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Via Email to losangeles@waterboards.ca.gov

August 9, 2017
In reply refer to SHEA-115737

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

Subject: Second Quarter 2017 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 1 April through 30 June 2017 (Second Quarter 2017). This DMR was prepared as required by and in accordance with National Pollutant Discharge Elimination System Permit No. CA0001309 (NPDES Permit) issued by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) in 2015 and under the regulatory oversight of the Regional Board.

Hard copies of this DMR are available to the public at California State University at Northridge Library; Simi Valley Library; and the Platt Branch of the Los Angeles Library. An electronic version of this DMR is located at:

http://www.boeing.com/principles/environment/santa-susana/monitoring-reports.page

SECOND QUARTER 2017 DMR CONTENTS

This DMR includes the following sections and appendices:

- **Discharge Summary:** This section describes the number of rain events, number of samples collected, sample dates, and sample locations during the Second Quarter 2017. Table I summarizes the Second Quarter 2017 sampling record by outfall, location, and sample type collected per the requirements of the NPDES Permit.
- **Second Quarter 2017 Summary of Compliance:** This section summarizes the sample results that exceeded NPDES Permit limits, daily maximum benchmark limits, and receiving water limits in the Second Quarter 2017.
- **Second Quarter 2017 Santa Susana Site Stormwater Pollution Prevention Plan (SWPPP)/Best Management Practices (BMP) Activities:** This section presents the Santa Susana Site SWPPP activities and BMPs related to demolition, Interim Source Removal Actions (ISRA), the BMP Plan,

the Northern Drainage, and other activities implemented in the Second Quarter 2017. Table II summarizes specific BMP activities by outfall location.

- **Data Validation and Quality Control:** This section discusses data validation results and any laboratory or field corrective actions.
- **Figure 1** shows the stormwater collection conveyance system and Santa Susana Site features; **Figure 2** shows the Arroyo Simi – Frontier Park (RSW-002) sampling location.
- **Appendix A** summarizes the rainfall measured during the Second Quarter 2017 at the Santa Susana Site.
- **Appendix B** tabulates waste shipment details.
- **Appendix C** presents chemical analytical results of the Second Quarter 2017 stormwater and/or receiving water samples in tabular form by outfall location, constituents evaluated (analytes), sample dates, and data validation qualifiers.
- **Appendix D** contains copies of the laboratory analytical reports, chain of custody forms, and data validation reports.
- **Appendix E** presents the Stormwater Pollution Prevention Plan Annual Evaluation Report.

DISCHARGE SUMMARY

The Santa Susana Site experienced six qualifying rain events that produced greater than 0.1 inch of rainfall within a 24-hour period and were preceded by at least 72 hours of dry weather during the Second Quarter 2017 (Appendix A). Automated flow-weighted composite samplers (autosamplers) were set in preparation for all rain events. No discharge occurred at any of the outfalls; therefore, no samples were collected.

One quarterly offsite receiving water sample was collected at the Arroyo Simi–Frontier Park location in Simi Valley (RSW 002; see Figure 2). The annual sediment sample was also collected at the Arroyo Simi–Frontier Park location.

Table I summarizes the Second Quarter 2017 sampling record by outfall/location, sample frequency, and sample type collected per NPDES Permit requirements.

TABLE I: Sampling Record during the Second Quarter 2017

Date	Outfall/Location	Sample Frequency	Sample Type
4/6/2017	Arroyo Simi-Frontier Park (RSW-002)	Quarterly, Annual Sediment	Grab

All samples were submitted to and analyzed by TestAmerica Laboratories, Inc., a California-certified analytical laboratory in Irvine, California per the NPDES Permit requirements.

SECOND QUARTER 2017 SUMMARY OF COMPLIANCE

No surface water discharges occurred from the Santa Susana Site during Second Quarter 2017. As such, there are no onsite compliance issues to report for this period. Additionally, in the quarterly sample collected at Arroyo Simi sample location RSW-002 in Simi Valley, no constituents exceeded receiving water limits. All Second Quarter 2017 samples were therefore in full compliance with the NPDES Permit.

SECOND QUARTER 2017 SANTA SUSANA SITE SWPPP/BMP ACTIVITIES

Boeing implemented significant SWPPP- and BMP-related activities to assist in improving stormwater quality and compliance at the Santa Susana Site. Table II summarizes the activities completed during the Second Quarter 2017 by outfall. In addition to SWPPP-related activities, specific BMP projects included: Outfall 008/009 ISRA BMPs; BMP Plan-related BMPs; and Northern Drainage BMPs.

TABLE II: Boeing's Second Quarter 2017 BMP Activities

OUTFALL (Location)	BMP ACTIVITIES DURING SECOND QUARTER 2017
001 (South Slope)	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. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly. Repaired the flume fiberglass at outfall. Installed riprap to repair erosion near the Outfall 001 road near the Bell Canyon gate.
002 (South Slope)	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. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly. Repaired/re-installed the sample box grate. Repaired concrete at the stairway.
003 (Radioactive Material Handling Facility)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly. Conducted maintenance inspections of structural BMPs, including the flow-through structure and stormwater conveyance and retention systems. Replaced/repaired the sand filter outlet hoses.

OUTFALL (Location)	BMP ACTIVITIES DURING SECOND QUARTER 2017
004 (Sodium Reactor Experiment Area)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly. Conducted maintenance inspections of the structural BMPs, including the flow-through structure and stormwater conveyance system.
005 (Sodium Burn Pit 1)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall for sediment/debris. Checked the sample box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Conducted maintenance inspections of the stormwater conveyance and retention systems. Removed excessive vegetation in the walkway to the sample box.
006 (Sodium Burn Pit 2)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked sample box and flow meter control box for the presence of debris and/or animals. Cleaned sample box and the outfall area and performed weed abatement as needed. Reset flow meter and replaced the tape monthly. Conducted maintenance inspections of the structural BMPs, including the flow-through structure and stormwater conveyance system.
007 (Building 100)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall for sediment/debris. Checked the sample box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Conducted maintenance inspections of the stormwater conveyance and retention systems. Removed excessive vegetation in the stone walkway to sample box.
008 (Happy Valley)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly.

OUTFALL (Location)	BMP ACTIVITIES DURING SECOND QUARTER 2017
009 (WS-13 Drainage)	Outfall BMPs: Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter and replaced the tape monthly. Installed barriers/delineators and reflectors at the top of cliff. Painted the parking stops yellow. Applied reflective tape. Installed grating at the top of stairs to prevent slipping when icy and installed "Ice Warning" signs. Lower Lot BMP: Inspected the Sedimentation Basin, Biofilter, and Cistern areas. Modified/realigned the Biofilter discharge line to eliminate the possibility of erosion and added riprap to repair a washed-out area leading into the Northern Drainage. Upper Parking Lot BMP: A media filter was constructed during 2nd Quarter 2017 to treat runoff from parts of the parking lot. Front Gate: removed debris and sediment and cleaned the area. Former Building 1436 (B1436) Detention Bioswales: Performed maintenance inspection of bioswale surface area, including hydroseeded area and fiber rolls. Installed HDPE covered sandbags at power pole near inlet. B-1 Area: Performed maintenance inspection of BMPs along the slope and within drainage. Modified new trash grate to allow sample collection without having to open the entire grate. Culvert Modifications: Performed maintenance inspection of BMPs. Inspected the culvert inlets and rip rap check dams of. Reinstalled fabric on weir board of at CM-6.
010 (Building 203)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter monthly. Conducted maintenance inspections of structural BMPs, including the flow-through structure and stormwater conveyance and retention systems.
011 (Perimeter Pond)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and weir for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter monthly. Conducted maintenance inspections of structural BMPs, including the flow-through structure and stormwater conveyance system. Perimeter Pond: Transferred water from R-1 Pond weekly for maximum evaporation.

OUTFALL (Location)	BMP ACTIVITIES DURING SECOND QUARTER 2017
018 (R-2 Pond Spillway)	Conducted erosion and sediment control inspections and performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation. Inspected the outfall and flume for sediment/debris. Checked the sample box and flow meter control box for the presence of debris and/or animals. Cleaned the sample box and the outfall area and performed weed abatement as needed. Reset the flow meter monthly. Conducted maintenance inspections of the structural BMPs, including the flow-through structure and conveyance system. Install HDPE plate to repair weir board leak/bypass. Reinstall aluminum sheet at media bed. Repair minor sump leaks. R-2A Pond: Installed anti-slip mats on bridge ramp.
019 (Area I Groundwater Extraction and Treatment [GET] System)	The GET system has not operated since April 2013 and no pumping or discharge has occurred; therefore, no NPDES Permit sampling was performed at the Area I GET System in the Second Quarter 2017. Conducted maintenance inspections of the structural BMPs.
RSW-002 (Arroyo Simi – Frontier Park)	Collected the quarterly rain event receiving water and annual sediment sample at the Arroyo Simi – Frontier Park location. Conducted receiving water inspections.

OTHER BMP ACTIVITIES

BMP observations and maintenance inspections were conducted in conformance with the Site-Wide SWPPP (Haley & Aldrich, 2017) at and around the former active test stands Alfa and Bravo and former Advanced Propulsion Test Facility.

NASA-RELATED ACTIVITIES

Demolition activities covered by National Aeronautics and Space Administration's (NASA) Construction SWPPP (dated 16 May 2017) are inspected in accordance with the Construction General Permit (CGP). During the Second Quarter 2017, NASA performed planned demolition activities in the Alfa Test Stand Area. NASA placed wattles as linear sediment controls, installed silt fencing, and hydroseeded areas within these sites where construction activities had been completed.

Stormwater control activities covered by NASA's Construction SWPPP (dated 21 February 2017) are inspected in accordance with the Construction General Permit (CGP). During the Second Quarter 2017, NASA performed planned demolition activities in the Delta Test Stand Area. BMPs including wattles were placed within these sites where construction activities had been completed.

DOE-RELATED ACTIVITIES

The Department of Energy (DOE) performed stormwater runoff maintenance during the First Quarter 2017 by removing silt buildup from behind silt fences and wattles. Extra sediment fencing was installed in the vicinity of well DD-141 to prevent sediment from entering the drainage north of the Building 56 Landfill Area and in the vicinity of well DD-143 to prevent sediment from entering the drainage upgradient

from Outfall 003. These BMPs were monitored during the Second Quarter 2017 to make sure they are effective at preventing soil erosion.

