		76-128	Conc: 426		04/08/20	
Triphenyl phosphate	191%		40-163	Conc: 957		04/08/20	S-GC



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Quality Control Results

Semivolatile Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Blank (W0D0223-BLK1)					Prepared: 04/06/20 Analyzed: 04/09/20						
Chlorpyrifos	ND	6.9	10	ng/l							
Diazinon	ND	5.2	10	ng/l							
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	496			ng/l	500		99	76-128			
Triphenyl phosphate	644			ng/l	500		129	40-163			
LCS (W0D0223-BS1)					Prepared: 04/06/20 Analyzed: 04/08/20						
Chlorpyrifos	63.4	6.9	10	ng/l	50.0		127	37-169			
Diazinon	43.2	5.2	10	ng/l	50.0		86	43-152			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	466			ng/l	500		93	76-128			
Triphenyl phosphate	615			ng/l	500		123	40-163			
Matrix Spike (W0D0223-MS1)					Source: 0D06075-01		Prepared: 04/06/20 Analyzed: 04/08/20				
Chlorpyrifos	81.1	6.9	10	ng/l	50.0	ND	162	37-168			
Diazinon	62.7	5.2	10	ng/l	50.0	ND	125	36-153			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	411			ng/l	500		82	76-128			
Triphenyl phosphate	1020			ng/l	500		205	40-163			S-GC
Matrix Spike Dup (W0D0223-MSD1)					Source: 0D06075-01		Prepared: 04/06/20 Analyzed: 04/08/20				
Chlorpyrifos	81.5	6.9	10	ng/l	50.0	ND	163	37-168	0.5	30	
Diazinon	61.0	5.2	10	ng/l	50.0	ND	122	36-153	3	30	
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	465			ng/l	500		93	76-128			
Triphenyl phosphate	917			ng/l	500		183	40-163			S-GC

Notes and Definitions

Item	Definition
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.



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: April 14, 2020 20:40

Project: Quarterly Arroyo Simi-Frontier Park

Account #: 41440
Group Number: 2095275
SDG: SSF18
PO Number: 440-264079-1
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.



SAMPLE INFORMATION

Client Sample Description

Sample Collection
Date/Time

ELLE#

Arroyo_Simi_20200406_Grab (440-264079-1)

04/06/2020 08:35

1294371

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: Arroyo_Simi_20200406_Grab (440-264079-1)
Water
Quarterly Arroyo Simi-Frontier Park

TestAmerica North Canton
ELLE Sample #: WW 1294371
ELLE Group #: 2095275
Matrix: Water

Project Name: Quarterly Arroyo Simi-Frontier Park

Submittal Date/Time: 04/08/2020 10:04
Collection Date/Time: 04/06/2020 08:35
SDG#: SSF18-01

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	201000003A	04/13/2020 19:40	Covenant Mutuku	1
11960	Method 608 PCB Water Ext.	EPA 608.3 Dec. 2016	1	201000003A	04/09/2020 17:55	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: TestAmerica North Canton
Reported: 04/14/2020 20:40

Group Number: 2095275

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 ug/l	MDL** ug/l	LOQ ug/l
Batch number: 201000003A	Sample number(s): 1294371		
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: 201000003A	Sample number(s): 1294371								
PCB-1016	5.01	3.91	5.01	4.14	78	83	50-140	6	36
PCB-1260	5.01	2.51	5.01	3.70	50	74	10-140	38	38

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: 201000003A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
1294371	76	59	74	63
Blank	60	59	58	61
LCS	53	30	52	31
LCSD	50	32	52	36
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.

Quality Control Summary

Client Name: TestAmerica North Canton
Reported: 04/14/2020 20:40

Group Number: 2095275

- 1
- 2
- 3
- 4
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- 9
- 10
- 11
- 12
- 13
- 14

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

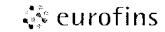
(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Eurofins Calscience Irvine

17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

41440 205275
Chain of Custody Record



Calscience

Client Information (Sub Contract Lab)		Sampler:	Lab PM: Bondoc, Christian M	Carrier Tracking No(s):	COC No: 440-154791.1					
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 #: 440-264079-1					
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:		Due Date Requested: 4/16/2020 TAT Requested (days):	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:				
Project Name: Quarterly Arroyo Simi-Frontier Park Site:		PO #: WO #: Project #: 44009879 SSOW#:								
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 IMS/MSD (Yes or No)	Sub (608_LL-PCB-Lancaster Labs/ 608_LL-PCB-Lancaster Labs)	Total Number of containers	Special Instructions/Note:
Arroyo_Simi_20200406_Grab (440-264079-1)		4/6/20	08:35 Pacific		Water	X			1	Level IV package needed
<p>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.</p>										
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: <i>A. Kennedy</i>			Date/Time: <i>4/7/2020 1700</i>		Company: <i>EC-IRV</i>		Received by:		Date/Time:	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:			Date/Time:		Company:		Received by: <i>Chc Kelly</i>		Date/Time: <i>4/8/20 10:04</i>	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks: <i>0.4</i>					



Client: EUROFINS CALSCIENCE IRVINE

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Date:	<u>04/08/2020</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>2</u>
State/Province of Origin:	<u>CA</u>		

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:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Julissa Rivera-Santa

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	46730060WS	0.4	IR	Wet	Y	Loose	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
Arroyo_Simi_20200406 _Grab_Extra (440-264079-2)	1	4/06/2020 08:35	

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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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 less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
J (or G, I, X)	Estimated value \geq 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.



CHAIN OF CUSTODY FORM

TRA-IT-97B

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Derran Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2015 Quarterly Arroyo Simi-Fronter Park Dry Weather		ANALYSIS REQUIRED Hardness as CaCO ₃ , Recoverable (SM2340B) X Chlorpyrifos, Diazinon (E525 2) Pesticides: Chlordane, 4-DDD, 4-DDE, 4-DDT, Dieldrin, Toxaphene + PCBs only (E08) Diethyltin, Dibutyltin, Diphenyltin, Diethyltin		Field Readings (Include units) Time of Readings: 0835 pH 8.10 pH unit Temp 54.9 °C Velocity 0.9 ft/sec Field readings QC Checked by: <i>[Signature]</i> Date/Time: 6-6-2020/0835		Meter serial # _____		
Project Manager: Kathrine Miller 520.289.8606, 520.904.6944 (cell)		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Hardness as CaCO ₃ , Recoverable (SM2340B) X Chlorpyrifos, Diazinon (E525 2) Pesticides: Chlordane, 4-DDD, 4-DDE, 4-DDT, Dieldrin, Toxaphene + PCBs only (E08) Diethyltin, Dibutyltin, Diphenyltin, Diethyltin		Field Readings (Include units) Time of Readings: 0835 pH 8.10 pH unit Temp 54.9 °C Velocity 0.9 ft/sec Field readings QC Checked by: <i>[Signature]</i> Date/Time: 6-6-2020/0835		Meter serial # _____		
Test America'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		Hardness as CaCO ₃ , Recoverable (SM2340B) X Chlorpyrifos, Diazinon (E525 2) Pesticides: Chlordane, 4-DDD, 4-DDE, 4-DDT, Dieldrin, Toxaphene + PCBs only (E08) Diethyltin, Dibutyltin, Diphenyltin, Diethyltin		Field Readings (Include units) Time of Readings: 0835 pH 8.10 pH unit Temp 54.9 °C Velocity 0.9 ft/sec Field readings QC Checked by: <i>[Signature]</i> Date/Time: 6-6-2020/0835		Meter serial # _____		
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Hold	Comments
Arroyo_Simi_20200406_Grab		4/6/2020 / 10835	WS	250 mL Poly	1	HNO ₃	100	No		
Arroyo_Simi_20200406_Grab_Extra		4/6/2020 / 10835	WS	1L Glass Amber	2	None	275	No		
			WS	1L Glass Amber	2	None	285	No		
			WS	1L Glass Amber	2	None	275	No		
			WS	1L Glass Amber	2	None	285	No		
 440-264079 Chain of Custody										
Relinquished By: <i>[Signature]</i> Date/Time: 4.6.2020/10835		Received By: William Rivera Date/Time: 4/6/20 1115		Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal: _____						
Relinquished By: William Rivera Date/Time: 4/6/20 1440		Received By: <i>[Signature]</i> Date/Time: 4/6/20 1440		Sample Integrity: (Check) Intact _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: _____ X						

0.6/0.6, 1.0/1.0; 0.8 to 0.8 #89
 00 4/6/20 00 4/6/20



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-264079-1

Login Number: 264079

List Number: 1

Creator: Escalante, Maria I

List Source: Eurofins Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 440-266381-1

Prepared for

Haley & Aldrich, Inc.
600 South Meyer Avenue, Suite 100
Tucson, Arizona 85701

22 June 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

MECX Project No.: 1272.003D.01 002

Sample Delivery Group: 440-266381-1

Project Manager: Katherine Miller

Matrix: Sediment

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
ARROYO_SIMI- SED_20200521	440-266381-1	SE	5/21/2020 8:30:00 AM	8082*, EPA/600/R- 94/025, EPA/600/R- 95/136, SM4500-NH3D, SW8081A, SW9060

*The laboratory EDD states Method 608; however, the sample was analyzed by SW-846 Method 8082.



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) 440-266381-1:

- TA-Irvine, TA-Seattle and Lancaster received the sample in this SDG on ice and within the temperature limits of <6 degrees Celsius (°C) and >0°C. A Login Sample Receipt Checklist was not provided for Aquatic Bioassay Consultants (ABC) laboratory; therefore, the condition of the sample upon receipt is unknown.
- The sample was submitted to ABC for analysis of Methods EPA/600/R-94/025 and EPA/600/R-95/136, to TA-Seattle for analysis of Method 9060 and to Lancaster for analysis of Method 8081A (PCBs).
- According to the Login Sample Receipt Checklist for TA-Irvine, custody seals were absent on the coolers; however, no evidence of tampering was noted. Custody seals were present upon receipt at TA-Seattle and Lancaster. A Login Sample Receipt Checklist was not provided for ABC laboratory; therefore, the presence of custody seals 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.



IV. EPA METHODS 8081A AND 8082—PESTICIDES AND PCBs

L. Calvin of MEC^x reviewed the SDG on June 23, 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 Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1)*, EPA Methods 8081A and 8082 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 14 days of collection and analyzed within 40 days of extraction.

IV.2. CALIBRATION

Calibration was not evaluated at a Stage II validation level.

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.

IV.3.3. SURROGATE RECOVERY

Surrogates tetrachloro-m-xylene (TCMX) and decachlorobiphenyl (DCB) were recovered within the respective laboratory control limits for pesticides and PCBs.

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 not evaluated at a Stage II validation level. The laboratory analyzed for six pesticides by Method 8081A and seven PCBs by Method 8082.



IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was not evaluated at a Stage II validation level. 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.

V. VARIOUS METHODS — GENERAL CHEMISTRY

M. Hilchey of MEC^x reviewed the SDG on June 22, 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 600/R-95/136, 600/R-94/025 and 9060, *Standard Methods for the Examination of Water and Wastewater 4500-NH3 D* and the *National Functional Guidelines for Inorganic Superfund Data Review (2017)*.

V.1. HOLDING TIMES

The analytical holding times for sediments, as listed below, were met:

- 28 days for total organic carbon (TOC)
- 28 days for ammonia
- 14 days for chronic sediment toxicity
- 14 days for 48-hour bivalve embryo toxicity

V.2. CALIBRATION

Instrument calibration review is not performed at Level II validation. All initial and continuing calibration recoveries were within 90-110%. Analytical balance calibration logs were not provided by the laboratory. For toxicity analyses, standard reference toxicant testing was performed to verify culture health and sensitivity.

V.3. QUALITY CONTROL SAMPLES

V.3.1. METHOD BLANKS

The method blanks had no detections. The chronic toxicity tests met the negative control criteria of the laboratory and method.

V.3.2. LABORATORY CONTROL SAMPLES

Laboratory control sample and laboratory control sample duplicate recoveries, as applicable, were within the laboratory control limits. The positive control criteria were met for the chronic toxicity tests.

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. 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.

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: 4402663811

Analysis Method E608

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016 (PCB-1016)	N	12674-11-2	ND		4.5	ug/kg	U, D1	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2	ND		5.7	ug/kg	U, D1	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5	ND		9.9	ug/kg	U, D1	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9	ND		4.1	ug/kg	U, D1	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6	ND		4.1	ug/kg	U, D1	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1	ND		4.1	ug/kg	U, D1	U	
Aroclor-1260 (PCB-1260)	N	11096-82-5	ND		6.1	ug/kg	U, D1	U	

Analysis Method EPA/600/R-94/025

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Sediment toxicity (chronic 10-day eohaustorius estuarius toxicity)	N	SEDTOX10DAY	100			% SURV			

Analysis Method EPA/600/R-95/136

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Mytilus	N	CHRTOXMYTIL US	100			% SURV			

Analysis Method SM4500-NH3D

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N	4.86	12.8	2.55	mg/kg	J,DX	J	DNQ

Analysis Method SW8081A

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8	ND	5.0	1.5	ug/kg	U	U	
4,4'-DDE	N	72-55-9	ND	5.0	1.5	ug/kg	U	U	
4,4'-DDT	N	50-29-3	ND	5.0	1.5	ug/kg	U	U	
Chlordane	N	57-74-9	ND	50	15	ug/kg	U	U	
Dieldrin	N	60-57-1	ND	5.0	1.5	ug/kg	U	U	
Toxaphene	N	8001-35-2	ND	200	50	ug/kg	U	U	

Analysis Method SW9060

Sample Name ARROYO_SIMI-SED_20200521 Matrix Type: SE Result Type: TRG

Sample Date: 5/21/2020 8:30:00 AM Validation Level: 9

Lab Sample Name: 440-266381-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
TOC Average Duplicates	N	TOCAVGD	790	2000	97	mg/kg	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: 440-266381-1
Client Project/Site: Annual Sediment Arroyo
Revision: 1

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

Attn: Katherine Miller



Authorized for release by:
7/15/2020 12:28:00 PM

Christian Bondoc, Project Manager I
(949)260-3218
Christian.Bondoc@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 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.

- 1
- 2
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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
7/15/2020 12:28:00 PM



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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
440-266381-1	Arroyo_Semi-Sed_20200521	Solid	05/21/20 08:30	05/21/20 17:00	

- 1
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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Job ID: 440-266381-1

Laboratory: Eurofins Calscience Irvine

Narrative

Job Narrative 440-266381-1

Comments

No additional comments.

Receipt

The sample was received on 5/21/2020 5:00 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

GC Semi VOA

Methods 8081A, 8081B_LL: The following samples in preparation batch 440-609935 required a copper clean-up to reduce matrix interferences caused by sulfur. The associated batch QC were also processed with the copper cleanup procedure. Arroyo_Semi-Sed_20200521 (440-266381-1).

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

General Chemistry

Methods 9060, 9060A: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 580-329193 was outside control limits. Sample matrix interference is suspected as two separate containers were provided.

Methods 9060, 9060A: Due to the high concentration of analytes TOC, TOC DUP, TOC QUAD, TOC TRIP the matrix spike (MS) for analytical batch 580-329193 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria

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

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

Subcontract Work

Methods 48-hour Bivalve Embryo toxicity, Bioassay-Chronic 10day eohaustorius: These methods were subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certifications are different from that of the facility issuing the final report.

Method 8082LL- PCB- 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.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Client Sample ID: Arroyo_Semi-Sed_20200521

Lab Sample ID: 440-266381-1

Date Collected: 05/21/20 08:30

Matrix: Solid

Date Received: 05/21/20 17:00

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/29/20 15:32	1
4,4'-DDE	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/29/20 15:32	1
4,4'-DDT	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/29/20 15:32	1
Chlordane (technical)	ND		50	15	ug/Kg		05/26/20 05:41	05/29/20 15:32	1
Dieldrin	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/29/20 15:32	1
Toxaphene	ND		200	50	ug/Kg		05/26/20 05:41	05/29/20 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	74		21 - 117	05/26/20 05:41	05/29/20 15:32	1
Tetrachloro-m-xylene	91		28 - 115	05/26/20 05:41	05/29/20 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup	790	J,DX	2000	97	mg/Kg			05/27/20 14:52	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	0.10		0.01	0.01	%			06/03/20 13:14	1
Coarse Sand (0.5mm to 1mm)	36.16		0.01	0.01	%			06/03/20 13:14	1
Fine Sand (0.125 to 0.25mm)	0.77		0.01	0.01	%			06/03/20 13:14	1
Gravel (greater than 2 mm)	29.18		0.01	0.01	%			06/03/20 13:14	1
Medium Sand (0.25 to 0.5 mm)	9.21		0.01	0.01	%			06/03/20 13:14	1
Silt (0.00391 to 0.0625mm)	0.24		0.01	0.01	%			06/03/20 13:14	1
Total Silt and Clay (0 to 0.0626mm)	0.34		0.01	0.01	%			06/03/20 13:14	1
Very Coarse Sand (1 to 2mm)	24.17		0.01	0.01	%			06/03/20 13:14	1
Very Fine Sand (0.0625 to 0.125 mm)	0.16		0.01	0.01	%			06/03/20 13:14	1

Client Sample ID: Arroyo_Semi-Sed_20200521

Lab Sample ID: 440-266381-1

Date Collected: 05/21/20 08:30

Matrix: Solid

Date Received: 05/21/20 17:00

Percent Solids: 78.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	4.86	J,DX	12.8	2.55	mg/Kg	☼	05/27/20 04:00	05/27/20 05:30	1

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PARTICLE SIZE SUMMARY

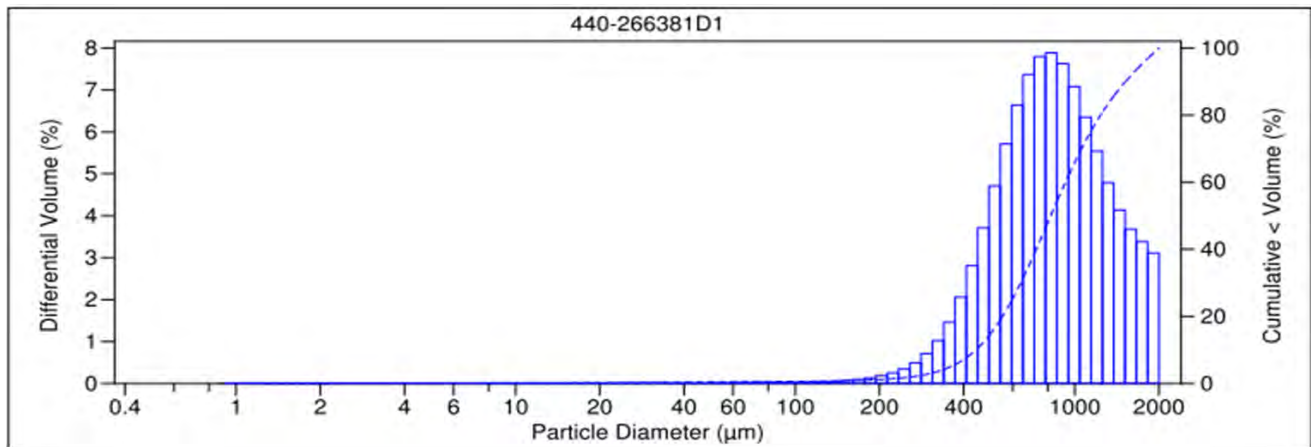
(ASTM D422 / D4464M)

Haley & Aldrich	Date Sampled:	05/21/20
	Date Received:	05/21/20
	Work Order No:	440-266381
	Date Analyzed:	06/03/20
	Method:	ASTM D4464M

Project: Boeing-SSFL NPDES

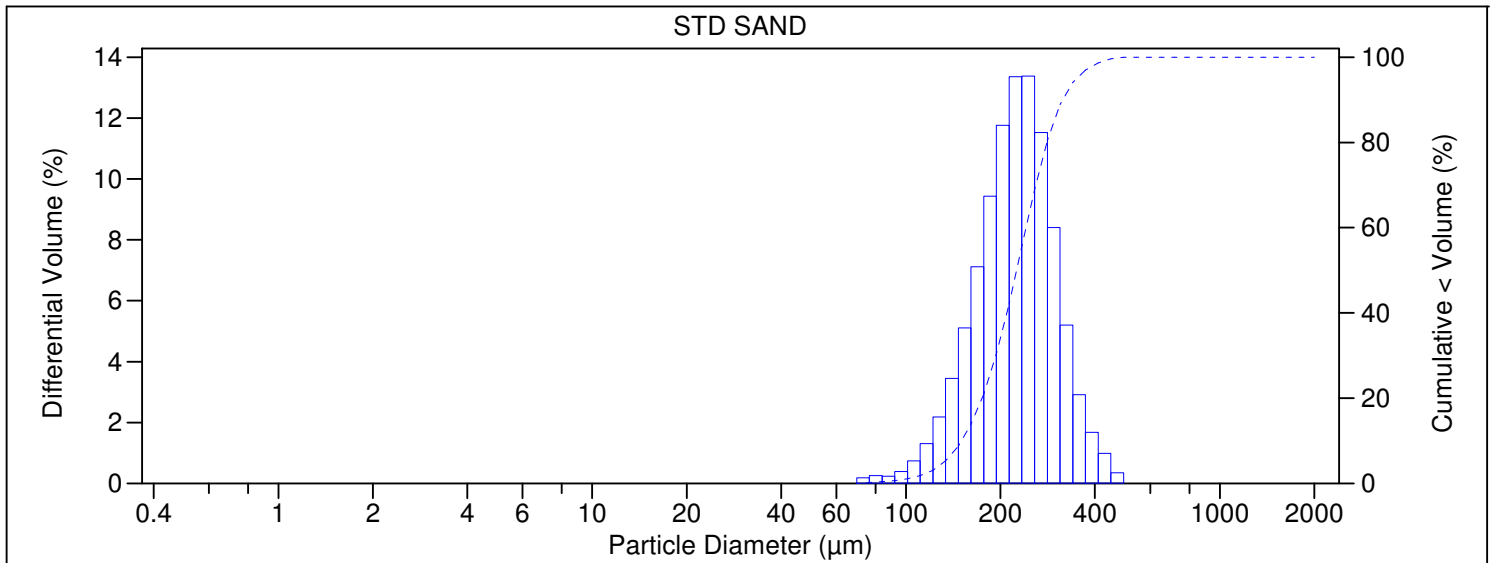
Sample ID	Depth ft	Description	Mean Grain Size mm
Arroyo_Semi-Sed_20200521		Very Coarse Sand	1.774

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
29.18	24.17	36.16	9.21	0.77	0.16	0.24	0.10	0.34



V.3.0

File name:	C:\LS13320\STD SAND_ 3 Jun 2020_ 13.21.36.\$ls		
	STD SAND_ 3 Jun 2020_ 13.21.36.\$ls		
File ID:	STD SAND		
Sample ID:	STD SAND		
Operator:	1106		
Run number:	18		
	Control Sample		
Comment 1:	ASTM D4464M , LPSA 1		
Comment 2:	602396 , BATCH#029A		
Optical model:	Fraunhofer.rf780d		
Residual:	1.71%		
LS 13 320	Aqueous Liquid Module		
Start time:	13:20 3 Jun 2020	Run length:	60 seconds
Pump speed:	49		
Obscuration:	10%		
Fluid:	Water		
Software:	6.01	Firmware:	4.00

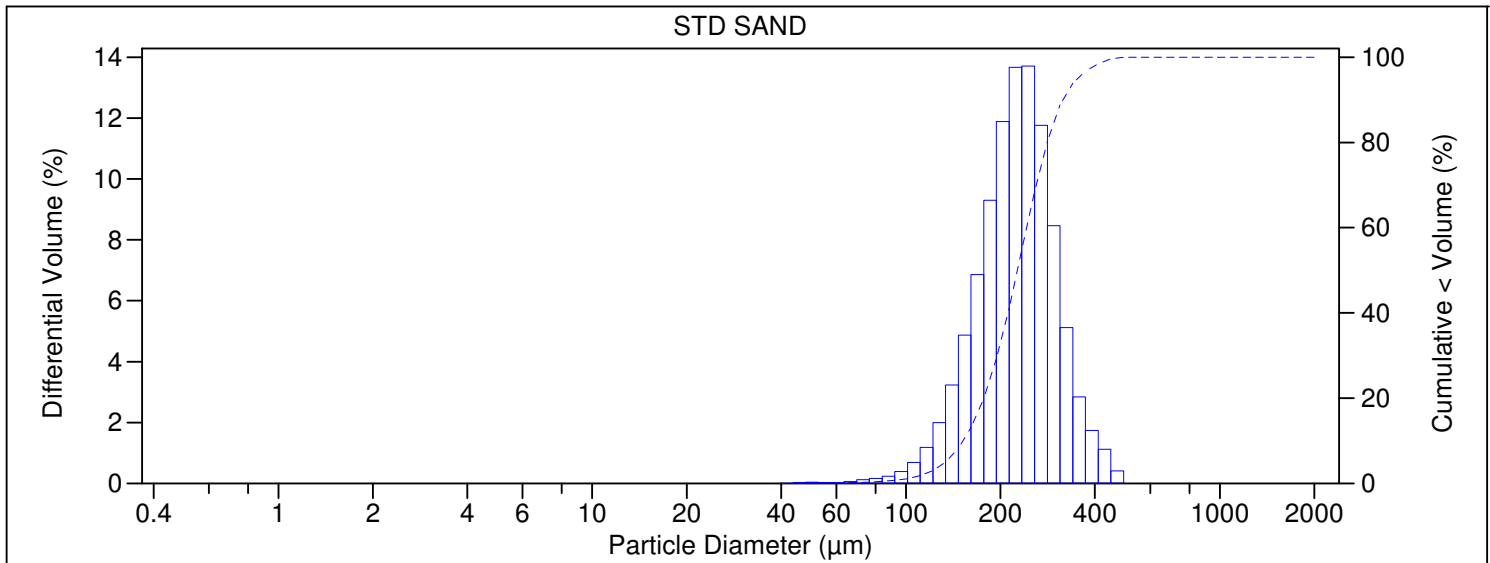


Volume Statistics (Arithmetic)		STD SAND_ 3 Jun 2020_ 13.21.36.\$ls					
Calculations from 0.375 µm to 2000 µm							
Volume:	100%			S.D.:	66.19 µm		
Mean:	230.5 µm			Variance:	4381 µm ²		
Median:	225.4 µm			Skewness:	0.558 Right skewed		
Mean/Median ratio:	1.022			Kurtosis:	0.552 Leptokurtic		
Mode:	245.2 µm						
d ₁₀ :	150.3 µm	d ₅₀ :	225.4 µm	d ₉₀ :	316.3 µm		
Folk and Ward Statistics (Phi)							
Mean:	2.17	Median:	2.15	Deviation:	0.42		
Skewness:	0.08	Kurtosis:	1.05				
<5%	<16%	<25%	<40%	<50%	<75%	<84%	<95%
132.1 µm	165.9 µm	184.3 µm	209.7 µm	225.4 µm	270.2 µm	293.7 µm	350.6 µm

Particle Diameter µm	STD SAND_ 3 Jun 2020 _13.21.36 .\$ls Volume %
0.04	0
0.4	0
1.95	0
3.91	0
62.5	3.70
125	61.2
250	35.1
500	0
1000	0
2000	0

STD SAND_ 3 Jun 2020_13.21.36.\$ls					
Channel Diameter (Lower) µm	Diff. Volume %	Channel Diameter (Lower) µm	Diff. Volume %	Channel Diameter (Lower) µm	Diff. Volume %
0.375	0	24.95	0	1660	0
0.412	0	27.39	0	1822	0
0.452	0	30.07	0	2000	0
0.496	0	33.01	0		
0.545	0	36.24	0		
0.598	0	39.78	0		
0.657	0	43.67	0		
0.721	0	47.94	0		
0.791	0	52.63	0		
0.869	0	57.77	0		
0.954	0	63.42	0		
1.047	0	69.62	0.18		
1.149	0	76.43	0.26		
1.261	0	83.90	0.24		
1.385	0	92.10	0.39		
1.520	0	101.1	0.74		
1.669	0	111.0	1.31		
1.832	0	121.8	2.18		
2.011	0	133.7	3.46		
2.208	0	146.8	5.11		
2.423	0	161.2	7.11		
2.660	0	176.9	9.43		
2.920	0	194.2	11.8		
3.206	0	213.2	13.4		
3.519	0	234.1	13.4		
3.863	0	256.9	11.5		
4.241	0	282.1	8.41		
4.656	0	309.6	5.21		
5.111	0	339.9	2.92		
5.611	0	373.1	1.68		
6.159	0	409.6	0.99		
6.761	0	449.7	0.35		
7.422	0	493.6	0		
8.148	0	541.9	0		
8.944	0	594.9	0		
9.819	0	653.0	0		
10.78	0	716.9	0		
11.83	0	786.9	0		
12.99	0	863.9	0		
14.26	0	948.3	0		
15.65	0	1041	0		
17.18	0	1143	0		
18.86	0	1255	0		
20.71	0	1377	0		
22.73	0	1512	0		

File name:	C:\LS13320\STD SAND_ 3 Jun 2020_ 13.36.49.\$ls		
	STD SAND_ 3 Jun 2020_ 13.36.49.\$ls		
File ID:	STD SAND		
Sample ID:	STD SAND		
Operator:	1106		
Run number:	20		
	Control Sample		
Comment 1:	ASTM D4464M , LPSA 1		
Comment 2:	602396 , BATCH#029A		
Optical model:	Fraunhofer.rf780d		
Residual:	2.36%		
LS 13 320	Aqueous Liquid Module		
Start time:	13:35 3 Jun 2020	Run length:	60 seconds
Pump speed:	49		
Obscuration:	11%		
Fluid:	Water		
Software:	6.01	Firmware:	4.00