SITE-WIDE WORKPLAN AND ANNUAL REPORT

The Expert Panel submitted a Site-Wide Stormwater Work Plan and 2014/15 Annual Report (2015 Work Plan) in September 2015 (Geosyntec and the Expert Panel, 2015a) on behalf of Boeing to meet the requirements of the NPDES Permit (Order No. R4-2015-0033)[1]. The 2015 Work Plan, intended for an implementation period of a 5-year permit cycle, is applicable to all outfalls and presents the NPDES Permit monitoring results and BMP-related activities to be performed and reported on a yearly basis. The 2015 Work Plan also carried over the maintenance and monitoring of BMPs originally recommended in the 2010 BMP Plan for the Outfall 008 and 009 Watersheds (MWH *et al*., 2010) and BMP Plan Addenda (Geosyntec and the Expert Panel, 2011; Geosyntec and the Expert Panel, 2012; Geosyntec and the Expert Panel, 2013; and Geosyntec and the Expert Panel, 2014), as well as those reported in the ISRA Performance Monitoring and BMP Monitoring Reports for Outfalls 008 and 009 Watersheds submitted to the Regional Board for each rainy season from 2010 through 2015 (MWH, 2010; MWH *et al*., 2011; MWH *et al*., 2012; MWH *et al*., 2013; MWH *et al*., 2014, and MWH *et al*., 2015).

The 2015 Work Plan is designed to assess the effectiveness of BMPs/treatment control implementation measures based on surface water samples collected at outfalls and supplemented by monitoring data. A memorandum developed by Geosyntec Consultants for Boeing and the Expert Panel was incorporated into the 2015 Work Plan to summarize the evaluation of stormwater BMP opportunities along the Service Area Road. Subsequent to Geosyntec's memorandum, Boeing conducted surveys along the Service Area Road and completed additional design iterations to support diverting surface flow from the roadway to existing culvert modifications and maximize the capture area. BMP implementation was planned for and was initiated in early 2017 (Geosyntec and the Expert Panel, 2015b). The 2015 Work Plan also includes recommended non-industrial sources special studies intended to help identify sources of lead and dioxins within the Outfall 009 watershed. The special studies involve vacuum sampling pavement solids, pan sampling atmospheric deposition solids, soil sampling around treated wood poles, and sediment and stormwater sampling at multiple locations along the Northern Drainage. No sampling was conducted for the various studies in the Second Quarter 2017. As outlined in the 2015 Work Plan, the 2015/2016 Annual Report was submitted to the Regional Board in October 2016 (Geosyntec and the Expert Panel, 2016).

OUTFALL 008/009 ISRA AND BMP PLAN-RELATED ACTIVITIES

The BMP activities discussed below were performed, commenced, or completed during the Second Quarter 2017 in coordination with the Expert Panel.

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 runoff 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.

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

Lower Lot Biofilter
The lower lot biofilter is a stormwater treatment BMP designed and built to capture, convey, and treat stormwater runoff 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 2017 activities included inspections to verify that the sedimentation basin and biofilter were free of sediment and debris, checks of the Cistern area and pump, and inspections of surrounding BMPs. Approximately 1,500 gallons of stormwater was pumped from the Cistern to the sedimentation basin during the Second Quarter 2017.

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. 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 sand bag berm was placed across the ELV asphalt swale, to divert runoff from directly discharging to the Northern Drainage to instead flow toward CM-1 for treatment. The Second Quarter 2017 activities included inspections of the BMPs.

The existing culvert inlet on the north side of the upper parking lot was converted in March and April 2017 to a media filter similar in design to the media filter at the B-1 area. Runoff from the upper parking lot and the main entrance road is detained and treated with a site-specific media mix before sending treated flow to the Northern Drainage.

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. A sandbag berm was also placed upstream of the inlet closest to the lower lot to increase the settling of solids.

Road Runoff Diversion to CM-3
The construction of a new Service Area road runoff diversion to CM-3 was completed during the Second Quarter 2017. This BMP included a new curb installed on the north side of the road meant to convey flow to a new drop inlet and trench under the road, which then directs the collected runoff to CM-3 for treatment before entering the Northern Drainage.

Upper Parking Lot Media Filter
The 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, designed to treat runoff from parts of the parking lot, as well as parts of the adjacent Entrance Road.

LOX Area
Sandbags were placed along both sides of the paved entrance drive to detain additional runoff and lengthen the flow paths prior to entering the Northern Drainage. The sandbag placement started during the Fourth Quarter 2016 and was completed during the Second Quarter 2017.

NASA and Boeing BMP Monitoring-Related Maintenance Activities
In addition to activities performed in coordination with the Expert Panel described above, the BMP monitoring-related activities performed for Outfalls 008/009 during the Second Quarter 2017 included the following:

- Collected special studies atmospheric deposition samples from sampling pans on the Boeing-owned stormwater tank near the Helipad and the Boeing Fire Station; and
- At CM-6, reinstalled fabric on weir board.

NORTHERN DRAINAGE BMPS

Boeing has actively worked to restore the Northern Drainage following cleanup activities performed under the oversight of the Department of Toxic Substances Control (DTSC) and in accordance with the requirements of Regional Board's Cleanup and Abatement Order No. R4-2007-0054 (Regional Board, 2007). The restoration and mitigation activities proposed in the Northern Drainage Restoration, Mitigation, and Monitoring Plan (RMMP)[2] were implemented in 2012. In accordance with the RMMP, regular maintenance, monitoring, and reporting have been implemented in the Northern Drainage since 2012 for the stream's plant biology and geomorphology. Biological activities include botanical and California Rapid Assessment Method surveys, plant watering only during periods of excessive heat, and weeding non-native species. Geomorphic activities include stabilization measure inspections, physical surveying, facies mapping, photographic surveying, annual stream walks, as-needed maintenance, and annual geomorphic monitoring reports.

Biological activities performed in the Second Quarter 2017 included periodic weeding and a quarterly monitoring inspection on 4 May 2017.

Geomorphic activities performed in the Second Quarter 2017 included: a stream walk and inspection of stabilization measures on 4 May 2017; documentation and coordination of suggested maintenance; and implementation of maintenance items beginning on 5 June 2017. It is anticipated that maintenance items will be completed during Third Quarter 2017.

The following maintenance activities were completed in the Second Quarter 2017:

- Removed sediment from the Northern Drainage at multiple locations from Outfall 009 up to the biofilter;
- Added or repositioned rip-rap to reinforce channel banks and stabilize flow paths in the Northern Drainage;
- Install jutenet on exposed soil on banks of the Northern Drainage;
- Construct water bars to limit erosive concentrated runoff;
- Reposition check structures to direct flow path toward center of channel, away from banks; and
- Extend a sand bag berm at LOX area above the Northern Drainage to divert runoff to prevent rilling and gullying from the top of LOX down into the Northern Drainage.

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

REASONABLE POTENTIAL ANALYSIS

No surface water discharges occurred from the Santa Susana Site during Second Quarter 2017; therefore, no data were generated and no reasonable potential analysis was performed.

DATA VALIDATION AND QUALITY CONTROL

In accordance with current federal and state Environmental Protection Agency guidelines and procedures, or as specified in the NPDES Monitoring and Reporting Program, samples were analyzed at a State of California-certified laboratory. Data validation was performed on the analytical results and quality control elements were found to be within acceptable limits for the analytical methods reported, except as noted on the analytical summary tables. Measures were implemented by the analytical laboratory to monitor and/or evaluate low level detections, analyze for interferences, and ensure that cross-contamination did not occur. Laboratory analytical reports, including validation reports and notes, are included in Appendix D.

Attachment H of the NPDES Permit presents the State Board'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 2017 except when reporting limits were above the minimum levels (generally due to matrix). In cases where the NPDES Permit limit was less than the reporting limit and minimum level, the reporting limit was used to determine compliance.

CONCLUSIONS

Boeing continues 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 sustainable erosion control/restoration measures and continuing our collaboration with the Expert Panel.

FACILITY CONTACT

If there are any questions regarding this report or its enclosures, you may contact Mr. Paul Costa of Boeing at (818) 466-8778.

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 9th of August 2017 at The Boeing Company, Santa Susana Site.

Sincerely,

Steven Shestag
Director, Environment
The Boeing Company

Enclosures:

References
Figure 1-Site Map with Stormwater Collection and Conveyance System and Site Features
Figure 2-Arroyo Simi—Frontier Park (RSW-002) Sampling Location
Appendix A-Second Quarter 2017 Rainfall Data Summary
Appendix B-Second Quarter 2017 Waste Shipment Summary Table
Appendix C—Second Quarter 2017 Discharge Monitoring Data Summary Tables
Appendix D – Second Quarter 2017 Analytical Laboratory Report, Chain of Custody Forms, and Validation Reports
Appendix E—Stormwater Pollution Prevention Plan Annual Evaluation Report

cc: Ms. Cassandra Owens, RWQCB
Mr. Mark Malinowski, DTSC
California State University-Northridge, Library
Simi Valley Library
Los Angeles Library, Platt Branch

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1. California Regional Water Quality Control Board, 2007. Cleanup and Abatement Order No. R4-2007-0054. November 6.

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, 2011. 2011 BMP Plan Addendum, The Boeing Company, Santa Susana Field Laboratory, Canoga Park, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027). September 28.

4. Geosyntec and the Expert Panel, 2012. 2012 BMP Plan Addendum, The Boeing Company, Santa Susana Field Laboratory, Canoga Park, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No.6027). September 28.

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7. Geosyntec and the Expert Panel, 2015a. Site-Wide Stormwater Work Plan and 2014/15 Annual Report, Santa Susana Field Laboratory, Ventura County, California (NPDES No. CA0001309, CI No.6027). October 07.

8. Geosyntec and the Expert Panel, 2015b. Evaluation of Stormwater BMP Opportunities along the Service Area Road. August.

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10. Haley & Aldrich, Inc., 2017. Stormwater Pollution and Prevention Plan (Version 3 for Compliance with 2015 NPDES Permit). August 16.

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12. MWH Americas, Inc., Santa Susana Field Laboratory Stormwater Expert Panel, Geosyntec Consultants, Haley & Aldrich, Inc., and CH2M Hill, 2010. Best Management Practices (BMP) Plan, Outfalls 008 and 009 Watersheds, The Boeing Company, Santa Susana Field Laboratory, Canoga Park, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027). October 14.

13. MWH Americas, Inc., Santa Susana Site Surface Water Expert Panel, Geosyntec Consultants, and Haley & Aldrich, Inc., 2011. ISRA Performance Monitoring and Potential BMP Subarea Monitoring for the Outfalls 008 and 009 Watersheds, 2010/2011 Rainy Season, The Boeing Company, Santa Susana Field Laboratory, Ventura County, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027; and California Water Code §13304 Order; No. CA0001309, CI No. 1111, Site ID No. 2040109). July 29.

14. MWH Americas, Inc., Santa Susana Site Surface Water Expert Panel, and Geosyntec Consultants, 2012. ISRA Performance Monitoring and Potential BMP Subarea Monitoring for the Outfalls 008 and 009 Watersheds, 2011/2012 Rainy Season, The Boeing Company, Santa Susana Field Laboratory, Ventura County, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027; and California Water Code §13304 Order; No. CA0001309, CI No. 1111, Site ID No. 2040109). August 31.