Volume Statistics (Arithmetic)		STD SAND_ 3 Jun 2020_ 13.36.49.\$ls					
Calculations from 0.375 µm to 2000 µm							
Volume:	100%						
Mean:	231.8 µm	S.D.:	66.40 µm				
Median:	226.7 µm	Variance:	4409 µm ²				
Mean/Median ratio:	1.022	Skewness:	0.570 Right skewed				
Mode:	245.2 µm	Kurtosis:	0.695 Leptokurtic				
d ₁₀ :	152.0 µm	d ₅₀ :	226.7 µm	d ₉₀ :	317.0 µm		
Folk and Ward Statistics (Phi)							
Mean:	2.16	Median:	2.14	Deviation:	0.41		
Skewness:	0.08	Kurtosis:	1.06				
<5%	<16%	<25%	<40%	<50%	<75%	<84%	<95%
133.8 µm	167.8 µm	186.3 µm	211.4 µm	226.7 µm	270.8 µm	294.1 µm	353.0 µm

- 1
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- 12
- 13
- 14

Particle Diameter µm	STD SAND_ 3 Jun 2020 _13.36.49 .\$ls Volume %
0.04	0
0.4	0
1.95	0
3.91	0.14
62.5	3.39
125	60.8
250	35.6
500	0
1000	0
2000	0

STD SAND_ 3 Jun 2020_13.36.49.\$ls					
Channel Diameter (Lower) µm	Diff. Volume %	Channel Diameter (Lower) µm	Diff. Volume %	Channel Diameter (Lower) µm	Diff. Volume %
0.375	0	24.95	0	1660	0
0.412	0	27.39	0	1822	0
0.452	0	30.07	0	2000	0
0.496	0	33.01	0		
0.545	0	36.24	0		
0.598	0	39.78	0.012		
0.657	0	43.67	0.034		
0.721	0	47.94	0.037		
0.791	0	52.63	0.027		
0.869	0	57.77	0.031		
0.954	0	63.42	0.066		
1.047	0	69.62	0.12		
1.149	0	76.43	0.17		
1.261	0	83.90	0.23		
1.385	0	92.10	0.39		
1.520	0	101.1	0.69		
1.669	0	111.0	1.18		
1.832	0	121.8	1.99		
2.011	0	133.7	3.24		
2.208	0	146.8	4.87		
2.423	0	161.2	6.86		
2.660	0	176.9	9.30		
2.920	0	194.2	11.9		
3.206	0	213.2	13.7		
3.519	0	234.1	13.7		
3.863	0	256.9	11.8		
4.241	0	282.1	8.47		
4.656	0	309.6	5.12		
5.111	0	339.9	2.84		
5.611	0	373.1	1.74		
6.159	0	409.6	1.12		
6.761	0	449.7	0.42		
7.422	0	493.6	0		
8.148	0	541.9	0		
8.944	0	594.9	0		
9.819	0	653.0	0		
10.78	0	716.9	0		
11.83	0	786.9	0		
12.99	0	863.9	0		
14.26	0	948.3	0		
15.65	0	1041	0		
17.18	0	1143	0		
18.86	0	1255	0		
20.71	0	1377	0		
22.73	0	1512	0		

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
9060	Organic Carbon, Total (TOC)	SW846	TAL SEA
Moisture	Percent Moisture	EPA	TAL IRV
SM 4500 NH3 D	Ammonia	SM	TAL IRV
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
Subcontract	48-hour Bivalve Embryo toxicity	None	Aquatic
Subcontract	Bioassay-Chronic 10day eohaustorius	None	Aquatic
3546	Microwave Extraction	SW846	TAL IRV
SM 4500 NH3 B	Distillation, Ammonia	SM	TAL IRV

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

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

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Client Sample ID: Arroyo_Semi-Sed_20200521

Lab Sample ID: 440-266381-1

Date Collected: 05/21/20 08:30

Matrix: Solid

Date Received: 05/21/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.07 g	2 mL	609935	05/26/20 05:41	L1A	TAL IRV
Total/NA	Analysis	8081A		1			610567	05/29/20 15:32	D1D	TAL IRV
Total/NA	Analysis	9060		1			329193	05/27/20 14:52	FCG	TAL SEA
Total/NA	Analysis	Moisture		1			610088	05/26/20 18:26	HTL	TAL IRV
Total/NA	Analysis	D4464		1			73145	06/03/20 13:14	C4LT	ECL 1

Client Sample ID: Arroyo_Semi-Sed_20200521

Lab Sample ID: 440-266381-1

Date Collected: 05/21/20 08:30

Matrix: Solid

Date Received: 05/21/20 17:00

Percent Solids: 78.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SM 4500 NH3 B			2.5011 g	50 mL	610117	05/27/20 04:00	YZ	TAL IRV
Total/NA	Analysis	SM 4500 NH3 D		1			610123	05/27/20 05:30	YZ	TAL IRV

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

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

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-609935/1-A
Matrix: Solid
Analysis Batch: 610192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 609935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/27/20 14:21	1
4,4'-DDE	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/27/20 14:21	1
4,4'-DDT	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/27/20 14:21	1
Chlordane (technical)	ND		50	15	ug/Kg		05/26/20 05:41	05/27/20 14:21	1
Dieldrin	ND		5.0	1.5	ug/Kg		05/26/20 05:41	05/27/20 14:21	1
Toxaphene	ND		200	50	ug/Kg		05/26/20 05:41	05/27/20 14:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	54		21 - 117	05/26/20 05:41	05/27/20 14:21	1
Tetrachloro-m-xylene	72		28 - 115	05/26/20 05:41	05/27/20 14:21	1

Lab Sample ID: LCS 440-609935/2-A
Matrix: Solid
Analysis Batch: 610192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 609935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
4,4'-DDD	26.7	23.3		ug/Kg		87	59 - 118
4,4'-DDE	26.7	22.9		ug/Kg		86	55 - 115
4,4'-DDT	26.7	23.5		ug/Kg		88	60 - 131
cis-Chlordane	26.7	22.5		ug/Kg		84	56 - 115
trans-Chlordane	26.7	20.3		ug/Kg		76	38 - 150
Dieldrin	26.7	22.4		ug/Kg		84	57 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	67		21 - 117
Tetrachloro-m-xylene	84		28 - 115

Lab Sample ID: 720-98611-A-1-B MS
Matrix: Solid
Analysis Batch: 610192

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 609935

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
4,4'-DDD	ND		26.2	21.5		ug/Kg		82	10 - 150
4,4'-DDE	ND		26.2	22.6		ug/Kg		86	10 - 150
4,4'-DDT	ND		26.2	22.6		ug/Kg		86	13 - 141
cis-Chlordane	ND		26.2	21.1		ug/Kg		81	10 - 150
trans-Chlordane	ND		26.2	19.0		ug/Kg		72	10 - 150
Dieldrin	ND		26.2	21.4		ug/Kg		82	10 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	61		21 - 117
Tetrachloro-m-xylene	82		28 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 720-98611-A-1-C MSD

Matrix: Solid
Analysis Batch: 610192

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA
Prep Batch: 609935

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
4,4'-DDD	ND		25.9	20.2		ug/Kg		78	10 - 150	7	26
4,4'-DDE	ND		25.9	20.8		ug/Kg		81	10 - 150	7	40
4,4'-DDT	ND		25.9	21.4		ug/Kg		83	13 - 141	6	26
cis-Chlordane	ND		25.9	19.6		ug/Kg		76	10 - 150	8	40
trans-Chlordane	ND		25.9	17.7		ug/Kg		69	10 - 150	7	36
Dieldrin	ND		25.9	20.0		ug/Kg		77	10 - 150	7	28

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	60		21 - 117
Tetrachloro-m-xylene	77		28 - 115

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-329193/5

Matrix: Solid
Analysis Batch: 329193

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 - Average Dup	ND		2000	97	mg/Kg			05/27/20 12:33	1

Lab Sample ID: LCS 580-329193/6

Matrix: Solid
Analysis Batch: 329193

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 - Average Dup	5080	3650		mg/Kg		72	40 - 180

Lab Sample ID: LCSD 580-329193/7

Matrix: Solid
Analysis Batch: 329193

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon - Average Dup	5080	3350		mg/Kg		66	40 - 180	9	32

Lab Sample ID: 320-61057-A-1 MS

Matrix: Solid
Analysis Batch: 329193

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 - Average Dup	230000		120000	480000	LM	mg/Kg		210	68 - 149

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 320-61057-A-1 MSD
Matrix: Solid
Analysis Batch: 329193

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 - Average Dup	230000		120000	336000	BA	mg/Kg		89	68 - 149	35	32

Lab Sample ID: 320-61057-A-1 DU
Matrix: Solid
Analysis Batch: 329193

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Average Dup	230000		229000		mg/Kg		0.3	50

Method: SM 4500 NH3 D - Ammonia

Lab Sample ID: MB 440-610117/2-A
Matrix: Solid
Analysis Batch: 610123

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 610117

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		9.99	2.00	mg/Kg		05/27/20 04:00	05/27/20 05:30	1

Lab Sample ID: LCS 440-610117/1-A
Matrix: Solid
Analysis Batch: 610123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 610117

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	50.0	44.78		mg/Kg		90	85 - 115

Lab Sample ID: 440-266269-A-1-L MS
Matrix: Solid
Analysis Batch: 610123

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 610117

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	8030		10000	17880		mg/Kg	☼	98	75 - 125

Lab Sample ID: 440-266269-A-1-M MSD
Matrix: Solid
Analysis Batch: 610123

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 610117

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	8030		9960	18470		mg/Kg	☼	105	75 - 125	3	15

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

GC Semi VOA

Prep Batch: 609935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	3546	
MB 440-609935/1-A	Method Blank	Total/NA	Solid	3546	
LCS 440-609935/2-A	Lab Control Sample	Total/NA	Solid	3546	
720-98611-A-1-B MS	Matrix Spike	Total/NA	Solid	3546	
720-98611-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	

Analysis Batch: 610192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-609935/1-A	Method Blank	Total/NA	Solid	8081A	609935
LCS 440-609935/2-A	Lab Control Sample	Total/NA	Solid	8081A	609935
720-98611-A-1-B MS	Matrix Spike	Total/NA	Solid	8081A	609935
720-98611-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	609935

Analysis Batch: 610567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	8081A	609935

General Chemistry

Analysis Batch: 329193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	9060	
MB 580-329193/5	Method Blank	Total/NA	Solid	9060	
LCS 580-329193/6	Lab Control Sample	Total/NA	Solid	9060	
LCS 580-329193/7	Lab Control Sample Dup	Total/NA	Solid	9060	
320-61057-A-1 MS	Matrix Spike	Total/NA	Solid	9060	
320-61057-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	9060	
320-61057-A-1 DU	Duplicate	Total/NA	Solid	9060	

Analysis Batch: 610088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	Moisture	
320-60985-A-17 DU	Duplicate	Total/NA	Solid	Moisture	

Prep Batch: 610117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	SM 4500 NH3 B	
MB 440-610117/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 B	
LCS 440-610117/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 B	
440-266269-A-1-L MS	Matrix Spike	Total/NA	Solid	SM 4500 NH3 B	
440-266269-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	SM 4500 NH3 B	

Analysis Batch: 610123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	SM 4500 NH3 D	610117
MB 440-610117/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 D	610117
LCS 440-610117/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 D	610117
440-266269-A-1-L MS	Matrix Spike	Total/NA	Solid	SM 4500 NH3 D	610117
440-266269-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	SM 4500 NH3 D	610117

Eurofins Calscience Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Geotechnical

Analysis Batch: 73145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-266381-1	Arroyo_Semi-Sed_20200521	Total/NA	Solid	D4464	
LCS 570-73145/18	Lab Control Sample	Total/NA	Solid	D4464	
LCSD 570-73145/20	Lab Control Sample Dup	Total/NA	Solid	D4464	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

Qualifiers

General Chemistry

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)

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Annual Sediment Arroyo

Job ID: 440-266381-1

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
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids
SM 4500 NH3 D	SM 4500 NH3 B	Solid	Ammonia (as N)

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-29-20
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-29-20
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

Laboratory: Eurofins TestAmerica, Seattle

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	17-024	01-14-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-20-23
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-20-00031	02-10-23
Washington	State	C553	02-18-21

June 11, 2020

Ms. Katherine Miller
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Ms. Miller:

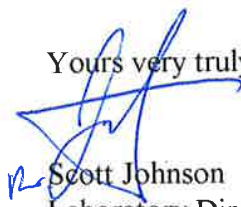
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Arroyo_Simi-Sed_20200521
DATE RECEIVED:	5/21/2020
ABC LAB. NO.:	CSE0520.211

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 100.00% Survival

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 11 Jun-20 12:02 (p 1 of 1)
 Test Code/ID: CSE0520.211e / 05-3749-7802

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 17-5207-2715	Test Type: Survival-Reburial	Analyst: Joe Freas
Start Date: 26 May-20 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 05 Jun-20 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Test Length: 10d 0h	Taxon: Malacostraca	Source: Northwestern Aquatic Scienc Age:
Sample ID: 08-7265-4594	Code: CSE0520.211e	Project: Boring-SSFL NPDES
Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521
Sample Age: 5d 4h	Client: Eurofins Calscience	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
05-2503-3868	Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	100% passed survival rate	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
05-2503-3868	Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000

Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	20/20	20/20	20/20	20/20	20/20
100		20/20	20/20	20/20	20/20	20/20

CETIS Analytical Report

Report Date: 11 Jun-20 12:02 (p 1 of 2)
 Test Code/ID: CSE0520.211e / 05-3749-7802

Eohaustorius 10-d Survival and Reburial Sediment Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 05-2503-3868	Endpoint: Survival Rate	CETIS Version: CETISv1.9.5	Analyzed: 11 Jun-20 12:02	Analysis: Nonparametric-Two Sample	Status Level: 1
Batch ID: 17-5207-2715	Test Type: Survival-Reburial	Analyst: Joe Freas	Start Date: 26 May-20 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 05 Jun-20 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable	Test Length: 10d 0h	Taxon: Malacostraca	Source: Northwestern Aquatic Scienc Age:
Sample ID: 08-7265-4594	Code: CSE0520.211e	Project: Boring-SSFL NPDES	Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521	Sample Age: 5d 4h	Client: Eurofins Calscience	

Data Transform	Alt Hyp	Comparison Result
Angular (Corrected)	C > T	100% passed survival rate

Wilcoxon Rank Sum Two-Sample Test									
Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		100	27.5	n/a	1	8	Exact	1.0000	Non-Significant Effect

Test Acceptability Criteria					
Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.9	>>	Yes	Passes Criteria _f

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65540	<1.0E-37	Significant Effect
Error	0	0	8			
Total	0		9			

Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		5	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	5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.00%	0.00%
100		5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.00%	0.00%

Survival Rate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.0000	1.0000	1.0000	1.0000	1.0000
100		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
0	N	1.459	1.459	1.459	1.459	1.459
100		1.459	1.459	1.459	1.459	1.459

Survival Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	20/20	20/20	20/20	20/20	20/20
100		20/20	20/20	20/20	20/20	20/20

Eohaustorius 10-d Survival and Reburial Sediment Test

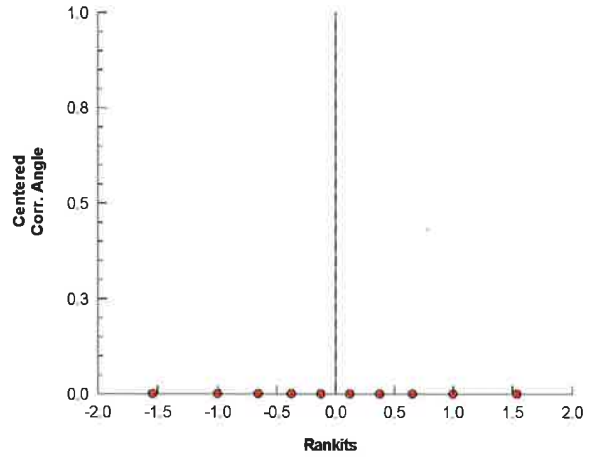
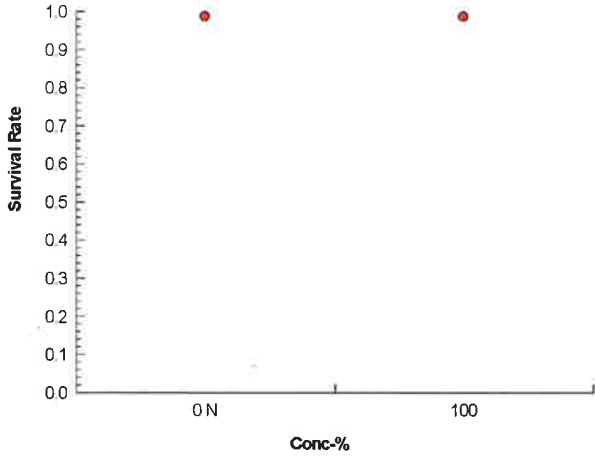
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-2503-3868
Analyzed: 11 Jun-20 12:02

Endpoint: Survival Rate
Analysis: Nonparametric-Two Sample

CETIS Version: CETISv1.9.5
Status Level: 1

Graphics



CETIS Measurement Report

Report Date: 11 Jun-20 12:02 (p 1 of 2)
 Test Code/ID: CSE0520.211e / 05-3749-7802

Eohaustorius 10-d Survival and Reburial Sediment Test **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID: 17-5207-2715	Test Type: Survival-Reburial	Analyst: Joe Freas
Start Date: 26 May-20 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 05 Jun-20 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Test Length: 10d 0h	Taxon: Malacostraca	Source: Northwestern Aquatic Scienc Age:
Sample ID: 08-7265-4594	Code: CSE0520.211e	Project: Boring-SSFL NPDES
Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521
Sample Age: 5d 4h	Client: Eurofins Calscience	

Dissolved Oxygen-mg/L											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	9.25	0.991	17.51	8.6	9.9	0.65	0.9192	9.94%	0
100		2	9.55	8.915	10.19	9.5	9.6	0.04998	0.07069	0.74%	0
Overall		4	9.4	8.509	10.29	8.6	9.9	0.2799	0.5598	5.96%	0 (0%)
pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
100		2	7.65	7.015	8.285	7.6	7.7	0.05	0.07071	0.92%	0
Overall		4	7.775	7.536	8.014	7.6	7.9	0.075	0.15	1.93%	0 (0%)
Salinity-ppt											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	20	20	20	20	20	0	0	0.0%	0
100		2	20	20	20	20	20	0	0	0.0%	0
Overall		4	20	20	20	20	20	0	0	0.00%	0 (0%)
Temperature-°C											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
100		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
Overall		4	14.85	14.76	14.94	14.8	14.9	0.02887	0.05773	0.39%	0 (0%)

June 11, 2020

Ms. Katherine Miller
Eurofins Calscience Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614-5817

Dear Ms. Miller:

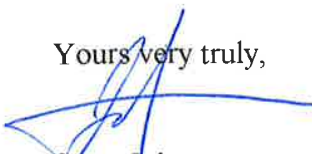
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, EPA/R-95/136*. Results were as follows:

CLIENT:	Eurofins Calscience Irvine
SAMPLE I.D.:	Arroyo_Simi-Sed_20200521
DATE RECEIVED:	5/21/2020
ABC LAB. NO.:	CSE0520.211

CHRONIC MYTILUS SEDIMENT WATER INTERFACE BIOASSAY

NOEC =	100.00 %
TUc =	1.00
EC25 =	>100.00 %
EC50 =	>100.00 %

Yours very truly,



Mr. Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 11 Jun-20 12:07 (p 1 of 1)
Test Code/ID: CSE0520.211m / 16-6189-0326

Mussel Shell Development Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 00-2044-5617	Test Type: Development-Survival	Analyst: Joe Freas					
Start Date: 26 May-20 14:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Water					
Ending Date: 28 May-20 14:00	Species: Mytilus galloprovincialis	Brine:					
Test Length: 48h	Taxon: Bivalvia	Source: Carlsbad Aquafarms CA	Age:				
Sample ID: 18-0842-7902	Code: CSE0520.211m	Project: Boeing-SSFL NPDES					
Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report					
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521					
Sample Age: 5d 6h	Client: Eurofins Calscience						

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
19-6155-9832	Combined Proportion Normal	Equal Variance t Two-Sample Test	0.8038	100% passed combined proportion normal	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
19-6155-9832	Combined Proportion Normal	PMSD	0.01911	<<	0.25	No	Passes Criteria

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	5	0.9647	0.9491	0.9803	0.9502	0.9774	0.0056	0.0126	1.30%	0.00%
100		5	0.9719	0.9549	0.9890	0.9548	0.9910	0.0061	0.0137	1.41%	-0.75%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9548	0.9774	0.9638	0.9502	0.9774
100		0.9638	0.9548	0.9729	0.9910	0.9774

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/221	216/221	213/221	210/221	216/221
100		213/221	211/221	215/221	219/221	216/221

Analyst:  QA: 

CETIS Analytical Report

Report Date: 11 Jun-20 12:06 (p 1 of 2)
Test Code/ID: CSE0520.211m / 16-6189-0326

Mussel Shell Development Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 19-6155-9832	Endpoint: Combined Proportion Normal	CETIS Version: CETISv1.9.5			
Analyzed: 11 Jun-20 12:06	Analysis: Parametric-Two Sample	Status Level: 1			
Batch ID: 00-2044-5617	Test Type: Development-Survival	Analyst: Joe Freas			
Start Date: 26 May-20 14:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Water			
Ending Date: 28 May-20 14:00	Species: Mytilus galloprovincialis	Brine:			
Test Length: 48h	Taxon: Bivalvia	Source: Carlsbad Aquafarms CA	Age:		
Sample ID: 18-0842-7902	Code: CSE0520.211m	Project: Boeing-SSFL NPDES			
Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report			
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521			
Sample Age: 5d 6h	Client: Eurofins Calscience				

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	100% passed combined proportion normal	1.91%

Equal Variance t Two-Sample Test									
Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		100	-0.904	1.86	0.047	8	CDF	0.8038	Non-Significant Effect

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
PMSD	0.01911	<<	0.25	No	Passes Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0013267	0.0013267	1	0.8173	0.3924	Non-Significant Effect
Error	0.0129859	0.0016232	8			
Total	0.0143126		9			



ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Levene Equality of Variance Test	0.07994	11.26	0.7846	Equal Variances	
	Mod Levene Equality of Variance Test	0.1798	13.75	0.6863	Equal Variances	
	Variance Ratio F Test	1.703	23.15	0.6187	Equal Variances	
Distribution	Anderson-Darling A2 Normality Test	0.2762	3.878	0.6855	Normal Distribution	
	D'Agostino' Skewness Test	0.6774	2.576	0.4982	Normal Distribution	
	Kolmogorov-Smirnov D Test	0.1679	0.3025	0.6876	Normal Distribution	
	Shapiro-Wilk W Normality Test	0.9546	0.7411	0.7228	Normal Distribution	

Combined Proportion Normal Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	0.9647	0.9491	0.9803	0.9638	0.9502	0.9774	0.0056	1.30%	0.00%
100		5	0.9719	0.9549	0.9890	0.9729	0.9548	0.9910	0.0061	1.41%	-0.75%

Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.384	1.341	1.427	1.379	1.346	1.42	0.0155	2.50%	0.00%
100		5	1.407	1.351	1.463	1.405	1.356	1.476	0.02023	3.21%	-1.66%

Combined Proportion Normal Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9548	0.9774	0.9638	0.9502	0.9774
100		0.9638	0.9548	0.9729	0.9910	0.9774

Angular (Corrected) Transformed Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.356	1.42	1.379	1.346	1.42
100		1.379	1.356	1.405	1.476	1.42

Analyst:  QA: 

CETIS Analytical Report

Report Date: 11 Jun-20 12:06 (p 2 of 2)
 Test Code/ID: CSE0520.211m / 16-6189-0326

Mussel Shell Development Test

Aquatic Bioassay & Consulting Labs, Inc.

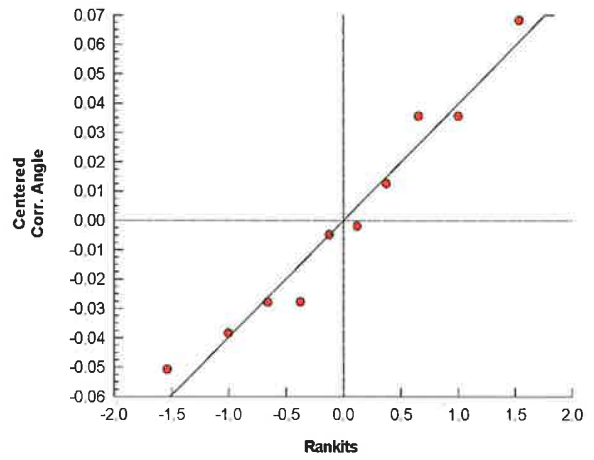
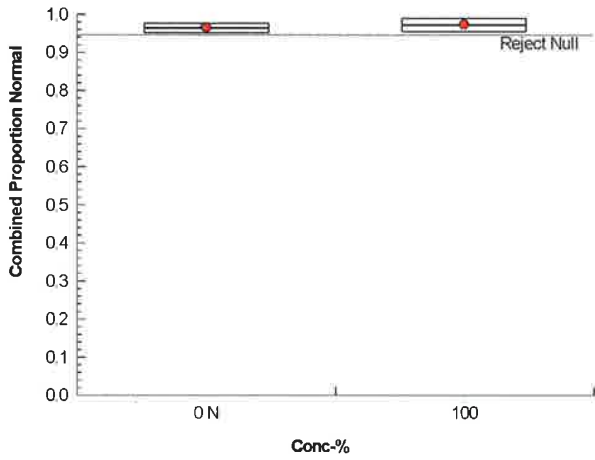
Analysis ID: 19-6155-9832 Endpoint: Combined Proportion Normal
 Analyzed: 11 Jun-20 12:06 Analysis: Parametric-Two Sample

CETIS Version: CETISv1.9.5
 Status Level: 1

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/221	216/221	213/221	210/221	216/221
100		213/221	211/221	215/221	219/221	216/221

Graphics



CETIS Measurement Report

Report Date: 11 Jun-20 12:06 (p 1 of 2)
Test Code/ID: CSE0520.211m / 16-6189-0326

Mussel Shell Development Test **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID: 00-2044-5617	Test Type: Development-Survival	Analyst: Joe Freas
Start Date: 26 May-20 14:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Water
Ending Date: 28 May-20 14:00	Species: Mytilus galloprovincialis	Brine:
Test Length: 48h	Taxon: Bivalvia	Source: Carlsbad Aquafarms CA Age:



Sample ID: 18-0842-7902	Code: CSE0520.211m	Project: Boeing-SSFL NPDES
Sample Date: 21 May-20 08:30	Material: Sediment	Source: Bioassay Report
Receipt Date: 21 May-20 11:30	CAS (PC):	Station: Arroyo_Simi-Sed_20200521
Sample Age: 5d 6h	Client: Eurofins Calscience	

Dissolved Oxygen-mg/L											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.75	-3.05	18.55	6.9	8.6	0.85	1.202	15.51%	0
100		2	8.1	3.018	13.18	7.7	8.5	0.4	0.5657	6.98%	0
Overall		4	7.925	6.663	9.187	6.9	8.6	0.3966	0.7932	10.01%	0 (0%)

pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
100		2	7.55	6.915	8.185	7.5	7.6	0.05	0.07071	0.94%	0
Overall		4	7.725	7.397	8.053	7.5	7.9	0.1031	0.2062	2.67%	0 (0%)

Salinity-ppt											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	34	34	34	34	34	0	0	0.0%	0
100		2	34	34	34	34	34	0	0	0.0%	0
Overall		4	34	34	34	34	34	0	0	0.00%	0 (0%)

Temperature-°C											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	14.75	14.11	15.39	14.7	14.8	0.05002	0.07075	0.48%	0
100		2	14.75	14.11	15.39	14.7	14.8	0.05002	0.07075	0.48%	0
Overall		4	14.75	14.66	14.84	14.7	14.8	0.02887	0.05774	0.39%	0 (0%)

Analyst:  QA: 



CETIS Measurement Report

Report Date: 11 Jun-20 12:06 (p 2 of 2)
Test Code/ID: CSE0520.211m / 16-6189-0326

Mussel Shell Development Test					Aquatic Bioassay & Consulting Labs, Inc.				
Dissolved Oxygen-mg/L									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		8.6					
100				7.7					
0	N	2		6.9					
100				8.5					
pH-Units									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		7.9					
100				7.5					
0	N	2		7.9					
100				7.6					
Salinity-ppt									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		34					
100				34					
0	N	2		34					
100				34					
Temperature-°C									
Conc-%	Code	Read	Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	N	1		14.7					
100				14.7					
0	N	2		14.8					
100				14.8					

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

A A A A A A A A A A
ANALYSIS REQUIRED

Field Readings Meter serial #

TRAE FT 9 B

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

Eurofins Calscience Irvine Contact: Christian Bondoc
 17461 Darian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2015
 Annual Sediment Arroyo Simi-Fronter Park

Project Manager: Katherine Miller
 520.289.8506, 520.904.6944 (cell)

Field Manager: Mark Domitnick
 978.234.5033, 818.599.0702 (cell)

TestAmerica's services under this COC shall be performed in accordance with the T&Cs within Eurofins Service Agreement # 2015-22; TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc.