15. MWH Americas, Inc., Santa Susana Site Surface Water Expert Panel, and Geosyntec Consultants, 2013. ISRA Performance Monitoring and BMP Monitoring for the Outfalls 008 and 009 Watersheds, 2012/2013 Rainy Season, The Boeing Company, Santa Susana Field Laboratory, Ventura County, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027; and California Water Code §13304 Order; No. CA0001309, CI No. 1111, Site ID No. 2040109). August 30.

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17. MWH Americas, Inc., Santa Susana Site Surface Water Expert Panel, and Geosyntec Consultants, 2015. ISRA Performance Monitoring and BMP Monitoring for the Outfalls 008 and 009 Watersheds, 2014/2015 Rainy Season, Santa Susana Field Laboratory, Ventura County, California (Order No. R4-2010-0090; NPDES No. CA0001309, CI No. 6027; and California Water Code Section 13304 Order; NPDES No. CA0001309, CI No. 1111, Site ID No. 2040109). August 28.

DRAINAGE TO MEIER CANYON

DRAINAGE TO ARROYO SIMI

HELIPAD ROAD/
PARKING LOT ROAD

HELIPAD

FORMER EMPLOYEE PARKING LOT

FORMER EMPLOYEE PARKING LOT

ELV

WELL 13
ROAD CULVERT

SERVICE ROAD

AREA II ROAD

ASPHALT SWALE

SERVICE AREA

SEWAGE TREATMENTPLANT

ALFA/BRAVO
FUEL FARM

ALFA

ALFA TEST STAND #1

ALFA TEST STAND #3

BUILDING 56
LANDFILL AREA

SPA IMPOUNDMENTS

BRAVO

BRAVO TEST STAND

Silvernale Pond

SKYLINE DR.

OUTFALL 018
STORMWATER
TREATMENT SYSTEM

AREA III

5-7 PAD

BUILDING 4055

ASPHALT SWALE

FORMER BUILDING 4020

AREA IV
(DOE)

R-2B Pond

R-2A Pond

DELTA

AREA II
(NASA)

SKYLINE AREA

COCA AREA

DELTA TEST STAND 3

DELTA TEST STAND 1

DELTA TEST STAND 2

ALBERTSON FIRE ROAD

UNDEVELOPED LAND

DRAINAGE TO BELL CANYON

AREA I
(NASA)

LOX

RD-52B

RD-52C

CM-1

CM-2

CM-10

CM-3

CM-4

CM-5

CM-12

CM-6

CM-11

CM-8

CM-9

LOWER PARKING LOT

NORTHERN DRAINAGE

FRONT GATE

CISTERN

WOOLSEY CANYON /
BLACK CANYON
ROADS INTERSECTION

B-1 Media Filter

B-1

UPPER PARKING LOT
MEDIA FILTER

BIOFILTER

SEDIMENT BASIN
(APPROXIMATE)

BIOSWALES

AILF

APTF

IEL

FORMER BUILDING 1436

BUILDING 407 YARD

FIRE STATION

WEATHER STATION

AREA I

AREA I ROAD

CANYON ROAD

SEWAGE TREATMENT PLANT

OUTFALL 011
STORMWATER
TREATMENT SYSTEM

R3 Pond

BOWL

GET

Perimeter Pond

DRAINAGE TO DAYTON CANYON

N

0 1,200 2,400

SCALE IN FEET

DESCRIPTIONS OF DISCHARGE OUTFALL LOCATIONS

NPDES OUTFALL	DESCRIPTION
001	Stormwater, South Slope
002	Stormwater, South Slope
003	Stormwater, Radioactive Material Handling Facility
004	Stormwater, Sodium Reactor Experiment Area
005	Stormwater, Sodium Burn Pit 1
006	Stormwater, Sodium Burn Pit 2
007	Stormwater, Building 100
008	Stormwater, Happy Valley
009	Stormwater, WS-13 Drainage (Northern Drainage)
010	Stormwater, Building 203
011	Stormwater, Perimeter Pond (Treated at SWTS)
012	Stormwater, Alfa Test Stand (Removed from permit)
013	Stormwater, Bravo Test Stand (Removed from permit)
014	Stormwater, Advanced Propulsion Test Facility (Removed from permit)
015	STP-1 (Removed from permit)
016	STP-2 (Removed from permit)
017	STP-3 (Removed from permit)
018	Stormwater, R-2 Pond Spillway (Treated at SWTS)
019	Treated Groundwater (GET System)
020	Treated Groundwater (GET System) (may not be constructed)

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. APTF = ADVANCED PROPULSION TEST FACILITY
3. DOE = DEPARTMENT OF ENERGY
4. ELV = EXPENDABLE LAUNCH VEHICLE
5. IEL = INSTRUMENT AND EQUIPMENT LABORATORIES
6. ISRA = INTERIM SOURCE REMOVAL ACTION
7. LOX = LIQUID OXYGEN
8. NASA = NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
9. RMMP = RESTORATION MITIGATION MONITORING PLAN
10. SPA = STORABLE PROPELLANT AREA
11. SWTS = STORMWATER TREATMENT SYSTEM

LEGEND

- ACTIVE NPDES OUTFALL LOCATION
- FORMER NPDES OUTFALL LOCATION
- POSSIBLE FUTURE NPDES OUTFALL LOCATION
- SLOPE DRAIN DISCHARGE POINT TO NORTHERN DRANAGE
- CM-12 CULVERT MODIFICATION
- GROUNDWATER MONITORING WELL
- ISRA PERFORMANCE MONITORING LOCATION
- BMP MONITORING LOCATION
- SPECIAL STUDIES LOCATION
- GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM
- STORMWATER TREATMENT SYSTEM
- IEL STUDY AREA
- 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
- ASPHALT SWALE
- PAVED ROAD
- DIRT ROAD
- STORMWATER CONVEYANCE PIPELINE WITH FLOW DIRECTION
- 25' ELEVATION CONTOUR
- ISRA EXCAVATION BOUNDARY
- VEHICLE PARKING AREA
- BIOFILTER
- BIOSWALE
- NORTHERN DRAINAGE
- SURFACE WATER POND
- EXISTING BUILDING/STRUCTURE
- FORMER BUILDING FOOTPRINT
- CONCRETE SLAB IN PLACE
- SANTA SUSANA SITE PROPERTY BOUNDARY
- ADMINISTRATIVE AREA BOUNDARY

HALEY ALDRICH

NPDES PERMIT COMPLIANCE SECOND QUARTER 2017
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

SITE MAP WITH STORMWATER COLLECTION AND CONVEYANCE SYSTEM AND SITE FEATURES

AUGUST 2017

FIGURE 1

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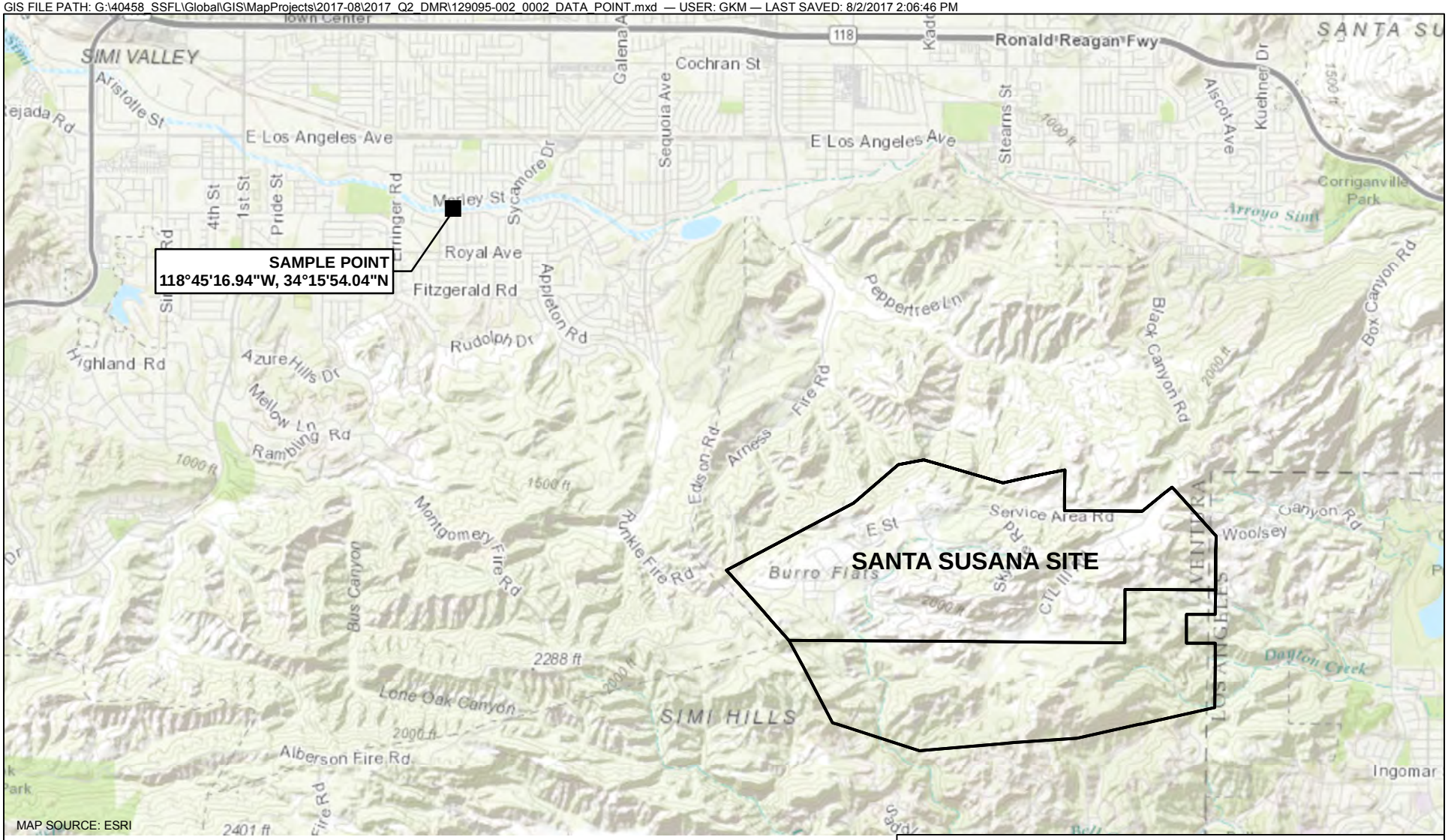

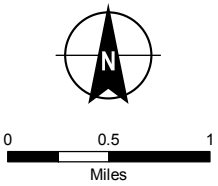

HALEY ALDRICH

NPDES PERMIT COMPLIANCE SECOND QUARTER 2017
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

ARROYO SIMI-FRONTIER PARK (RSW-002) SAMPLING LOCATION

AUGUST 2017

FIGURE 2

APPENDIX A

Second Quarter 2017 Rainfall Data Summary

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: April 2017

HOUR OF THE DAY, PACIFIC STANDARD TIME

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	DAY																									Total
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.08	0.13
D	8	0.02	0.01	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	0.00	0.04
A	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Y	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	12	0.00	0.00	0.00	0.00	0.00	0.00	d	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
F	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Flags: d = Off-line part of hour, invalid hour due to semi-annual audit and preventive maintenance. For the off-line event, the Sage Ranch rain gauge confirmed that no rainfall was recorded during hours 06:00-07:00, 07:00-08:00, and 08:00-09:00.

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: May 2017

HOUR OF THE DAY, PACIFIC STANDARD TIME

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

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: June 2017

HOUR OF THE DAY, PACIFIC STANDARD TIME

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

APPENDIX B

Second Quarter 2017 Waste Shipment Summary Table

TABLE B
LIQUID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
4/3/2017	0531221	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	5,000	G	American Integrated Services, Inc. 1502 E Opp Street Wilmington, CA 90744	n/a	n/a	Crosby & Overton, Inc. 1630 W. 17th Street Long Beach, CA 90813
	0531225	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	5,000	G				
4/19/2017	010494846FLE	NON-RCRA HAZARDOUS WASTE, LIQUIDS (OIL, WATER)	25	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
		NON-RCRA HAZARDOUS WASTE, LIQUIDS (WATER TREATMENT CHEMICAL AND MINERAL OIL)	517	P				
	010494847FLE	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	874	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	48	P				
		NON-RCRA HAZARDOUS WASTE LIQUID (DEBRIS, SULFURIC ACID)	72	P				
	AB0933	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	282	P			Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
		NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	1,042	P				
4/24/2017	016798432JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	400	G	Enviroserv 15902 South Main Street Gardena CA 90248	n/a	n/a	US Ecology Vernon Inc. 5976 South Boyle Avenue Los Angeles, CA 90058
4/25/2017	0531706	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,500	G	American Integrated Services, Inc. 1502 E Opp Street Wilmington, CA 90744			Crosby & Overton, Inc. 1630 W. 17th Street Long Beach, CA 90813
	0531707	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,200	G				
4/26/2017	0531708	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,200	G				
	0531705	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	3,327	G				
5/10/2017	0108766094FLE	WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC (NITRIC ACID)	6	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		HAZARDOUS WASTE, LIQUID (ARSENIC, CHROMIUM, LEAD)	38	P				
	010876696FLE	WASTE CORROSIVE LIQUID, BASIC, INORGANIC (CALCIUM HYDROXIDE, WATER AND CONCRETE)	30	P		n/a		Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
	AB1076	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	600	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
	AB1077	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	298	P				

TABLE B
LIQUID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
5/11/2017	0533733	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,500	G	American Integrated Services, Inc. 1502 E Opp Street Wilmington, CA 90744	n/a	n/a	Crosby & Overton, Inc. 1630 W. 17th Street Long Beach, CA 90813
	0533734	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,500	G				
	0533735	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,500	G				
	0533736	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	4,500	G				
5/19/2017	010876785FLE	NON -RCRA HAZARDOUS WASTE, LIQUID (OIL, WATER)	47	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
	010876786FLE	CORROSIVE LIQUIDS, TOXIC (SODIUM HYDROXIDE, SODIUM CYANIDE)	218	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		NON-RCRA HAZARDOUS WASTE, LIQUIDS (IRON REAGENT, WATER)	47	P				Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
5/24/2017	010876847FLE	NON-RCRA HAZARDOUS WASTE, LIQUIDS (OIL, WATER)	95	P				Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		NON-RCRA HAZARDOUS WASTE LIQUID (DEBRIS, SULFURIC ACID)	--	P				
	AB1229	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	210	P			Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
5/30/2017	0533803	NON-HAZARDOUS WASTE, LIQUID (RAIN WATER)	1,980	G	American Integrated Services, Inc. 1502 E Opp Street Wilmington, CA 90744	n/a	n/a	Crosby & Overton, Inc. 1630 W. 17th Street Long Beach, CA 90813
6/8/2017	unknown	NON-HAZARDOUS WASTE, LIQUID (DECON WATER)	100	G				
6/14/2017	AB1417	NON-RCRA HAZARDOUS WASTE, LIQUIDS (OIL, WATER)	38	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
6/26/2017	009699397FLE	NON-RCRA HAZARDOUS WASTE LIQUID (NON PCB OIL)	9,500	P	E.C.T.I PO Box 7318 San Bernardino, CA 92411			
6/28/2017	015816597JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G	Enviroserv 15902 South Main Street Gardena CA 90248			US Ecology US HWY 95. 11 Miles South Beatty, NV 89003
	015816598JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G				
	015816599JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G				
	015816600JK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G				

TABLE B
LIQUID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
6/29/2017	015816601JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G	Enviroserv 15902 South Main Street Gardena CA 90248	n/a	n/a	US Ecology Vernon Inc. 5976 South Boyle Avenue Los Angeles, CA 90058
	015816602JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G				
	015816603JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	5,000	G				
	015816604JJK	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	2,800	G				

TABLE B
LIQUID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
4/4/2017	16059	RAIN/ FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058	n/a	n/a	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058
4/4/2017	16060	RAIN/ FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
4/18/2017	16134	RAIN/ GROUNDWATER W/ TRACE SEWAGE (CLARIFIER)	5,000	G				
4/18/2017	16135	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER)	5,000	G				
5/2/2017	16248	SEWAGE	5,000	G				
5/2/2017	16249	SEWAGE (HOLDING TANK)	5,000	G				
5/16/2017	16359	SEWAGE (CLARIFIER)	5,000	G				
5/16/2017	16361	SEWAGE (CLARIFIER)	5,000	G				
5/30/2017	16407	SEWAGE (CLARIFIER)	5,000	G				
6/13/2017	16561	SEWAGE (CLARIFIER)	5,000	G				
6/13/2017	16565	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER)	5,000	G				
6/28/2017	16644	SEWAGE (HOLDING TANK)	5,000	G				
6/28/2017	16645	SEWAGE (CLARIFIER & HOLDING TANK)	5,000	G				

TABLE B
SOLID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
4/5/2017	009273511JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	14,397	K	Patriot Environmental Services 508 E E Street Wilmington, CA 90744-6023	n/a	n/a	US Ecology US HWY 95. 11 Miles South Beatty, NV 89003
	009273512JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	16,266	K				
4/10/2017	016798405JJK	HAZARDOUS WASTE, SOLID (TRICHOROETHYLENE)	20	Y	Enviroserv 15902 South Main Street Gardena CA 90248			Chemical Waste Management 35251 Old Skyline Rd. Kettleman City, CA 93239
4/14/2017	010791908JJK	NON-RCRA HAZARDOUS WASTE, SOLID (CEMENT AND CONSTRUCTION DEBRIS WITH RESIDUAL SEDIMENT)	30,000	P	Patriot Environmental Services 508 E E Street Wilmington, CA 90744-6023			
4/17/2017	010790811JJK	NON-RCRA HAZARDOUS WASTE, SOLID (CEMENT AND CONSTRUCTION DEBRIS WITH RESIDUAL SEDIMENT)	25,380	P				
	010791909JJK	NON-RCRA HAZARDOUS WASTE, SOLID (CEMENT AND CONSTRUCTION DEBRIS WITH RESIDUAL SEDIMENT)	26,560	P				
4/18/2017	010791910JJK	NON-RCRA HAZARDOUS WASTE, SOLID (CEMENT AND CONSTRUCTION DEBRIS WITH RESIDUAL SEDIMENT)	26,000	P				
4/19/2017	010494846FLE	CORROSIVE SOLID, BASIC, INORGANIC (SODIUM HYDROXIDE)	53	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
		NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS, OIL)	114	P				
	010494847FLE	HAZARDOUS WASTE, SOLID (BENZENE, ALCOHOL, ACETONE)	117	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		HAZARDOUS WASTE, SOLID (LEAD)	375	P				
	AB0933	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	697	P			Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
5/10/2017	010876695FLE	HAZARDOUS WASTE, SOLID (BENZENE, ALCOHOL, ACETONE)	10	P		n/a	n/a	Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
		NON-RCRA HAZARDOUS WASTE, SOLID (EMPTY CONTAINERS)	83	P				
		NON-RCRA HAZARDOUS WASTE, SOLID (EMPTY CONTAINERS)	23	P				
	AB1076	NON HAZARDOUS, NON D.O.T. REGULATED (DRILL CUTTINGS)	4,600	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
		NON HAZARDOUS, NON D.O.T. REGULATED (PPE, DEBRIS)	30	P				

TABLE B
SOLID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
5/10/2017	AB1077	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	871	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
		NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	482	P				
5/12/2017	008918833JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	14,252	K	Patriot Environmental Services 508 E E Street Wilmington, CA 90744-6023	n/a	n/a	US Ecology US HWY 95. 11 Miles South Beatty, NV 89003
	008918834JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	8,346	K				
	008918835JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	11,929	K				
5/15/2017	008918836JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	8,346	K				
	008918837JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	11,639	K				
	008918838JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	11,231	K				
5/18/2017	008918844JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	10,360	K				
	008918845JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	10,133	K				
	008918846JJK	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	9,380	K				
5/19/2017	010876785FLE	CORROSIVE SOLID, BASIC, INORGANIC (SODIUM HYDROXIDE)	140	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
		NON -RCRA HAZARDOUS WASTE, SOLID (DEBRIS, OIL)	11	P				
	010876786FLE	NON-RCRA HAZARDOUS WASTE, SOLID (POTASSIUM PERMANGANATE RESIDUE)	32	P		Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801		Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029
		NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS, SULFURIC ACID)	162	P				
	AB1200	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	788	P			Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
5/24/2017	010876847FLE	NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS/OIL)	29	P			n/a	Clean Harbors Aragonite LLC 11600 North Aptus Road Grantsville, UT 94029

TABLE B
SOLID WASTE SHIPMENTS

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
5/24/2017	AB1229	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	1,538	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Tri-State Motor Transit Company 8141 East 7th Street Joplin, MO 64801	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029
		NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	1,249	P				
		NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEBRIS)	117	P				
5/30/2017	AB1273	NON-RCRA HAZARDOUS WASTE, SOLID (EMPTY CONTAINERS)	17	P		n/a	n/a	Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744
6/14/2017	AB1417	NON-RCRA HAZARDOUS WASTE, SOLID (EMPTY CONTAINERS)	100	P				
6/26/2017	009699397FLE	POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (1 LB)	90	K	E.C.T.I PO Box 7318 San Bernardino, CA 92411			US Ecology US HWY 95. 11 Miles South Beatty, NV 89003
6/28/2017	010874192	NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS, OIL)	165	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061			Clean Harbors Wilmington LLC 737 East Denni Street Wilmington, CA 90744

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

APPENDIX C

Second Quarter 2017 Discharge Monitoring Data Summary Tables

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

Notes:

1. TCDD 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 DNQ, as specified on Page 26 of the NPDES permit.

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^{o}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 reported with the same number of significant figures as the Daily Maximum Benchmark Limits, Daily Maximum Permit Limits, or receiving water limits.