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Ammonia (SM4500-NH3-D)	Total Organic Carbon (9060)	PCBs (SW8082)	Chlordane, Dieldrin, Toxaphene, 4,4-DDD, 4,4-DDE, 4,4-DDT (SW8081A)	48-hour Bivalve Embryo toxicity (Mytilus edulis or Crassostrea gigas) (EPAR-95/136) ABC Labs in Ventura, CA	Chronic 10-day eohaustorius estuarius Toxicity (EPA/600/R-94/025) ABC Labs in Ventura, CA	% Moisture (2540G)	Particle Size Distribution (D422M)	Field Readings (include units)	Time of readings	Comments
Arroyo Simi	Arroyo_Simi_Sed_20200521	5/21/2020 10:30	SE	8 oz Jar	1	None	185	No	X	X				X			pH 6.92 Temp 67.7 °F DO 8.09 mg/L Conductivity 1190 µmhos/cm Velocity 0.0 ft/sec	0820	Field readings OK Checked by: <i>[Signature]</i> Date/Time: 5-21-2020/10820
			SE	8 oz Jar	1	None	246	No											
			SE	8 oz Jar	1	None	280	No			X								
			SE	8 oz Jar	1	None	280	No											
			SE	1L wide mouth Plastic	3	None	285	No					X						
			SE	1L wide mouth Plastic	4	4°C in the Dark	300	No						X					
			SE	8 oz Jar	1	None	305	No							X				
			SE	8 oz Jar	1	None	310	No								X			

Legend: A=Annual

Relinquished By	Date/Time	Company	Received By	Date/Time	Company	Temp/hold time (Check)	24 Hour	72 Hour	10 Day	48 Hour	5 Day	Normal	Sample Integrity (Check)	Met	On Ice	Store samples for 6 months	Data Requirements (Check)	No Level	All Level IV
<i>[Signature]</i>	5-21-2020	11:30	<i>[Signature]</i>	5-21-2020	10:05				X										
<i>[Signature]</i>	5-21-2020	11:30	<i>[Signature]</i>	5-21-2020	10:05				X										

Relinquished By: *[Signature]* Date/Time: 5-21-2020 11:30 Company: *[Signature]*

Received By: *[Signature]* Date/Time: 5-21-2020 10:05 Company: *[Signature]*

Relinquished By: *[Signature]* Date/Time: 5-21-2020 11:30 Company: *[Signature]*

Received By: *[Signature]* Date/Time: 5-21-2020 10:05 Company: *[Signature]*

CSF0520.211

PM = 11.9 °C



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: May 29, 2020 12:47

Project: Annual Sediment Arroyo

Account #: 41440
Group Number: 2100588
SDG: SSF19
PO Number: 44009879
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.



SAMPLE INFORMATION

Client Sample Description

Sample Collection
Date/Time

ELLE#

Arroyo_Semi-Sed_20200521 (440-266381-1)

05/21/2020 08:30

1320380

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: Arroyo_Semi-Sed_20200521 (440-266381-1)
Solid
Annual Sediment Arroyo

TestAmerica North Canton
ELLE Sample #: SW 1320380
ELLE Group #: 2100588
Matrix: Solid

Project Name: Annual Sediment Arroyo

Submittal Date/Time: 05/23/2020 09:41
Collection Date/Time: 05/21/2020 08:30
SDG#: SSF19-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
PCBs			SW-846 8082	ug/kg	ug/kg	
10736	PCB-1016	12674-11-2	N.D. D1	4.5	21	1
10736	PCB-1221	11104-28-2	N.D. D1	5.7	21	1
10736	PCB-1232	11141-16-5	N.D. D1	9.9	21	1
10736	PCB-1242	53469-21-9	N.D. D1	4.1	21	1
10736	PCB-1248	12672-29-6	N.D. D1	4.1	21	1
10736	PCB-1254	11097-69-1	N.D. D1	4.1	21	1
10736	PCB-1260	11096-82-5	N.D. D2	6.1	21	1

Wet Chemistry

SM 2540 G-1997
%Moisture Calc

CAT No.	Analysis Name	Method	Result	Detection Limit*	Limit of Quantitation	Dilution Factor
00111	Moisture	n.a.	19.6	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

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
10736	PCBs in Soil (microwave)	SW-846 8082	1	201480005A	05/28/2020 16:16	Elizabeth E Donovan	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	201480005A	05/27/2020 17:10	Scott Crawford	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	20149820001A	05/28/2020 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: TestAmerica North Canton
Reported: 05/29/2020 12:47

Group Number: 2100588

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 ug/kg	MDL** ug/kg	LOQ ug/kg
Batch number: 201480005A	Sample number(s): 1320380		
PCB-1016	N.D.	3.6	17
PCB-1221	N.D.	4.6	17
PCB-1232	N.D.	8.0	17
PCB-1242	N.D.	3.3	17
PCB-1248	N.D.	3.3	17
PCB-1254	N.D.	3.3	17
PCB-1260	N.D.	4.9	17

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 201480005A	Sample number(s): 1320380								
PCB-1016	166.9	176.16			106		76-121		
PCB-1260	167.03	192.56			115		79-130		
	%	%	%	%					
Batch number: 20149820001A	Sample number(s): 1320380								
Moisture	89.5	89.37			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 201480005A	Sample number(s): 1320380 UNSPK: 1320380									
PCB-1016	N.D.	166.35	167.98	165.79	165.44	101	100	76-121	2	50
PCB-1260	N.D.	166.48	182.7	165.93	182.34	110	110	79-130	0	50

*- 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.

Quality Control Summary

Client Name: TestAmerica North Canton
Reported: 05/29/2020 12:47

Group Number: 2100588

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: PCBs in Soil (microwave)
Batch number: 201480005A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
1320380	92	94	98	98
Blank	94	98	100	99
LCS	91	95	99	103
MS	95	97	104	101
MSD	91	93	99	105
Limits:	53-140	45-143	53-140	45-143

*- 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.



2100598

Client: Eurofins Calscience Irvine

Annual Sediment Arroyo

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Date:	<u>05/23/2020</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>CA</u>		

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 Nicole Reiff

Samples Chilled Details: Annual Sediment Arroyo

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	DT146	0.8	DT	Wet	Y	Loose	N



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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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 less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
J (or G, I, X)	Estimated value \geq 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.

5/21/2020



440-266381 Chain of Custody

TRAEFI03

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2015 Annual Sediment Arroyo Simi-Frontier Park		Field Readings (include units): Time of readings: 0820 pH: 6.92 pH unit Temp: 67.7 °C/F DO: 8.09 mg/L Conductivity: 1190 umhos/cm Velocity: 0.0 ft/sec Field readings QC Checked by: <i>[Signature]</i> Date/Time: 5-21-2020/0820		Meter serial #		
Sampler: Dan Smith		Project Manager: Katharine Miller 520.289.8608, 520.904.6944 (cell)		ANALYSIS REQUIRED Total Ammonia (SM500-NH3-D) X Total Organic Carbon (9060) X PCBs (SW8082) X (SW8081A) Chlordane, Dieldrin, Toxaphene, 4-DDD, 4-DDE, 4-DDT 48-hour Brine Embryo Toxicity (Mytilus edulis or Crassostrea gigas) (EPA-89/133) ABC Labs in Ventura, CA X Chronic 10-day echaustoritus estuanus Toxicity (EPA/500/R-94/025) ABC Labs in Ventura, CA X % Moisture (2540G) X Particle Size Distribution (D422M) X		Comments Refer to ABR Labs in Ventura CA Keep sample in cooler in the dry until delivered to AFT Lab		
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MSMSD
Arroyo Simi	Arroyo_Simi-Sed_20200521	5/21/2020	SE	9 oz Jar	1	None	185	No
			SE	9 oz Jar	1	None	248	No
			SE	9 oz Jar	1	None	280	No
			SE	9 oz Jar	1	None	290	No
			SE	1L wide mouth Plastic	3	None	285	No
			SE	1L wide mouth Plastic	4	4°C in the Dark	300	No
			SE	9 oz Jar	1	None	305	No
			SE	9 oz Jar	1	None	310	No

Legend: A=Annual

Relinquished By: <i>[Signature]</i> Date/Time: 5-21-2020/1005 Company: H&A	Received By: <i>[Signature]</i> Date/Time: 5-21-20 Company:	Tenthredine Line (Check) 24 Hour, 72 Hour, 10 Day X 48 Hour, 5 Day, None
Relinquished By: <i>[Signature]</i> Date/Time: 5-21-20 Company:	Recaptured By: <i>[Signature]</i> Date/Time: 5/21/20 Company:	Sample Integrity (Check) Head, On Ice Store samples for 6 months Data Requirements (Check) No Level All Levels X

CC-FOU 5-21-20 17:00
 1.2/1.4/12.93



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Bondoc, Christian M	Carrier Tracking No(s): 440-156467.1																																									
Client Contact: Shipping/Receiving		E-Mail: christian.bondoc@estamericainc.com	Page: Page 1 of 1																																									
Company: Eurofins Calscience LLC		Accreditations Required (See note): State Program - California	Job #: 440-266381-1																																									
Address: 7440 Lincoln Way.		Analysis Requested																																										
City: Garden Grove	Due Date Requested: 6/4/2020	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>D464/ Full Analyte List</th> <th>Total Number of Containers</th> <th rowspan="10">Special Instructions/Note:</th> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table>		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D464/ Full Analyte List	Total Number of Containers	Special Instructions/Note:			X																																	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)			D464/ Full Analyte List	Total Number of Containers	Special Instructions/Note:																																						
				X																																								
State, Zip: CA, 92841	TAT Requested (days):																																											
Phone: 714-895-5494(Tel) 714-894-7501(Fax)	PO #:																																											
Email:	WO #:																																											
Project Name: Annual Sediment Arroyo	Project #: 44009879																																											
Site:	SSOW#:																																											
	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Overwater, BT-Tissue Acid)	Preservation Code																																							
	5/21/20	08:30 Pacific		Solid																																								
Sample Identification - Client ID (Lab ID)																																												
Arroyo_Semi-Sed_20200521 (440-266381-1)																																												
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our 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/test/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.</p>																																												
Possible Hazard Identification																																												
Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																												
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2																																												
Empty Kit Relinquished by:		Date:	Method of Shipment:																																									
Relinquished by:		Received by: <i>[Signature]</i>	Date/Time: 5/27/2020 10:28	Company: <i>[Signature]</i>																																								
Relinquished by:		Received by:	Date/Time:	Company:																																								
Relinquished by:		Received by:	Date/Time:	Company:																																								
Custody Seals Intact: <i>N/A</i>	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2-7 / 2-3 <i>SLG</i>																																										
A Yes A No																																												



Eurofins Calscience Irvine

17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone: 949-261-1022 Fax: 949-260-3297

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab)			Sampler:		Lab PM: Bondoc, Christian M			Carrier Tracking No(s):			COC No: 440-156376.1			
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 #: 440-266381-1				
Address: 5755 8th Street East,			Due Date Requested: 6/3/2020			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)		
City: Tacoma			TAT Requested (days):											
State, Zip: WA, 98424			PO #:			Field Filtered Sample (Yes or No)			Total Number of Containers					
Phone: 253-922-2310(Tel) 253-922-5047(Fax)			WO #:			Perform MS/MSD (Yes or No)			9060 Standard Soil TOC					
Email:			Project Name: Annual Sediment Arroyo			Project #: 44009879			Other:					
Site:			SSOW#:											
Sample Identification - Client ID (Lab ID)			Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=tissue, A=air)		Special Instructions/Note:			
Arroyo_Semi-Sed_20200521 (440-266381-1)			5/21/20		08:30 Pacific		Solid		X		1			
Possible Hazard Identification			Unconfirmed					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:					
Relinquished by: <i>[Signature]</i>			Date/Time: 5/22/20 1700			Company: EC-IRU			Received by: <i>[Signature]</i>					
Relinquished by:			Date/Time:			Company:			Date/Time: 5-23-20 0930					
Relinquished by:			Date/Time:			Company:			Date/Time:					
Custody Seals Intact: Δ Yes Δ No			Custody Seal No.:					Cooler Temperature(s) °C and Other Remarks: 72.4						



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-266381-1

Login Number: 266381

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: 440-266381-1

Login Number: 266381

List Number: 3

Creator: Cruise, Noel

List Source: Eurofins Calscience

List Creation: 05/27/20 12:22 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	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: 440-266381-1

Login Number: 266381

List Number: 2

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

List Creation: 05/23/20 11:50 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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?	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	

APPENDIX F

Second Quarter 2020 Reasonable Potential Analysis Tables

APPENDIX F

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Reasonable Potential Analysis Summary notes

Table F1 – Reasonable Potential Analysis – Priority Pollutants
(Outfalls 001, 002, 011 and 018)

Table F2 – Reasonable Potential Analysis – Priority Pollutants
(Outfalls 003-007, 009, and 010)