5. All of the following abbreviations and/or notes may not occur on every table.

-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 counting 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 permit limit established for daily maximum or monthly average.
<(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 permit.
*1	Improper preservation of sample.
*2	The inductively coupled plasma (ICP)/Matrix Spike (MS) 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

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

*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 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 %RSD (relative standard deviation) or %D (difference) were noncompliant.
Comp	Composite sample type.
C5	Calibration verification %R (recovery) 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.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
ft/sec	Feet per second.
G	Gallons.
gpd	Gallons per day.
H	Holding time was exceeded.
Hardness	Equivalent of calcium carbonate (CaCO3).
ICP	Interference check solution results were unsatisfactory.

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

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 (MQL), but > than MDL.
K	The sample dilution's set-up did not meet the oxygen depletion criteria of at least 2 mg/l; therefore, the reported result is an estimated value only.
L	Laboratory control sample %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 %R was below the method control limits.
LBS/DAY	Pounds per day.
LCS	Laboratory control standard.
LCSD	Laboratory control standard duplicate.
LQ	LCS/LCSD recovery above method control limits.
M1	MS and/or MSD were above the acceptance limits due to sample matrix interference.
M2	The MS and/or MS duplicate 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.
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 MS/MSD calculation does not provide useful spike recovery information.
mg/L	Milligrams per liter.
mg/kg	Milligrams per kilogram.
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.
NA	Not applicable; no permit limit established for the constituent and/or outfall.
ND	Analyte not detected.
NM	Not measured or determined or MDAs are not calculated as there is no statistical method for combining MDAs.
NTU	Nephelometric turbidity unit.

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

P	Pounds.
pCi/L	PicoCuries per liter.
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 recovery outside of control limits.
Q1	MS/MSD RPD was outside the control limit.
R	As a validation qualifier, results are rejected; the presence or absence of analyte cannot be verified.
R	(reason code in parentheses) %R for calibration not within control limits.
RL	Laboratory reporting limit.
RL-1	Reporting limit raised due to sample matrix effects.
RPD	Relative percent difference.
%R	Percent recovery.
%RSD	Percent relative standard deviation.
% survival	Percent survival.
S	Surrogate recovery was outside control limits.
s.u.	Standard Unit.
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin.
TEQ	Toxic equivalent.
T	Presumed contamination, as indicated by a detect in the trip blank.
U	Result not detected.
µg/L (ug/L)	Micrograms per liter.
µg/kg (ug/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 settable 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 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 permit.

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

(4.0)3.1/-	Represents (Dry Weather Limit) Wet Weather Limit / Monthly Average Limit.
(3)	Secondary Maximum Contaminant Level.
(4)	The drinking water maximum contaminant level of 3.00E-05 ug/L is for the dioxin congener 2,3,7,8-TCDD. TCDD TEQ w/out DNQ Values is the sum of the products of the detected dioxin congener concentration multiplied by that congener's TEF and BEF. There are 17 dioxin congeners.
(a)	Based on ORDER NO. R4-2015-0033 page 17 Footnote 7, sampling event is a dry discharge. Effluent limitations for Cadmium are not applicable for discharges during dry weather.
(b)	Based on ORDER NO. R4-2015-0033 page 17 Footnote 7, sampling event is a wet discharge. Effluent limitations for Cadmium are applicable for discharges during wet weather.
(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 settable 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 settable 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. Effluent limitations for Selenium are applicable for discharges during dry weather discharges.
(f)	Based on ORDER NO. R4-2015-0033 page 17 Footnote 8, sampling event is a wet discharge. Effluent limitations for Selenium are not applicable for discharges during wet weather.
(g)	The annual sample for Outfall 002 was collected on 01/22-01/23, Boeing collected some additional annual constituents on 01/20-01/21.

ARROYO SIMI (FRONTIER PARK RECEIVING WATER), SEDIMENT

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

April 1 through June 30, 2017

					4/6/2017	
ANALYTE	**UNITS**	**Permit Limit Daily Max/Monthly**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	µg/g	0.002/-	1/Year	Grab	ND < 0.0091	U
4,4'-DDE	µg/g	0.0014/-	1/Year	Grab	ND < 0.0091	U
4,4'-DDT	µg/g	0.0003/-	1/Year	Grab	ND < 0.0091	U
Aroclor 1016	µg/g	0.12/-	1/Year	Grab	ND < 0.0046	U
Aroclor 1221	µg/g	0.12/-	1/Year	Grab	ND < 0.0058	U
Aroclor 1232	µg/g	0.12/-	1/Year	Grab	ND < 0.010	U
Aroclor 1242	µg/g	0.12/-	1/Year	Grab	ND < 0.0042	U
Aroclor 1248	µg/g	0.12/-	1/Year	Grab	ND < 0.0042	U
Aroclor 1254	µg/g	0.12/-	1/Year	Grab	0.026	--
Aroclor 1260	µg/g	0.12/-	1/Year	Grab	ND < 0.0062	U
Chlordane	µg/g	0.0033/-	1/Year	Grab	ND < 0.060	U
Dieldrin	µg/g	0.0002/-	1/Year	Grab	ND < 0.0091	U
Toxaphene	µg/g	0.0006/-	1/Year	Grab	ND < 0.300	U
POLLUTANTS WITHOUT LIMITS						
Percent Moisture	%	-/-	1/Year	Grab	22.6	*
Ammonia (as N)	mg/kg	-/-	1/Year	Grab	2.96	J (DNQ)
Bivalve Embryo Toxicity (Mytilus edulis)	% SURVIVAL	-/-	1/Year	Grab	100	J (H)
Conductivity (Field)	umhos/cm	-/-	1/Year	Grab	2160	*
Dissolved Oxygen (Field)	mg/L	-/-	1/Year	Grab	4.46	*
pH (Field)	pH units	-/-	1/Year	Grab	7.09	*
Sediment Toxicity (Eohaustorius estuarius)	% SURVIVAL	-/-	1/Year	Grab	100	J (H)
Temperature (Field)	Deg C	-/-	1/Year	Grab	15.75	*
Total Organic Carbon	mg/kg	-/-	1/Year	Grab	14000	--
Water Velocity	ft/sec	-/-	1/Year	Meas	0.0	*
PARTICLE SIZE DISTRIBUTION						
Gravel	%	-/-	1/Year	Grab	8.91	*
Coarse Sand	%	-/-	1/Year	Grab	20.36	*
Medium Sand	%	-/-	1/Year	Grab	66.98	*
Fine Sand	%	-/-	1/Year	Grab	3.19	*
Silt/Clay	%	-/-	1/Year	Grab	0.56	*

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

ARROYO SIMI (FRONTIER PARK RECEIVING WATER), WATER

SECOND QUARTER 2017 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

April 1 through June 30, 2017

					4/6/2017		Duplicate, 4/6/2017	
ANALYTE	**UNITS**	**Permit Limit Daily Max/Monthly**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**	**RESULT**	**VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS								
4,4'-DDD	µg/L	0.0014/-	1/Quarter	Grab	ND < 0.0040	U	ANR	ANR
4,4'-DDE	µg/L	0.001/-	1/Quarter	Grab	ND < 0.0030	U	ANR	ANR
4,4'-DDT	µg/L	0.001/-	1/Quarter	Grab	ND < 0.0040	U	ANR	ANR
Aroclor 1016	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1221	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1232	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1242	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1248	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1254	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.10	U	ND < 0.11	U
Aroclor 1260	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.15	U	ND < 0.16	U
Chlordane	µg/L	0.001/-	1/Quarter	Grab	ND < 0.080	U	ANR	ANR
Chlorpyrifos	µg/L	0.02/-	1/Quarter	Grab	ND < 0.0069	U	ANR	ANR
Diazinon	µg/L	0.16/-	1/Quarter	Grab	ND < 0.0052	U	ANR	ANR
Dieldrin	µg/L	0.0002/-	1/Quarter	Grab	ND < 0.0020	U	ANR	ANR
E. Coli	MPN/100mL	235/-	1/Year	Grab	ANR	ANR	ANR	ANR
pH (Field)	S.U.	6.5-8.5/-	1/Quarter	Grab	7.11	*	ANR	ANR
Toxaphene	µg/L	0.0003/-	1/Quarter	Grab	ND < 0.25	U	ANR	ANR
POLLUTANTS WITHOUT LIMITS								
Hardness	mg/L	-/-	1/Quarter	Grab	840	--	ANR	ANR
Temperature (Field)	Deg F	-/-	1/Quarter	Grab	60.28	*	ANR	ANR
Total Suspended Solids	mg/L	-/-	1/Year	Grab	ANR	ANR	ANR	ANR
Water Velocity	ft/sec	-/-	1/Quarter	Meas	0.0	*	ANR	ANR

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

APPENDIX D

Second Quarter 2017 Analytical Laboratory Reports, Chain of Custody Forms, and Validation Reports

APPENDIX D

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Section No.

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-181474-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

June 2, 2017

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TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-181474-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Arroyo_Simi_20170406_Grab	440-181474-1	N/A	Water	4/6/2017 9:00:00 AM	E525.2, E608, SM2340
Arroyo_Simi_20170406_Grab_Extra	440-181474-2	N/A	Water	4/6/2017 9:00:00 AM	E608

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COCs) provided by the laboratories for sample delivery group (SDG) 440-181474-1:

- The laboratories received the sample in this sample delivery group (SDG) on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COCs.
- Custody seals were present and intact on the coolers upon receipt at TA-Irvine and Eurofins-Lancaster. Information regarding custody seals was not provided by Weck.
- Analysis of PCBs was subcontracted to Eurofins-Lancaster.
- The Method 525.2 analysis was subcontracted to Weck.
- Analysis of hardness by calcium carbonate was subcontracted to TA-Denver.
- Sample Arroyo_Simi_20170406_Grab_Extra was submitted on hold; however, it was submitted to the subcontract laboratory for PCB analysis and reported. The sample was evaluated by the reviewer.