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.
<i>Step 1 identifies all applicable water quality criteria.</i>	
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.
<i>Step 2 defines the applicable data set.</i>	
Is Effluent Data Available	If all data is qualified, then NO. If not, then YES.
<i>Step 3 determines the maximum observed effluent concentration.</i>	
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.
<i>Step 4 compares the MEC to the lowest applicable water quality criteria.</i>	
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.
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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)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C
						CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						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	Annual	0.6	NONE	NONE	320	780	NONE	780	No	NA	NA	NA	NA
1, 2, 11, 18	18	Acrylonitrile	µg/L	Annual	0.6	NONE	NONE	0.059	0.66	NONE	0.66	No	NA	NA	NA	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	Available Data <DL	0.6	NONE	NONE	680	21,000	70	70	Yes	No	No	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	No	NA	No
1, 2, 11, 18	25	2-Chloroethyl vinyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	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	No	NA	No
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	No	NA	No
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	Annual	0.6	NONE	NONE	120	400	NONE	400	No	NA	NA	NA	NA
1, 2, 11, 18	46	2,4-Dichlorophenol	µg/L	Annual	0.6	NONE	NONE	93	790	NONE	790	No	NA	NA	NA	NA
1, 2, 11, 18	47	2,4-Dimethylphenol	µg/L	Annual	0.6	NONE	NONE	540	2,300	NONE	2,300	No	NA	NA	NA	NA
1, 2, 11, 18	48	2-Methyl-4,6-dinitrophenol	µg/L	Annual	0.6	NONE	NONE	13.4	765	NONE	765	No	NA	NA	NA	NA
1, 2, 11, 18	49	2,4-Dinitrophenol	µg/L	Annual	0.6	NONE	NONE	70	14,000	NONE	14,000	No	NA	NA	NA	NA
1, 2, 11, 18	50	2-Nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	51	4-Nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	52	4-Chloro-3-methylphenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	54	Phenol	µg/L	Annual	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	No	NA	NA	NA	NA
1, 2, 11, 18	56	Acenaphthene	µg/L	Annual	0.6	NONE	NONE	1,200	2,700	NONE	2,700	No	NA	NA	NA	NA
1, 2, 11, 18	57	Acenaphthylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	58	Anthracene	µg/L	Annual	0.6	NONE	NONE	9,600	110,000	NONE	110,000	No	NA	NA	NA	NA
1, 2, 11, 18	59	Benzidine	µg/L	Annual	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	No	NA	NA	NA	NA
1, 2, 11, 18	60	Benzo(a)Anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	61	Benzo(a)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	62	Benzo(b)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	63	Benzo(g,h,i)Perylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	64	Benzo(k)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	65	Bis (2-Chloroethoxy) methane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	66	Bis (2-Chloroethyl) ether	µg/L	Annual	0.6	NONE	NONE	0.0310	1.4	NONE	1.4	No	NA	NA	NA	NA
1, 2, 11, 18	67	Bis (2-Chloroisopropyl) Ether	µg/L	Annual	0.6	NONE	NONE	1,400	170,000	NONE	170,000	No	NA	NA	NA	NA
1, 2, 11, 18	69	4-Bromophenyl phenyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 001, 002, 011, AND 018)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				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)	Step 4 MEC >= C
						CTR CRITERIA										
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
1, 2, 11, 18	70	Butyl benzylphthalate	µg/L	Annual	0.6	NONE	NONE	3,000	5,200	NONE	5,200	No	NA	NA	NA	NA
1, 2, 11, 18	71	2-Chloronaphthalene	µg/L	Annual	0.6	NONE	NONE	1,700	4,300	NONE	4,300	No	NA	NA	NA	NA
1, 2, 11, 18	72	4-Chlorophenyl phenyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	73	Chrysene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	74	Dibenz(a,h)anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	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	Annual	0.6	NONE	NONE	0.04	0.077	NONE	0.077	No	NA	NA	NA	NA
1, 2, 11, 18	79	Diethyl phthalate	µg/L	Annual	0.6	NONE	NONE	23,000	120,000	NONE	120,000	No	NA	NA	NA	NA
1, 2, 11, 18	80	Dimethyl phthalate	µg/L	Annual	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	No	NA	NA	NA	NA
1, 2, 11, 18	81	Di-n-butyl phthalate	µg/L	Annual	0.6	NONE	NONE	2,700	12,000	NONE	12,000	No	NA	NA	NA	NA
1, 2, 11, 18	83	2,6-Dinitrotoluene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	84	Di-n-octyl phthalate	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	85	1,2-Diphenylhydrazine/Azobenzene	µg/L	Annual	0.6	NONE	NONE	0.040	0.54	NONE	0.54	No	NA	NA	NA	NA
1, 2, 11, 18	86	Fluoranthene	µg/L	Annual	0.6	NONE	NONE	300	370	NONE	370	No	NA	NA	NA	NA
1, 2, 11, 18	87	Fluorene	µg/L	Annual	0.6	NONE	NONE	1,300	14,000	NONE	14,000	No	NA	NA	NA	NA
1, 2, 11, 18	88	Hexachlorobenzene	µg/L	Annual	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	No	NA	NA	NA	NA
1, 2, 11, 18	89	Hexachlorobutadiene	µg/L	Annual	0.6	NONE	NONE	0.44	50	NONE	50	No	NA	NA	NA	NA
1, 2, 11, 18	90	Hexachlorocyclopentadiene	µg/L	Annual	0.6	NONE	NONE	240	17,000	50	50	No	NA	NA	NA	NA
1, 2, 11, 18	91	Hexachloroethane	µg/L	Annual	0.6	NONE	NONE	1.9	8.9	NONE	8.9	No	NA	NA	NA	NA
1, 2, 11, 18	92	Indeno(1,2,3-cd)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
1, 2, 11, 18	93	Isophorone	µg/L	Annual	0.6	NONE	NONE	8.4	600	NONE	600	No	NA	NA	NA	NA
1, 2, 11, 18	94	Naphthalene	µg/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
1, 2, 11, 18	95	Nitrobenzene	µg/L	Annual	0.6	NONE	NONE	17	1,900	NONE	1,900	No	NA	NA	NA	NA
1, 2, 11, 18	97	n-Nitroso-di-n-propylamine	µg/L	Annual	0.6	NONE	NONE	0.005	1.4	NONE	1.4	No	NA	NA	NA	NA
1, 2, 11, 18	98	N-Nitrosodiphenylamine	µg/L	Annual	0.6	NONE	NONE	5.0	16	NONE	16	No	NA	NA	NA	NA
1, 2, 11, 18	99	Phenanthrene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
1, 2, 11, 18	100	Pyrene	µg/L	Annual	0.6	NONE	NONE	960	11,000	NONE	11,000	No	NA	NA	NA	NA
1, 2, 11, 18	101	1,2,4-Trichlorobenzene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	70	70	No	NA	NA	NA	NA
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	0.00016	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	No	NA	No
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	0.083	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	0.0042	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	0.0031	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	0.0042	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	0.0021	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	No	0.0031	NA [†]
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	0.0026	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	0.26	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	0.26	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	0.26	NA [†]

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 001, 002, 011, AND 018)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C
						CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
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	0.26	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	0.26	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	0.26	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	0.26	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	0.25	NA [†]
1, 2, 11, 18	127	E. Coli	MPN/100ml	Annual	0.6	NA	NA	NA	NA	235	235	No	NA	NA	NA	NA

**TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Step 3			Step 4 MEC >= C
						CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	2	Arsenic	µg/L	Annual	0.6	340	150	NONE	NONE	50	50	No	NA	NA	NA	NA
3-7, 9, 10	3	Beryllium	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	4	4	No	NA	NA	NA	NA
3-7, 9, 10	5a	Chromium	µg/L	Annual	0.6	550	180	Narrative	Narrative	50	50	No	NA	NA	NA	NA
3-7, 9, 10	5b	Chromium VI (Hexavalent)	µg/L	Annual	0.6	16	11	Narrative	Narrative	NONE	11	No	NA	NA	NA	NA
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	Annual	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7,000,000	No	NA	NA	NA	NA
3-7, 9, 10	17	Acrolein	µg/L	Annual	0.6	NONE	NONE	320	780	NONE	780	No	NA	NA	NA	NA
3-7, 9, 10	18	Acrylonitrile	µg/L	Annual	0.6	NONE	NONE	0.059	0.66	NONE	0.66	No	NA	NA	NA	NA
3-7, 9, 10	19	Benzene	µg/L	Annual	0.6	NONE	NONE	1.2	71	1	1	No	NA	NA	NA	NA
3-7, 9, 10	20	Bromoform	µg/L	Annual	0.6	NONE	NONE	4.3	360	NONE	360	No	NA	NA	NA	NA
3-7, 9, 10	21	Carbon Tetrachloride	µg/L	Annual	0.6	NONE	NONE	0.25	4.4	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	22	Chlorobenzene	µg/L	Annual	0.6	NONE	NONE	680	21,000	70	70	No	NA	NA	NA	NA
3-7, 9, 10	23	Dibromochloromethane	µg/L	Annual	0.6	NONE	NONE	0.401	34	NONE	34	No	NA	NA	NA	NA
3-7, 9, 10	24	Chloroethane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	25	2-Chloroethyl vinyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	26	Chloroform	µg/L	Annual	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	27	Chlorodibromomethane	µg/L	Annual	0.6	NONE	NONE	0.56	46	NONE	46	No	NA	NA	NA	NA
3-7, 9, 10	28	1,1-Dichloroethane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	5	5	No	NA	NA	NA	NA
3-7, 9, 10	29	1,2-Dichloroethane	µg/L	Annual	0.6	NONE	NONE	0.38	99	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	30	1,1-Dichloroethene	µg/L	Annual	0.6	NONE	NONE	0.057	3.2	6	3.2	No	NA	NA	NA	NA
3-7, 9, 10	31	1,2-Dichloropropane	µg/L	Annual	0.6	NONE	NONE	0.52	39	5	5	No	NA	NA	NA	NA
3-7, 9, 10	32	cis-1,3-Dichloropropene	µg/L	Annual	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	32a	trans-1,3-Dichloropropene	µg/L	Annual	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	33	Ethylbenzene	µg/L	Annual	0.6	NONE	NONE	3,100	29,000	700	700	No	NA	NA	NA	NA
3-7, 9, 10	34	Bromomethane	µg/L	Annual	0.6	NONE	NONE	48	4,000	NONE	4,000	No	NA	NA	NA	NA
3-7, 9, 10	35	Chloromethane (Methyl Chloride)	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	36	Methylene chloride	µg/L	Annual	0.6	NONE	NONE	4.7	1,600	NONE	1,600	No	NA	NA	NA	NA
3-7, 9, 10	37	1,1,2,2-Tetrachloroethane	µg/L	Annual	0.6	NONE	NONE	0.17	11	1	1	No	NA	NA	NA	NA
3-7, 9, 10	38	Tetrachloroethene	µg/L	Annual	0.6	NONE	NONE	0.8	8.85	5	5	No	NA	NA	NA	NA
3-7, 9, 10	39	Toluene	µg/L	Annual	0.6	NONE	NONE	6,800	200,000	150	150	No	NA	NA	NA	NA
3-7, 9, 10	40	trans-1,2-Dichloroethene	µg/L	Annual	0.6	NONE	NONE	700	140,000	10	10	No	NA	NA	NA	NA
3-7, 9, 10	41	1,1,1-Trichloroethane	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	200	200	No	NA	NA	NA	NA
3-7, 9, 10	42	1,1,2-Trichloroethane	µg/L	Annual	0.6	NONE	NONE	0.6	42	5	5	No	NA	NA	NA	NA
3-7, 9, 10	43	Trichloroethene	µg/L	Annual	0.6	NONE	NONE	2.7	81	5	5	No	NA	NA	NA	NA
3-7, 9, 10	44	Vinyl chloride	µg/L	Annual	0.6	NONE	NONE	2	525	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	45	2-Chlorophenol	µg/L	Annual	0.6	NONE	NONE	120	400	NONE	400	No	NA	NA	NA	NA
3-7, 9, 10	46	2,4-Dichlorophenol	µg/L	Annual	0.6	NONE	NONE	93	790	NONE	790	No	NA	NA	NA	NA
3-7, 9, 10	47	2,4-Dimethylphenol	µg/L	Annual	0.6	NONE	NONE	540	2,300	NONE	2,300	No	NA	NA	NA	NA
3-7, 9, 10	48	2-Methyl-4,6-dinitrophenol	µg/L	Annual	0.6	NONE	NONE	13.4	765	NONE	765	No	NA	NA	NA	NA
3-7, 9, 10	49	2,4-Dinitrophenol	µg/L	Annual	0.6	NONE	NONE	70	14,000	NONE	14,000	No	NA	NA	NA	NA
3-7, 9, 10	50	2-Nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	51	4-Nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	52	4-Chloro-3-methylphenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	53	Pentachlorophenol	µg/L	Annual	0.6	pH dependent	pH dependent	0.28	8.2	1	1	No	NA	NA	NA	NA
3-7, 9, 10	54	Phenol	µg/L	Annual	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	No	NA	NA	NA	NA

**TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)**

**SECOND QUARTER 2020
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SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

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						CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	55	2,4,6-Trichlorophenol	µg/L	Annual	0.6	NONE	NONE	2.1	6.5	NONE	6.5	No	NA	NA	NA	NA
3-7, 9, 10	56	Acenaphthene	µg/L	Annual	0.6	NONE	NONE	1,200	2,700	NONE	2,700	No	NA	NA	NA	NA
3-7, 9, 10	57	Acenaphthylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	58	Anthracene	µg/L	Annual	0.6	NONE	NONE	9,600	110,000	NONE	110,000	No	NA	NA	NA	NA
3-7, 9, 10	59	Benzidine	µg/L	Annual	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	No	NA	NA	NA	NA
3-7, 9, 10	60	Benzo(a)Anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	61	Benzo(a)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	NA	NA
3-7, 9, 10	62	Benzo(b)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	63	Benzo(g,h,i)Perylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	64	Benzo(k)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	65	Bis (2-Chloroethoxy) methane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	66	Bis (2-Chloroethyl) ether	µg/L	Annual	0.6	NONE	NONE	0.031	1.4	NONE	1.4	No	NA	NA	NA	NA
3-7, 9, 10	67	Bis (2-Chloroisopropyl) Ether	µg/L	Annual	0.6	NONE	NONE	1,400	170,000	NONE	170,000	No	NA	NA	NA	NA
3-7, 9, 10	68	Bis (2-ethylhexyl) Phthalate	µg/L	Annual	0.6	NONE	NONE	1.8	5.9	4	4	No	NA	NA	NA	NA
3-7, 9, 10	69	4-Bromophenyl phenyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	70	Butyl benzylphthalate	µg/L	Annual	0.6	NONE	NONE	3,000	5,200	NONE	5,200	No	NA	NA	NA	NA
3-7, 9, 10	71	2-Chloronaphthalene	µg/L	Annual	0.6	NONE	NONE	1,700	4,300	NONE	4,300	No	NA	NA	NA	NA
3-7, 9, 10	72	4-Chlorophenyl phenyl ether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	73	Chrysene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	74	Dibenz(a,h)anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	75	1,2-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	2,700	17,000	600	600	No	NA	NA	NA	NA
3-7, 9, 10	76	1,3-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	400	2,600	NONE	2,600	No	NA	NA	NA	NA
3-7, 9, 10	77	1,4-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	400	2,600	5	5	No	NA	NA	NA	NA
3-7, 9, 10	78	3,3'-Dichlorobenzidine	µg/L	Annual	0.6	NONE	NONE	0.04	0.077	NONE	0.077	No	NA	NA	NA	NA
3-7, 9, 10	79	Diethyl phthalate	µg/L	Annual	0.6	NONE	NONE	23,000	120,000	NONE	120,000	No	NA	NA	NA	NA
3-7, 9, 10	80	Dimethyl phthalate	µg/L	Annual	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	No	NA	NA	NA	NA
3-7, 9, 10	81	Di-n-butyl phthalate	µg/L	Annual	0.6	NONE	NONE	2,700	12,000	NONE	12,000	No	NA	NA	NA	NA
3-7, 9, 10	82	2,4-Dinitrotoluene	µg/L	Annual	0.6	NONE	NONE	0.11	9.1	NONE	9.1	No	NA	NA	NA	NA
3-7, 9, 10	83	2,6-Dinitrotoluene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	84	Di-n-octyl phthalate	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	85	1,2-Diphenylhydrazine/Azobenzene	µg/L	Annual	0.6	NONE	NONE	0.04	0.54	NONE	0.54	No	NA	NA	NA	NA
3-7, 9, 10	86	Fluoranthene	µg/L	Annual	0.6	NONE	NONE	300	370	NONE	370	No	NA	NA	NA	NA
3-7, 9, 10	87	Fluorene	µg/L	Annual	0.6	NONE	NONE	1,300	14,000	NONE	14,000	No	NA	NA	NA	NA
3-7, 9, 10	88	Hexachlorobenzene	µg/L	Annual	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	No	NA	NA	NA	NA
3-7, 9, 10	89	Hexachlorobutadiene	µg/L	Annual	0.6	NONE	NONE	0.44	50	NONE	50	No	NA	NA	NA	NA
3-7, 9, 10	90	Hexachlorocyclopentadiene	µg/L	Annual	0.6	NONE	NONE	240	17,000	50	50	No	NA	NA	NA	NA
3-7, 9, 10	91	Hexachloroethane	µg/L	Annual	0.6	NONE	NONE	1.9	8.9	NONE	8.9	No	NA	NA	NA	NA
3-7, 9, 10	92	Indeno(1,2,3-cd)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	93	Isophorone	µg/L	Annual	0.6	NONE	NONE	8.4	600	NONE	600	No	NA	NA	NA	NA
3-7, 9, 10	94	Naphthalene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	95	Nitrobenzene	µg/L	Annual	0.6	NONE	NONE	17	1,900	NONE	1,900	No	NA	NA	NA	NA
3-7, 9, 10	96	N-Nitrosodimethylamine	µg/L	Annual	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	No	NA	NA	NA	NA
3-7, 9, 10	97	n-Nitroso-di-n-propylamine	µg/L	Annual	0.6	NONE	NONE	0.005	1.4	NONE	1.4	No	NA	NA	NA	NA
3-7, 9, 10	98	N-Nitrosodiphenylamine	µg/L	Annual	0.6	NONE	NONE	5	16	NONE	16	No	NA	NA	NA	NA
3-7, 9, 10	99	Phenanthrene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	100	Pyrene	µg/L	Annual	0.6	NONE	NONE	960	11,000	NONE	11,000	No	NA	NA	NA	NA
3-7, 9, 10	101	1,2,4-Trichlorobenzene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	70	70	No	NA	NA	NA	NA
3-7, 9, 10	102	Aldrin	µg/L	Annual	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	No	NA	NA	NA	NA
3-7, 9, 10	103	alpha-BHC	µg/L	Annual	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	No	NA	NA	NA	NA

**TABLE F-2
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009, AND 010)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C
						CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	104	beta-BHC	µg/L	Annual	0.6	NONE	NONE	0.014	0.046	NONE	0.046	No	NA	NA	NA	NA
3-7, 9, 10	105	gamma-BHC (Lindane)	µg/L	Annual	0.6	0.95	NONE	0.019	0.063	0.2	0.063	No	NA	NA	NA	NA
3-7, 9, 10	106	delta-BHC	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	107	Chlordane	µg/L	Annual	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	108	4,4'-DDT	µg/L	Annual	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	109	4,4'-DDE	µg/L	Annual	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	110	4,4'-DDD	µg/L	Annual	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	No	NA	NA	NA	NA
3-7, 9, 10	111	Dieldrin	µg/L	Annual	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	No	NA	NA	NA	NA
3-7, 9, 10	112	alpha-Endosulfan	µg/L	Annual	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
3-7, 9, 10	113	beta-Endosulfan	µg/L	Annual	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
3-7, 9, 10	114	Endosulfan Sulfate	µg/L	Annual	0.6	NONE	NONE	110	240	NONE	240	No	NA	NA	NA	NA
3-7, 9, 10	115	Endrin	µg/L	Annual	0.6	0.086	0.036	0.76	0.81	2	0.036	No	NA	NA	NA	NA
3-7, 9, 10	116	Endrin Aldehyde	µg/L	Annual	0.6	NONE	NONE	0.76	0.81	NONE	0.81	No	NA	NA	NA	NA
3-7, 9, 10	117	Heptachlor	µg/L	Annual	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	No	NA	NA	NA	NA
3-7, 9, 10	118	Heptachlor Epoxide	µg/L	Annual	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	No	NA	NA	NA	NA
3-7, 9, 10	119	Aroclor 1016	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	120	Aroclor 1221	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	121	Aroclor 1232	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	122	Aroclor 1242	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	123	Aroclor 1248	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	124	Aroclor 1254	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	125	Aroclor 1260	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	126	Toxaphene	µg/L	Annual	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	No	NA	NA	NA	NA
3-7, 9, 10	127	E. Coli	MPN/100ml	Annual	0.6	NA	NA	NA	NA	235	235	No	NA	NA	NA	NA

**TABLE F-3
REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALLS 003-007,009, AND 010)**

**SECOND 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	3.2	0.6	7.39	23.66	NA	NA	23.66	45	BU

**TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C					C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C
						CTR CRITERIA				Basin Plan Title 22 GWR			Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
8	002	Arsenic	µg/L	Annual	0.6	340	150	NONE	NONE	50	50	No	NA	NA	NA	NA
8	003	Beryllium	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	4	4	No	NA	NA	NA	NA
8	005a	Chromium	µg/L	Annual	0.6	550	180	Narrative	Narrative	50	50	No	NA	NA	NA	NA
8	005b	Chromium VI	µg/L	Annual	0.6	16	11	Narrative	Narrative	NONE	11	No	NA	NA	NA	NA
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	Annual	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7,000,000	No	NA	NA	NA	NA
8	017	Acrolein	µg/L	Annual	0.6	NONE	NONE	320	780	NONE	780	No	NA	NA	NA	NA
8	018	Acrylonitrile	µg/L	Annual	0.6	NONE	NONE	0.059	0.66	NONE	0.66	No	NA	NA	NA	NA
8	019	Benzene	µg/L	Annual	0.6	NONE	NONE	1.2	71	1	1	No	NA	NA	NA	NA
8	020	Bromoform	µg/L	Annual	0.6	NONE	NONE	4.3	360	NONE	360	No	NA	NA	NA	NA
8	021	Carbon Tetrachloride	µg/L	Annual	0.6	NONE	NONE	0.25	4.4	0.5	0.5	No	NA	NA	NA	NA
8	022	Chlorobenzene	µg/L	Annual	0.6	NONE	NONE	680	21,000	70	70	No	NA	NA	NA	NA
8	023	Dibromochloromethane	µg/L	Annual	0.6	NONE	NONE	0.401	34	NONE	34	No	NA	NA	NA	NA
8	024	Chloroethane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	025	2-Chloroethylvinylether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	026	Chloroform	µg/L	Annual	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	No	NA	NA	NA	NA
8	027	Bromodichloromethane	µg/L	Annual	0.6	NONE	NONE	0.56	46	NONE	46	No	NA	NA	NA	NA
8	028	1,1-Dichloroethane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	5	5	No	NA	NA	NA	NA
8	029	1,2-Dichloroethane	µg/L	Annual	0.6	NONE	NONE	0.38	99	0.5	0.5	No	NA	NA	NA	NA
8	030	1,1-Dichloroethene	µg/L	Annual	0.6	NONE	NONE	0.057	3.2	6	3.2	No	NA	NA	NA	NA
8	031	1,2-Dichloropropane	µg/L	Annual	0.6	NONE	NONE	0.52	39	5	5	No	NA	NA	NA	NA
8	032	cis-1,3-Dichloropropene	µg/L	Annual	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
8	032a	trans-1,3-Dichloropropene	µg/L	Annual	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
8	033	Ethylbenzene	µg/L	Annual	0.6	NONE	NONE	3,100	29,000	700	700	No	NA	NA	NA	NA
8	034	Bromomethane	µg/L	Annual	0.6	NONE	NONE	48	4,000	NONE	4,000	No	NA	NA	NA	NA
8	035	Chloromethane	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	No	NA	NA	NA	NA
8	036	Methylene chloride	µg/L	Annual	0.6	NONE	NONE	4.7	1,600	NONE	1,600	No	NA	NA	NA	NA
8	037	1,1,2,2-Tetrachloroethane	µg/L	Annual	0.6	NONE	NONE	0.17	11	1	1	No	NA	NA	NA	NA
8	038	Tetrachloroethene	µg/L	Annual	0.6	NONE	NONE	0.8	8.85	5	5	No	NA	NA	NA	NA
8	039	Toluene	µg/L	Annual	0.6	NONE	NONE	6,800	200,000	150	150	No	NA	NA	NA	NA
8	040	trans-1,2-Dichloroethene	µg/L	Annual	0.6	NONE	NONE	700	140,000	10	10	No	NA	NA	NA	NA
8	041	1,1,1-Trichloroethane	µg/L	Annual	0.6	NONE	NONE	Narrative	Narrative	200	200	No	NA	NA	NA	NA
8	042	1,1,2-trichloroethane	µg/L	Annual	0.6	NONE	NONE	0.6	42	5	5	No	NA	NA	NA	NA
8	043	Trichloroethene	µg/L	Annual	0.6	NONE	NONE	2.7	81	5	5	No	NA	NA	NA	NA
8	044	Vinyl chloride	µg/L	Annual	0.6	NONE	NONE	2	525	0.5	0.5	No	NA	NA	NA	NA
8	045	2-chlorophenol	µg/L	Annual	0.6	NONE	NONE	120	400	NONE	400	No	NA	NA	NA	NA
8	046	2,4-Dichlorophenol	µg/L	Annual	0.6	NONE	NONE	93	790	NONE	790	No	NA	NA	NA	NA
8	047	2,4-dimethylphenol	µg/L	Annual	0.6	NONE	NONE	540	2,300	NONE	2,300	No	NA	NA	NA	NA
8	048	2-Methyl-4,6-dinitrophenol	µg/L	Annual	0.6	NONE	NONE	13.4	765	NONE	765	No	NA	NA	NA	NA
8	049	2,4-dinitrophenol	µg/L	Annual	0.6	NONE	NONE	70	14,000	NONE	14,000	No	NA	NA	NA	NA
8	050	2-nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	051	4-nitrophenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	052	4-Chloro-3-methylphenol	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	053	Pentachlorophenol	µg/L	Annual	0.6	pH dependent	pH dependent	0.28	8.2	1	1	No	NA	NA	NA	NA
8	054	Phenol	µg/L	Annual	0.6	NONE	NONE	21,000	4,600,000	NONE	4,600,000	No	NA	NA	NA	NA
8	055	2,4,6-Trichlorophenol	µg/L	Annual	0.6	NONE	NONE	2.1	6.5	NONE	6.5	No	NA	NA	NA	NA
8	056	Acenaphthene	µg/L	Annual	0.6	NONE	NONE	1,200	2,700	NONE	2,700	No	NA	NA	NA	NA
8	057	Acenaphthylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
8	058	Anthracene	µg/L	Annual	0.6	NONE	NONE	9,600	110,000	NONE	110,000	No	NA	NA	NA	NA

**TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan Title 22 GWR	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C		
						CTR CRITERIA							C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data		Are all Detection Limits > C	If DL > C, MEC = Min (DL)
						Freshwater		Human Health										
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH									
8	059	Benzidine	µg/L	Annual	0.6	NONE	NONE	0.00012	0.00054	NONE	5.3	No	NA	NA	NA	NA		
8	060	Benzo(a)Anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	061	Benzo(a)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	NA	NA		
8	062	Benzo(b)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	063	Benzo(g,h,i)Perylene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	064	Benzo(k)Fluoranthene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	065	Bis(2-Chloroethoxy) methane	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	066	bis (2-Chloroethyl) ether	µg/L	Annual	0.6	NONE	NONE	0.031	1.4	NONE	1.4	No	NA	NA	NA	NA		
8	067	Bis(2-Chloroisopropyl) Ether	µg/L	Annual	0.6	NONE	NONE	1,400	170,000	NONE	170,000	No	NA	NA	NA	NA		
8	068	bis (2-ethylhexyl) Phthalate	µg/L	Annual	0.6	NONE	NONE	1.8	5.9	4	4	No	NA	NA	NA	NA		
8	069	4-Bromophenylphenylether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	070	Butylbenzylphthalate	µg/L	Annual	0.6	NONE	NONE	3,000	5,200	NONE	5,200	No	NA	NA	NA	NA		
8	071	2-Chloronaphthalene	µg/L	Annual	0.6	NONE	NONE	1,700	4,300	NONE	4,300	No	NA	NA	NA	NA		
8	072	4-Chlorophenylphenylether	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	073	Chrysene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	074	Dibenzo(a,h)Anthracene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	075	1,2-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	2,700	17,000	600	600	No	NA	NA	NA	NA		
8	076	1,3-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	400	2,600	NONE	2,600	No	NA	NA	NA	NA		
8	077	1,4-Dichlorobenzene	µg/L	Annual	0.6	NONE	NONE	400	2,600	5	5	No	NA	NA	NA	NA		
8	078	3,3'-Dichlorobenzidine	µg/L	Annual	0.6	NONE	NONE	0.04	0.077	NONE	0.077	No	NA	NA	NA	NA		
8	079	Diethylphthalate	µg/L	Annual	0.6	NONE	NONE	23,000	120,000	NONE	120,000	No	NA	NA	NA	NA		
8	080	Dimethylphthalate	µg/L	Annual	0.6	NONE	NONE	313,000	2,900,000	NONE	2,900,000	No	NA	NA	NA	NA		
8	081	Di-n-butylphthalate	µg/L	Annual	0.6	NONE	NONE	2,700	12,000	NONE	12,000	No	NA	NA	NA	NA		
8	082	2,4-Dinitrotoluene	µg/L	Annual	0.6	NONE	NONE	0.11	9.1	NONE	9.1	No	NA	NA	NA	NA		
8	083	2,6-Dinitrotoluene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	084	Di-n-octylphthalate	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	085	1,2-Diphenylhydrazine	µg/L	Annual	0.6	NONE	NONE	0.04	0.54	NONE	0.54	No	NA	NA	NA	NA		
8	086	Fluoranthene	µg/L	Annual	0.6	NONE	NONE	300	370	NONE	370	No	NA	NA	NA	NA		
8	087	Fluorene	µg/L	Annual	0.6	NONE	NONE	1,300	14,000	NONE	14,000	No	NA	NA	NA	NA		
8	088	Hexachlorobenzene	µg/L	Annual	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	No	NA	NA	NA	NA		
8	089	Hexachlorobutadiene	µg/L	Annual	0.6	NONE	NONE	0.44	50	NONE	50	No	NA	NA	NA	NA		
8	090	Hexachlorocyclopentadiene	µg/L	Annual	0.6	NONE	NONE	240	17,000	50	50	No	NA	NA	NA	NA		
8	091	Hexachloroethane	µg/L	Annual	0.6	NONE	NONE	1.9	8.9	NONE	8.9	No	NA	NA	NA	NA		
8	092	Indeno(1,2,3-cd)Pyrene	µg/L	Annual	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA		
8	093	Isophorone	µg/L	Annual	0.6	NONE	NONE	8.4	600	NONE	600	No	NA	NA	NA	NA		
8	094	Naphthalene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	095	Nitrobenzene	µg/L	Annual	0.6	NONE	NONE	17	1,900	NONE	1,900	No	NA	NA	NA	NA		
8	096	N-Nitrosodimethylamine	µg/L	Annual	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	No	NA	NA	NA	NA		
8	097	n-Nitroso-di-n-propylamine	µg/L	Annual	0.6	NONE	NONE	0.005	1.4	NONE	1.4	No	NA	NA	NA	NA		
8	098	N-Nitrosodiphenylamine	µg/L	Annual	0.6	NONE	NONE	5	16	NONE	16	No	NA	NA	NA	NA		
8	099	Phenanthrene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	100	Pyrene	µg/L	Annual	0.6	NONE	NONE	960	11,000	NONE	11,000	No	NA	NA	NA	NA		
8	101	1,2,4-Trichlorobenzene	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	70	70	No	NA	NA	NA	NA		
8	102	Aldrin	µg/L	Annual	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	No	NA	NA	NA	NA		
8	103	alpha-BHC	µg/L	Annual	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	No	NA	NA	NA	NA		
8	104	beta-BHC	µg/L	Annual	0.6	NONE	NONE	0.014	0.046	NONE	0.046	No	NA	NA	NA	NA		
8	105	Lindane (gamma-BHC)	µg/L	Annual	0.6	0.95	NONE	0.019	0.063	0.2	0.063	No	NA	NA	NA	NA		
8	106	delta-BHC	µg/L	Annual	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA		
8	107	Chlordane	µg/L	Annual	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	No	NA	NA	NA	NA		