TABLE 2 - DATA QUALIFIER REFERENCE

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

TABLE 3 - REASON CODE REFERENCE

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

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

III. METHOD ANALYSES – 608 PESTICIDES AND PCBS

L. Calvin of MEC[X] reviewed the SDG on June 2, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

III.2. CALIBRATION

The initial calibrations had %RSDs of ≤10% or r^2 of ≥0.990 on both analytical columns. The initial calibration verification (ICV) and continuing calibration verification (CCV) %Ds were within the control limit of ≤15%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits. Chlordane and toxaphene were not spiked in the pesticide LCS.

III.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) and PCB surrogate decachlorobiphenyl (DCB) were recovered within the laboratory control limits of 10-150% and 10-148%, respectively, in the site sample.

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

Matrix spike (MS)/MS duplicate (MSD) analyses were performed on sample Arroyo_Simi_20170406_Grab of this SDG. Recoveries and RPDs were within the laboratory control limits. Chlordane and toxaphene were not spiked in the pesticide MS/MSD.

III.4. FIELD QC SAMPLES

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

III.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

III.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG although sample Arroyo_Simi_20170406_Grab_Extra could be considered a duplicate sample for PCB analysis. Neither sample had detects for the PCB target compounds and the pair were considered in good agreement.

III.5. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatograms and retention times indicated no issues with target compound identification. The laboratory analyzed for select pesticides and seven Aroclors by Method 608.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.7. SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance.

IV. EPA METHODS 525.2— SEMIVOLATILE ORGANIC COMPOUNDS (SVOCS)

L. Calvin of MEC^X reviewed the SDG on June 2, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 525.2*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

IV.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within 24 hours of collection and analyzed within 30 days of extraction.

IV.2. GC/MS TUNING AND CALIBRATION

As the analyses were acquired in SIM mode, tuning was not applicable.

Calibration criteria were met. The initial calibration average RRFs were ≥0.05 and %RSDs ≤30% or r^2 ≥0.990. The continuing calibration RRFs were ≥0.05 and recoveries were within the method QC limits of 70-130%.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blank.

IV.3.2. *LABORATORY CONTROL SAMPLES*

The recoveries were within the laboratory control limits of 37-169% for chlorpyrifos and 43-152% for diazinon.

IV.3.3. *SURROGATE RECOVERY*

Recoveries of both surrogates were above laboratory control limits of 76-128% for 1,3-dimethyl-2-nitrobenzene (169%) and 40-163% for triphenyl phosphate (314%). High recoveries in the associated MS/MSD indicated a matrix effect on the surrogates. As the sample had no detects, qualifications were not assigned.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG. In the MSD only, chlorpyrifos was recovered above the control limits of 37-168% at 213%, and the RPD exceeded the control limit of ≤30%, at 37%. As chlorpyrifos was not detected in the sample, qualifications were not assigned for the recovery and RPD outliers. Remaining recoveries and RPD were within the laboratory control limits.

IV.4. FIELD QC SAMPLES

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

IV.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

IV.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were within the method control limits established by the continuing calibration standards of ±30% for areas and ±10 seconds for retention times.

IV.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for chlorpyrifos and diazinon by Method 525.2. Review of the sample chromatogram, retention times, and ion chromatograms indicated no problems with target compound identification.

IV.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

IV.8. TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

The laboratory did not report TICs for this SDG.

IV.9. SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance.

V. METHOD SM2340B—HARDNESS

Marcia Hilchey of MEC^X reviewed the SDG on June 9, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 2), Standard Method 2340B,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The analytical holding time, six months for metals, was met.

V.2. CALIBRATION

ICP instrument calibration criteria were met for calcium and magnesium. CRQL recoveries were within the laboratory control limits of 50-150%. ICV and CCV recoveries were within NFG control limits of 90-110%.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blank or calibration blanks.

V.3.2. *INTERFERENCE CHECK SAMPLES:*

ICS recoveries were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. As the target analytes utilized in the calculation of hardness were spiked interferents, the sample was not assessed for matrix interference.

V.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits.

V.3.4. *LABORATORY DUPLICATES*

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

V.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG. Recoveries and RPDs met laboratory control limits.

V.4. SERIAL DILUTION

No serial dilution analysis was performed on the sample in this SDG.

V.5. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted.

V.6. 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.6.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

V.6.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4401814741

Analysis Method E525.2

Sample Name Arroyo_Simi_20170406_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-181474-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chlorpyrifos	N	2921-88-2	ND	10	6.9	ng/L	U	U	
Diazinon	N	333-41-5	ND	10	5.2	ng/L	U	U	

Analysis Method E608

Sample Name Arroyo_Simi_20170406_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-181474-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8	ND	0.0050	0.0040	ug/L	U	U	
4,4'-DDE	N	72-55-9	ND	0.0050	0.0030	ug/L	U	U	
4,4'-DDT	N	50-29-3	ND	0.010	0.0040	ug/L	U	U	
Aroclor-1016 (PCB-1016)	N	12674-11-2	ND	0.50	0.10	ug/L	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2	ND	0.50	0.10	ug/L	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5	ND	0.50	0.10	ug/L	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9	ND	0.50	0.10	ug/L	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6	ND	0.50	0.10	ug/L	U	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1	ND	0.50	0.10	ug/L	U	U	
Aroclor-1260 (PCB-1260)	N	11096-82-5	ND	0.50	0.15	ug/L	U	U	
Chlordane	N	57-74-9	ND	0.10	0.080	ug/L	U	U	
Dieldrin	N	60-57-1	ND	0.0050	0.0020	ug/L	U	U	
Toxaphene	N	8001-35-2	ND	0.50	0.25	ug/L	U	U	

Sample Name Arroyo_Simi_20170406_Grab_Extra **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 **Validation Level:** 8

Lab Sample Name: 440-181474-2

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	0.55	0.11	ug/L	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2	ND	0.55	0.11	ug/L	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5	ND	0.55	0.11	ug/L	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9	ND	0.55	0.11	ug/L	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6	ND	0.55	0.11	ug/L	U	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1	ND	0.55	0.11	ug/L	U	U	
Aroclor-1260 (PCB-1260)	N	11096-82-5	ND	0.55	0.16	ug/L	U	U	

Analysis Method SM2340

Sample Name Arroyo_Simi_20170406_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-181474-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness	T	HARDNESS	840	1.3	0.18	mg/L			

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-181474-1
Client Project/Site: Quarterly ArroyoSimi-Frontier Park
Revision: 2

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

Attn: Katherine Miller

Authorized for release by:
8/8/2017 2:24:08 PM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

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.

Urvashi Patel
Manager of Project Management
8/8/2017 2:24:08 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-181474-1	Arroyo_Simi_20170406_Grab	Water	04/06/17 09:00	04/06/17 13:00

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Job ID: 440-181474-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-181474-1

Comments
525.2 analysis was subbed to Weck.
Revision created to remove level IV package from subcontract lab (Eurofins) from level 2 report per client request.
2nd Revision created to remove Weck Level IV package from level 2 report per client request.

Receipt
The samples were received on 4/6/2017 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.6º C, 1.6º C and 1.8º C.

GC Semi VOA
Method(s) 608, 8081A: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 440-398655 and analytical batch 440-398741 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) precision was within acceptance limits.

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

Metals
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.

Subcontract Work
Method 608_LL-PCB- Lancaster Labs: This method was subcontracted to Lancaster Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Weck- 525.2: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Arroyo_Simi_20170406_Grab
Date Collected: 04/06/17 09:00
Date Received: 04/06/17 13:00

Lab Sample ID: 440-181474-1
Matrix: Water

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		04/07/17 06:43	04/07/17 16:13	1
Dieldrin	ND		0.0050	0.0020	ug/L		04/07/17 06:43	04/07/17 16:13	1
Toxaphene	ND		0.50	0.25	ug/L		04/07/17 06:43	04/07/17 16:13	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/07/17 06:43	04/07/17 16:13	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/07/17 06:43	04/07/17 16:13	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/07/17 06:43	04/07/17 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*10 - 150*	*04/07/17 06:43*	*04/07/17 16:13*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**190**		0.10	0.035	mg/L		04/10/17 14:30	04/11/17 21:37	1
Magnesium	**86**		0.020	0.011	mg/L		04/10/17 14:30	04/11/17 21:37	1

Method: SM 2340B - Hardness, Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**840**		1.3	0.18	mg/L			04/14/17 10:52	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Method	Method Description	Protocol	Laboratory
608	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL DEN
SM 2340B	Hardness, Calculation	SM	TAL DEN
608_LL-PCB-Lancaster Labs	General Sub Contract Method	NONE	SC0103
Weck- 525.2	General Sub Contract Method	NONE	Weck Lab

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
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Client Sample ID: Arroyo_Simi_20170406_Grab
Date Collected: 04/06/17 09:00
Date Received: 04/06/17 13:00

Lab Sample ID: 440-181474-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1005 mL	2 mL	398655	04/07/17 06:43	L2A	TAL IRV
Total/NA	Analysis	608		1			398815	04/07/17 16:13	KS	TAL IRV
Total Recoverable	Prep	200.7			50 mL	50 mL	368508	04/10/17 14:30	SEJ	TAL DEN
Total Recoverable	Analysis	200.7 Rev 4.4		1			368990	04/11/17 21:37	SJS	TAL DEN
Total/NA	Analysis	SM 2340B		1			369427	04/14/17 10:52	DEG	TAL DEN

Laboratory References:

SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

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

Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396

Method: 608 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-398655/1-A
Matrix: Water
Analysis Batch: 398815

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		04/07/17 06:43	04/07/17 15:13	1
Dieldrin	ND		0.0050	0.0020	ug/L		04/07/17 06:43	04/07/17 15:13	1
Toxaphene	ND		0.50	0.25	ug/L		04/07/17 06:43	04/07/17 15:13	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		04/07/17 06:43	04/07/17 15:13	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		04/07/17 06:43	04/07/17 15:13	1
4,4'-DDT	ND		0.010	0.0040	ug/L		04/07/17 06:43	04/07/17 15:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*73*		*10 - 150*	*04/07/17 06:43*	*04/07/17 15:13*	*1*

Lab Sample ID: LCS 440-398655/2-A
Matrix: Water
Analysis Batch: 398815

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	0.200	0.185		ug/L		92	36 - 146
4,4'-DDD	0.200	0.179		ug/L		90	31 - 141
4,4'-DDE	0.200	0.172		ug/L		86	30 - 145
4,4'-DDT	0.200	0.193		ug/L		96	25 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*82*		*10 - 150*

Lab Sample ID: 440-181474-1 MS
Matrix: Water
Analysis Batch: 398815

Client Sample ID: Arroyo_Simi_20170406_Grab
Prep Type: Total/NA
Prep Batch: 398655