**TABLE F-4
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALL 008)**

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

Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan Title 22 GWR	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3			Step 4 MEC >= C		
						CTR CRITERIA							C = Lowest Criteria	Step 2 Is Effluent Data Available	Was Constituent Detected in Effluent Data		Are all Detection Limits > C	If DL > C, MEC = Min (DL)
						Freshwater		Human Health										
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH									
8	108	4,4'-DDT	µg/L	Annual	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA		
8	109	4,4'-DDE	µg/L	Annual	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA		
8	110	4,4'-DDD	µg/L	Annual	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	No	NA	NA	NA	NA		
8	111	Dieldrin	µg/L	Annual	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	No	NA	NA	NA	NA		
8	112	Endosulfan I	µg/L	Annual	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA		
8	113	Endosulfan II	µg/L	Annual	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA		
8	114	Endosulfan Sulfate	µg/L	Annual	0.6	NONE	NONE	110	240	NONE	240	No	NA	NA	NA	NA		
8	115	Endrin	µg/L	Annual	0.6	0.086	0.036	0.76	0.81	2	0.036	No	NA	NA	NA	NA		
8	116	Endrin Aldehyde	µg/L	Annual	0.6	NONE	NONE	0.76	0.81	NONE	0.81	No	NA	NA	NA	NA		
8	117	Heptachlor	µg/L	Annual	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	No	NA	NA	NA	NA		
8	118	Heptachlor Epoxide	µg/L	Annual	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	No	NA	NA	NA	NA		
8	119	Aroclor-1016	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	120	Aroclor-1221	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	121	Aroclor-1232	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	122	Aroclor-1242	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	123	Aroclor-1248	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	124	Aroclor-1254	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	125	Aroclor-1260	µg/L	Annual	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA		
8	126	Toxaphene	µg/L	Annual	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	No	NA	NA	NA	NA		
8	127	E. Coli	MPN/100ml	Annual	0.6	NA	NA	NA	NA	235	235	No	NA	NA	NA	NA		

TABLE F-5
 REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALL 008)

SECOND 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	2.6	0.60	7.39	19.22	0	0	19.22	45	BU

APPENDIX G

Second Quarter 2020 Receiving Water Surveys

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Table G - Receiving Water Surveys

**TABLE G
RECEIVING WATER SURVEYS**

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

April 1 through June 30, 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 only discharged in April during the Second Quarter 2020.

SECOND QUARTER 2020 ARROYO SIMI OBSERVATIONS at Arroyo Simi			
ARROYO SIMI OBSERVATIONS	APRIL	MAY	JUNE
Date and time of inspection	4/6/2020, 08:20	N/A	N/A
Weather conditions	Raining, cool, overcast	N/A	N/A
Color of water	Brown	N/A	N/A
Appearance of oil films or grease, or floatable materials	Feathers, leaves, twigs	N/A	N/A
Extent of visible turbidity or color patches	Uniform opaque	N/A	N/A
Description of odor, if any	None	N/A	N/A
Presence or activity of California Least Tern or California Brown Pelican	No	N/A	N/A
Upstream Surface Water Temperature*	54.7°F	N/A	N/A
Upstream Surface Water pH*	7.98 pH Units	N/A	N/A

Notes:

N/A = not applicable. Since Outfall 009 did not flow during May or June, no monthly inspections were required at Arroyo Simi for those months.

* = 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.

SECOND QUARTER 2020 BELL CREEK OBSERVATIONS at Outfall 002			
BELL CREEK OBSERVATIONS	APRIL	MAY	JUNE
Date and time of inspection	4/6/2020, 07:20	N/A	N/A
Weather conditions	Drizzling, cool, overcast	N/A	N/A
Color of water	Brown	N/A	N/A
Appearance of oil films or grease, or floatable materials	None	N/A	N/A
Extent of visible turbidity or color patches	Uniform translucent	N/A	N/A
Description of odor, if any	None	N/A	N/A
Presence or activity of California Least Tern or California Brown Pelican	No	N/A	N/A

Notes:

N/A = not applicable. Since Outfall 002 did not flow during May or June, no monthly inspection were required at Outfall 002 for those months.

SECOND QUARTER 2020 DAYTON CANYON CREEK OBSERVATIONS at Outfall 008			
DAYTON CANYON CREEK OBSERVATIONS	APRIL	MAY	JUNE
Date and time of inspection	4/15/2020, 07:30	N/A	N/A
Weather conditions	Cool, partly cloudy	N/A	N/A
Color of water	Clear	N/A	N/A
Appearance of oil films or grease, or floatable materials	None	N/A	N/A
Extent of visible turbidity or color patches	None	N/A	N/A
Description of odor, if any	None	N/A	N/A
Presence or activity of California Least Tern or California Brown Pelican	No	N/A	N/A

Notes:

NA = not applicable. Since Outfall 008 did not flow during the months of May or June, no monthly inspection were required at Outfall 008 for those months.

APPENDIX H

Annual Comprehensive Sitewide Compliance Evaluation Report

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Appendix H – Annual Comprehensive Site Compliance Evaluation Report, Reporting
Year July 1, 2019 – June 30, 2020

APPENDIX H

ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION REPORT REPORTING YEAR JULY 1, 2019 – JUNE 30, 2020

This Annual Comprehensive Site Compliance Evaluation Report (Report) was prepared for The Boeing Company (Boeing) Santa Susana Field Laboratory (Site), located in Simi Hills, Ventura County, California in general accordance with Attachment G (Section IX.D.) of the Site's Waste Discharge Requirements (National Pollutant Discharge Elimination System [NPDES] Permit No. CA0001309, CI No. 6027). This Report evaluates compliance with the Site-Wide SWPPP during reporting year July 1, 2018 – June 30, 2019. The Annual Comprehensive Site Compliance Evaluation (Annual Evaluation) was conducted between June 1 - 4, and 8, 2020 by Mark Dominick, PG, QSD of Haley & Aldrich:

The Inspector observed minor amounts of sediment delivered or accumulated around sediment control BMPs due to the areas upstream from most of the BMPs being well-vegetated with a diversity of plants.

REVIEW OF VISUAL OBSERVATIONS RECORDS AND SAMPLING AND ANALYSIS RESULTS

For reporting year July 1, 2019 – June 30, 2020 the Inspector reviewed all inspection forms during the Annual Evaluation, up to May 2020, that documented inspections/visual observations. All inspection forms that were completed for the reporting year after the Annual Evaluation were reviewed by June 30, 2020; each inspection form was complete or revised as needed. A process exists and has been implemented for non-compliance items to be properly evaluated and corrected.

Sampling and analysis results are evaluated in each quarterly Discharge Monitoring Report (DMR).

POTENTIAL POLLUTANT SOURCE VISUAL INSPECTION

For reporting year July 1, 2019 – June 30, 2020, the Inspector conducted visual inspections at the Site during the Annual Evaluation at buildings, equipment, and surrounding areas to evaluate the status of existing potential pollutant sources. Areas where known potential pollutants exist have Best Management Practices (BMPs) implemented to minimize and/or eliminate the potential for pollutant releases. No additional areas were identified that require additional BMPs.

BEST MANAGEMENT PRACTICE REVIEW

For reporting year July 1, 2019 – June 30, 2020, the Inspector reviewed and evaluated the structural and non-structural BMPs at the Site during the during the Annual Evaluation. The Inspector determined the BMPs were adequate, properly implemented and required minor maintenance and in compliance with the SWPPP and BMP Plan. The onsite evaluation did result in recommendations which the Inspector identified on the inspection forms and verified that the corrective actions were completed prior to the issuance of the Second Quarter DMR or scheduled to be completed during the Third Quarter of 2020.

SWPPP REVISIONS AND SCHEDULE

The Los Angeles Regional Water Quality Control Board (Regional Board) adopted the 2015 NPDES Permit No. R4-2015-0033 on February 12, 2015, effective April 1, 2015, to revise the existing 2010 NPDES Permit No. R4-2010-0090. A revised SWPPP was submitted to the Regional Board in accordance with the terms of the new 2015 Permit on June 30, 2016. The most recent Site-Wide SWPPP was updated in accordance with the terms of the 2015 Permit and submitted to the Regional Board on September 26, 2019 as version 6. Version 7 of the SWPPP will be completed in the fall 2020 based on observations made during the Annual Evaluation and include the following revisions:

- Updated text to Surface Water Discharges (section 2.4.1);
- Added text to Surface Water Ponds (section 2.4.2);
- Updated text to Dust and Particulate Generating Activities (section 2.8.2);
- Added text to Potential Soil Erosion (section 2.8.5);
- Updated text to Northern Drainage (section 2.8.6.1);

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ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION REPORT REPORTING YEAR JULY 1, 2019 – JUNE 30, 2020

- Updated text to Interim Soil Removal Actions (section 2.8.6.2);
- Added text to Non-Stormwater Discharges (section 3.1.3);
- Added text to Secondary Containment Structures (section 4.2.4);
- Added text to New BMPs to be Implemented (section 4.3);
- Updated text to the References (Section 6);
- Updated figures;
- Updated Significant Materials Inventory (Appendix C);
- Updated SPRP (Appendix E); and
- Updated inspection forms (Appendix F).

NON-COMPLIANCE INCIDENTS AND CORRECTIVE ACTIONS TAKEN

As part of the Annual Evaluation, the Inspector reviewed the non-compliance issues (Permit Limit exceedances) discussed in the DMRs and reviewed the corrective actions during the evaluation period. The Inspector has determined that the corrective actions were appropriate and have been completed. During the onsite portion of the annual evaluation, minor recommendations were made to Boeing and the Inspector has determined that the recommendations were either completed prior to the issuance of the Second Quarter DMR or scheduled to be completed during the Third Quarter of 2020.

CERTIFICATION

Per NPDES Permit Appendix G, Section IX.D, the signature and certification requirements for this evaluation report are included in the DMR text.

APPENDIX I

Annual Bioassessment Sampling Report

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Aquatic Bioassay & Consulting Laboratories, Inc., Bioassessment Sampling for the Boeing Company at the Santa Susana Field Laboratory (2020)

Date: June 18th, 2020

To: Katherine Miller
Haley & Aldrich
600 South Meyer Avenue, Suite 100
Tucson, AZ 85701-2554

From: Scott Johnson
Laboratory Director
Aquatic Bioassay and Consulting Laboratories
29 N. Olive St.
Ventura, CA 93001



RE: BIOASSESSMENT SAMPLING FOR THE BOEING COMPANY AT THE SANTA SUSANA FIELD LABORATORY (2020)

The Bioassessment Sampling and Analysis Plan for The Boeing Company at the Santa Susana Field Laboratory (SSFL) specifies that spring/summer bioassessment sampling occur from four to six weeks following the last major storm event of the 2020 rain season. This time period was established by, and is included in, the state-wide bioassessment protocols established by the State of California's Surface Water Ambient Monitoring Program (SWAMP 2016). Flowing water through a stream reach over this period of time is necessary for the aquatic benthic macroinvertebrate (BMI) community that might reside there to become established and ensures that valid BMI samples will be collected.

The 2019 to 2020 rain year was characterized by average rainfall amounts. Between July 2019 and May 2020, a total of 20.52 inches of rain fell on the SSFL property. The last significant rainfall occurred in April (total = 3.88 inches) (Figure 1). On June 4th, 2020, 17 days following the last rainfall (0.22 inches) on May 18th, the two NPDES permitted sites on the SSFL were visited by Aquatic Bioassay and Consulting Laboratory Biologists to determine if bioassessment samples could be collected. Neither SSFL-001 nor SSFL-006 had flow and both were completely dry across their entire reaches (see photos).

If you have any questions regarding this memo or future sampling plans, please contact me directly.

Sincerely,

Scott Johnson
Laboratory Director
805 643 5621 x 11
scott@aquaticbioassay.com



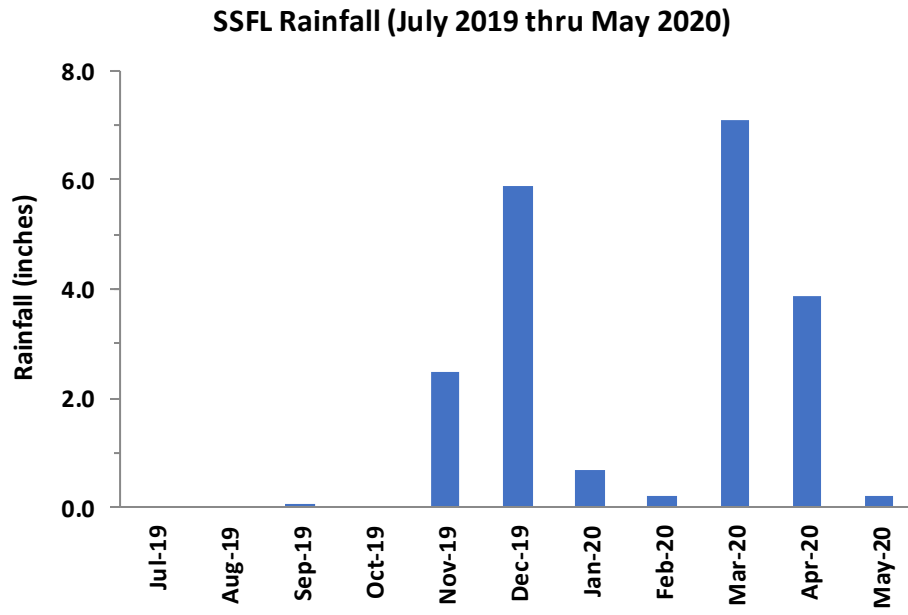


Figure 1. Rainfall (inches) measured July 2019 thru May 2020 at SSFL.



Figure 2. Photos taken downstream and upstream of each permitted discharge point from the SSFL property (June 2020).