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	ND		0.198	0.214		ug/L		108	50 - 120
4,4'-DDD	ND		0.198	0.214		ug/L		108	50 - 125
4,4'-DDE	ND		0.198	0.187		ug/L		95	45 - 125
4,4'-DDT	ND		0.198	0.241		ug/L		122	50 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*80*		*10 - 150*

Lab Sample ID: 440-181474-1 MSD
Matrix: Water
Analysis Batch: 398815

Client Sample ID: Arroyo_Simi_20170406_Grab
Prep Type: Total/NA
Prep Batch: 398655

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dieldrin	ND		0.193	0.168		ug/L		87	50 - 120	24	30
4,4'-DDD	ND		0.193	0.157		ug/L		81	50 - 125	17	30
4,4'-DDE	ND		0.193	0.146		ug/L		76	45 - 125	25	30
4,4'-DDT	ND		0.193	0.163		ug/L		84	50 - 125	19	30

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 440-181474-1 MSD
Matrix: Water
Analysis Batch: 398815

Client Sample ID: Arroyo_Simi_20170406_Grab
Prep Type: Total/NA
Prep Batch: 398655

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*67*		*10 - 150*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 280-368508/1-A
Matrix: Water
Analysis Batch: 368990

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 368508

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.10	0.035	mg/L		04/10/17 14:30	04/11/17 21:27	1
Magnesium	ND		0.020	0.011	mg/L		04/10/17 14:30	04/11/17 21:27	1

Lab Sample ID: LCS 280-368508/2-A
Matrix: Water
Analysis Batch: 368990

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 368508

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50.0	50.7		mg/L		101	90 - 111
Magnesium	50.0	55.0		mg/L		110	90 - 113

Lab Sample ID: 440-181474-1 MS
Matrix: Water
Analysis Batch: 368990

Client Sample ID: Arroyo_Simi_20170406_Grab
Prep Type: Total Recoverable
Prep Batch: 368508

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	190		50.0	243		mg/L		97	70 - 130
Magnesium	86		50.0	139		mg/L		106	70 - 130

Lab Sample ID: 440-181474-1 MSD
Matrix: Water
Analysis Batch: 368990

Client Sample ID: Arroyo_Simi_20170406_Grab
Prep Type: Total Recoverable
Prep Batch: 368508

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	190		50.0	251		mg/L		113	70 - 130	3	20
Magnesium	86		50.0	144		mg/L		115	70 - 130	3	20

Method: SM 2340B - Hardness, Calculation

Lab Sample ID: MB 280-369427/1
Matrix: Water
Analysis Batch: 369427

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	ND		1.3	0.18	mg/L			04/14/17 10:52	1

GC Semi VOA

Prep Batch: 398655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181474-1	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	
MB 440-398655/1-A	Method Blank	Total/NA	Water	608	
LCS 440-398655/2-A	Lab Control Sample	Total/NA	Water	608	
440-181474-1 MS	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	
440-181474-1 MSD	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	

Analysis Batch: 398815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181474-1	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	398655
MB 440-398655/1-A	Method Blank	Total/NA	Water	608	398655
LCS 440-398655/2-A	Lab Control Sample	Total/NA	Water	608	398655
440-181474-1 MS	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	398655
440-181474-1 MSD	Arroyo_Simi_20170406_Grab	Total/NA	Water	608	398655

Metals

Prep Batch: 368508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181474-1	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7	
MB 280-368508/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 280-368508/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
440-181474-1 MS	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7	
440-181474-1 MSD	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7	

Analysis Batch: 368990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181474-1	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7 Rev 4.4	368508
MB 280-368508/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	368508
LCS 280-368508/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	368508
440-181474-1 MS	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7 Rev 4.4	368508
440-181474-1 MSD	Arroyo_Simi_20170406_Grab	Total Recoverable	Water	200.7 Rev 4.4	368508

Analysis Batch: 369427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181474-1	Arroyo_Simi_20170406_Grab	Total/NA	Water	SM 2340B	
MB 280-369427/1	Method Blank	Total/NA	Water	SM 2340B	

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Glossary

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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Quarterly ArroyoSimi-Frontier Park

TestAmerica Job ID: 440-181474-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	CA ELAP 2706	06-30-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
608	608	Water	4,4'-DDD
608	608	Water	4,4'-DDE
608	608	Water	4,4'-DDT
608	608	Water	Chlordane (technical)
608	608	Water	Dieldrin
608	608	Water	Toxaphene

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-17
A2LA	ISO/IEC 17025		2907.01	10-31-17
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	04-05-18
Arizona	State Program	9	AZ0713	12-20-17
Arkansas DEQ	State Program	6	88-0687	06-01-18
California	State Program	9	2513	01-08-18
Connecticut	State Program	1	PH-0686	09-30-18
Florida	NELAP	4	E87667	06-30-18
Georgia	State Program	4	N/A	01-08-18
Illinois	NELAP	5	200017	04-30-18
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-18
Louisiana	NELAP	6	02096	06-30-18
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-17
Nevada	State Program	9	CO0026	07-31-17 *
New Hampshire	NELAP	1	205310	04-28-18
New Jersey	NELAP	2	CO004	06-30-18
New York	NELAP	2	11964	04-01-18
North Carolina (WW/SW)	State Program	4	358	12-31-17
North Dakota	State Program	8	R-034	01-09-18
Oklahoma	State Program	6	8614	08-31-17
Oregon	NELAP	10	4025	01-08-18
Pennsylvania	NELAP	3	68-00664	07-31-18
South Carolina	State Program	4	72002001	01-08-18
Texas	NELAP	6	T104704183-16-12	09-30-17
USDA	Federal		P330-16-00397	12-15-19
Utah	NELAP	8	CO00026	07-31-17 *
Virginia	NELAP	3	460232	06-14-18
Washington	State Program	10	C583	08-03-18
West Virginia DEP	State Program	3	354	11-30-17
Wisconsin	State Program	5	999615430	08-31-17
Wyoming (UST)	A2LA	8	2907.01	10-31-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders:	7D06070	**Report Date:**	4/20/2017
		Received Date:	4/6/2017
Project:	440-181474-1	**Turnaround Time:**	Normal
		Phones:	(949) 261-1022
		Fax:	(949) 260-3297
Attn:	Urvashi Patel	**P.O. #:**	
Client:	TestAmerica - Irvine CA 17461 Derian Ave, Suite 100 Irvine, CA 92614	**Billing Code:**	

ELAP-CA #1132 • EPA-UCMR #CA00211 • LACSD #10143 • NJ-DEP #CA015 • NV-DEP #NAC 445A

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.

Dear Urvashi Patel,

Enclosed are the results of analyses for samples received 4/06/17 with the Chain-of-Custody document. The samples were received in good condition, at 3.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kim G. Tu
Project Manager

14859 East Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634

www.wecklabs.com

TestAmerica - Irvine CA
17461 Derian Ave, Suite 100
Irvine, CA 92614

Project Number: 440-181474-1

Project Manager: Urvashi Patel

Reported:
04/20/2017 16:51

Sample Summary

Sample ID	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
Arroyo_Simi_20170406_Grab (440-181474-1)	Client	7D06070-01	Water	04/06/17 09:00	

TestAmerica - Irvine CA
17461 Derian Ave, Suite 100
Irvine, CA 92614

Project Number: 440-181474-1

Project Manager: Urvashi Patel

Reported:
04/20/2017 16:51

Sample Results

Sample: Arroyo_Simi_20170406_Grab (440-181474-1)
7D06070-01 (Water)

Sampled: 04/06/17 9:00 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Semivolatile Organic Compounds by GC/MS							
Method: EPA 525.2	**Batch ID:** W7D0308		**Prepared:** 04/06/17 16:45			**Analyst:** EFC	
Chlorpyrifos	ND	6.9	10	ng/l	1	04/14/17 00:08	
Diazinon	ND	5.2	10	ng/l	1	04/14/17 00:08	
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*169%*	*Conc: 844*	*76-128*			*04/14/17 00:08*	*S-04*
Triphenyl phosphate	*314%*	*Conc: 1570*	*40-163*			*04/14/17 00:08*	*S-04*

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TestAmerica - Irvine CA
17461 Derian Ave, Suite 100
Irvine, CA 92614

Project Number: 440-181474-1

Project Manager: Urvashi Patel

Reported:
04/20/2017 16:51

Quality Control Results

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W7D0308 - EPA 525.2										
Blank (W7D0308-BLK1)				**Prepared: 04/06/17**	**Analyzed: 04/13/17**					
Chlorpyrifos	ND	6.9	ng/l							
Diazinon	ND	5.2	ng/l							
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	*438*		*ng/l*	*500*		*88*	*76-128*			
Triphenyl phosphate	*639*		*ng/l*	*500*		*128*	*40-163*			
LCS (W7D0308-BS1)				**Prepared: 04/06/17**	**Analyzed: 04/13/17**					
Chlorpyrifos	55.9	6.9	ng/l	50.0		112	37-169			
Diazinon	30.6	5.2	ng/l	50.0		61	43-152			
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	*514*		*ng/l*	*500*		*103*	*76-128*			
Triphenyl phosphate	*736*		*ng/l*	*500*		*147*	*40-163*			
Matrix Spike (W7D0308-MS1)	**Source: 7D06070-01**			**Prepared: 04/06/17**	**Analyzed: 04/13/17**					
Chlorpyrifos	72.9	6.9	ng/l	50.0	ND	146	37-168			
Diazinon	53.3	5.2	ng/l	50.0	ND	107	36-153			
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	*627*		*ng/l*	*500*		*125*	*76-128*			
Triphenyl phosphate	*1380*		*ng/l*	*500*		*276*	*40-163*			*S-GC*
Matrix Spike Dup (W7D0308-MSD1)	**Source: 7D06070-01**			**Prepared: 04/06/17**	**Analyzed: 04/13/17**					
Chlorpyrifos	106	6.9	ng/l	50.0	ND	213	37-168	37	30	MS-05
Diazinon	68.2	5.2	ng/l	50.0	ND	136	36-153	25	30	
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	*710*		*ng/l*	*500*		*142*	*76-128*			*S-04*
Triphenyl phosphate	*1190*		*ng/l*	*500*		*238*	*40-163*			*S-04*

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TestAmerica - Irvine CA
17461 Derian Ave, Suite 100
Irvine, CA 92614

Project Number: 440-181474-1

Project Manager: Urvashi Patel

Reported:
04/20/2017 16:51

Notes and Definitions

Item	Definition
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
S-04	The surrogate recovery for this sample is outside of established control limits due to possible sample matrix effect.
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.
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.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
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) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
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 MIS 002.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

Report Date: April 13, 2017

Project: Boeing NPDES SSFL Outfalls

Submittal Date: 04/07/2017
Group Number: 1786669
SDG: SSF03
PO Number: 440-181474-1
State of Sample Origin: CA

Client Sample Description	Lancaster Labs (LL) #
Arroyo_Simi_20170406_Grab (440-181474-1) Water	8927800
Arroyo_Simi_20170406_Grab (440-181474-1MS) Water	8927801
Arroyo_Simi_20170406_Grab (440-181474-1MSD) Water	8927802
Arroyo_Simi_20170406_Grab_Extra (440-181474-2)	8927803

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Test America Attn: Urvashi Patel

Respectfully Submitted,

Kay Hower

(717) 556-7364

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Arroyo_Simi_20170406_Grab (440-181474-1) Water
Boeing NPDES SSFL Outfalls

LL Sample # WW 8927800
LL Group # 1786669
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 04/06/2017 09:00

Submitted: 04/07/2017 09:40
Reported: 04/13/2017 10:15

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

S0301 SDG#: SSF03-01BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**EPA 608**		ug/l	ug/l	ug/l	
06030	PCB-1016	12674-11-2	N.D.	0.10	0.50	1
06030	PCB-1221	11104-28-2	N.D.	0.10	0.50	1
06030	PCB-1232	11141-16-5	N.D.	0.10	0.50	1
06030	PCB-1242	53469-21-9	N.D.	0.10	0.50	1
06030	PCB-1248	12672-29-6	N.D.	0.10	0.50	1
06030	PCB-1254	11097-69-1	N.D.	0.10	0.50	1
06030	PCB-1260	11096-82-5	N.D.	0.15	0.50	1

Sample Comments

CA ELAP Lab Certification No. 2792

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06030	PCBs in Water by 608	EPA 608	1	171010006A	04/12/2017 18:18	Kirby B Turner	1
11960	Method 608 PCB Water Ext.	EPA 608	1	171010006A	04/11/2017 17:15	Kate E Lutte	1

*=This limit was used in the evaluation of the final result

Sample Description: Arroyo_Simi_20170406_Grab (440-181474-1MS) Water
Boeing NPDES SSFL Outfalls

LL Sample # WW 8927801
LL Group # 1786669
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 04/06/2017 09:00

Submitted: 04/07/2017 09:40
Reported: 04/13/2017 10:15

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

S0301 SDG#: SSF03-01MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**EPA 608**		ug/l	ug/l	ug/l	
06030	PCB-1016	12674-11-2	4.2	0.098	0.49	1
06030	PCB-1221	11104-28-2	N.D.	0.098	0.49	1
06030	PCB-1232	11141-16-5	N.D.	0.098	0.49	1
06030	PCB-1242	53469-21-9	N.D.	0.098	0.49	1
06030	PCB-1248	12672-29-6	N.D.	0.098	0.49	1
06030	PCB-1254	11097-69-1	N.D.	0.098	0.49	1
06030	PCB-1260	11096-82-5	4.2	0.15	0.49	1

Sample Comments

CA ELAP Lab Certification No. 2792

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06030	PCBs in Water by 608	EPA 608	1	171010006A	04/12/2017 18:29	Kirby B Turner	1
11960	Method 608 PCB Water Ext.	EPA 608	1	171010006A	04/11/2017 17:15	Kate E Lutte	1

*=This limit was used in the evaluation of the final result

Sample Description: Arroyo_Simi_20170406_Grab (440-181474-1MSD) Water
Boeing NPDES SSFL Outfalls

LL Sample # WW 8927802
LL Group # 1786669
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 04/06/2017 09:00

Submitted: 04/07/2017 09:40
Reported: 04/13/2017 10:15

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

S0301 SDG#: SSF03-01MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**EPA 608**		ug/l	ug/l	ug/l	
06030	PCB-1016	12674-11-2	4.3	0.10	0.52	1
06030	PCB-1221	11104-28-2	N.D.	0.10	0.52	1
06030	PCB-1232	11141-16-5	N.D.	0.10	0.52	1
06030	PCB-1242	53469-21-9	N.D.	0.10	0.52	1
06030	PCB-1248	12672-29-6	N.D.	0.10	0.52	1
06030	PCB-1254	11097-69-1	N.D.	0.10	0.52	1
06030	PCB-1260	11096-82-5	4.3	0.15	0.52	1

Sample Comments

CA ELAP Lab Certification No. 2792

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06030	PCBs in Water by 608	EPA 608	1	171010006A	04/12/2017 18:40	Kirby B Turner	1
11960	Method 608 PCB Water Ext.	EPA 608	1	171010006A	04/11/2017 17:15	Kate E Lutte	1

*=This limit was used in the evaluation of the final result

Sample Description: Arroyo_Simi_20170406_Grab_Extra (440-181474-2)
Water
Boeing NPDES SSFL Outfalls

LL Sample # WW 8927803
LL Group # 1786669
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 04/06/2017 09:00

Submitted: 04/07/2017 09:40
Reported: 04/13/2017 10:15

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

S0302 SDG#: SSF03-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**EPA 608**		ug/l	ug/l	ug/l	
06030	PCB-1016	12674-11-2	N.D.	0.11	0.55	1
06030	PCB-1221	11104-28-2	N.D.	0.11	0.55	1
06030	PCB-1232	11141-16-5	N.D.	0.11	0.55	1
06030	PCB-1242	53469-21-9	N.D.	0.11	0.55	1
06030	PCB-1248	12672-29-6	N.D.	0.11	0.55	1
06030	PCB-1254	11097-69-1	N.D.	0.11	0.55	1
06030	PCB-1260	11096-82-5	N.D.	0.16	0.55	1

Sample Comments

CA ELAP Lab Certification No. 2792

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06030	PCBs in Water by 608	EPA 608	1	171010006A	04/12/2017 18:52	Kirby B Turner	1
11960	Method 608 PCB Water Ext.	EPA 608	1	171010006A	04/11/2017 17:15	Kate E Lutte	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Test America
Reported: 04/13/2017 10:15

Group Number: 1786669

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 171010006A	Sample number(s): 8927800-8927803		
PCB-1016	N.D.	0.10	0.50
PCB-1221	N.D.	0.10	0.50
PCB-1232	N.D.	0.10	0.50
PCB-1242	N.D.	0.10	0.50
PCB-1248	N.D.	0.10	0.50
PCB-1254	N.D.	0.10	0.50
PCB-1260	N.D.	0.15	0.50

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: 171010006A	Sample number(s): 8927800-8927803								
PCB-1016	5.04	4.51			89		60-117		
PCB-1260	5.02	4.68			93		57-134		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 171010006A	Sample number(s): 8927800-8927803 UNSPK: 8927800									
PCB-1016	N.D.	4.96	4.24	5.21	4.28	85	82	60-117	1	30
PCB-1260	N.D.	4.94	4.24	5.18	4.32	86	83	57-134	2	30

*- 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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Test America
Group Number: 1786669
Reported: 04/13/2017 10:15

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 Water by 608
Batch number: 171010006A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8927800	88	79
8927801	92	82
8927802	90	81
8927803	89	80
Blank	90	91
LCS	90	91
MS	92	82
MSD	90	81
Limits:	33-137	10-148

*- 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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

TestAmerica Irvine 4/440 | 1786669 | 8927800-03
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-109410.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@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 #: 440-181474-1
Address: 2425 New Holland Pike,	Due Date Requested: 4/19/2017			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (608_LL-PCB- Lancaster Labs)/ 608_LL-PCB-Lancaster Labs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyo_Simi_20170406_Grab (440-181474-1)	4/6/17	09:00 Pacific		Water			X	1	
Arroyo_Simi_20170406_Grab (440-181474-1MS)	4/6/17	09:00 Pacific	MS	Water			X	1	
Arroyo_Simi_20170406_Grab (440-181474-1MSD)	4/6/17	09:00 Pacific	MSD	Water			X	1	
Arroyo_Simi_20170406_Grab_Extra (440-181474-2)	4/6/17	09:00 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Urvashi Patel	4/6/17 17:00	TAI			
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	4/7/17 9:40	ECL

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 180259

Group Number(s): 1786669

Client: TEST AMERICA

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/07/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 13:26 on 04/07/2017

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	DT121	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< 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.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
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.

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.

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.

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.

Patel, Urvashi

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, August 07, 2017 12:41 PM
To: Patel, Urvashi
Subject: RE: Revised lab reports

Eurofins did separate into a Level 2 and Level 4 reports, you just included both the in the Level 2. The page numbers to delete are the Level 4 as listed below.

440-181481: remove pages 52-382
440-181474: remove pages 156-496

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi [mailto:Urvashi.Patel@testamericainc.com]
Sent: Monday, August 07, 2017 12:35 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>
Subject: RE: Revised lab reports

Hi Katherine
You need TA level 2 reports revised, correct? Would you happen to have the TA job number? The ones listed below are Eurofins jobs and I'll see if Eurofins can separate the level IV from the standard report.

Thank You,

URVASHI PATEL
Manager of Project Management

Test America
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Ave, Suite #100
Irvine, CA 92614
TEL 949-261-1022 | FAX 949-260-3297
DIRECT 949-260-3269
CELL 949-333-9055

www.testamericainc.com

From: Miller, Katherine [mailto:KMiller@haleyaldrich.com]
Sent: Monday, August 07, 2017 12:15 PM
To: Patel, Urvashi

Subject: Revised lab reports
Importance: High

Urvashi,

Could you revise 2 Level 2 lab reports by tomorrow EOB? The subcontract data is taking up too much space and that information is Level 4 and not Level 2. I only need the Level 2 sections for Eurofins for 81474 and 81481.

81481: remove pages 52-382
81474: remove pages 156-496

Katherine Miller
Project Manager

Haley Aldrich, Inc.
600 South Meyer Ave. | Suite 100
Tucson, AZ 85701

T: (520) 289.8606
C: (520) 904.6944

www.haleyaldrich.com

Patel, Urvashi

From: Patel, Urvashi
Sent: Tuesday, August 08, 2017 10:17 AM
To: 'Miller, Katherine'
Subject: RE: TestAmerica report files from 440-181474-1 Quarterly ArroyoSimi-Frontier Park

Hi
Weck report starts on page 14. I'll remove Weck Level IV per your request and re-issue the report.

Thank You,

URVASHI PATEL
Manager of Project Management

Test America
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17461 Derian Ave, Suite #100
Irvine, CA 92614
TEL 949-261-1022 | FAX 949-260-3297
DIRECT 949-260-3269
CELL 949-333-9055

www.testamericainc.com

From: Miller, Katherine [mailto:KMiller@haleyaldrich.com]
Sent: Tuesday, August 08, 2017 8:40 AM
To: Patel, Urvashi
Subject: RE: TestAmerica report files from 440-181474-1 Quarterly ArroyoSimi-Frontier Park

---

Urvashi,

I didn't see the Weck subcontracted data in this report. Could you also remove their level IV page 19-155?

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi [mailto:urvashi.patel@testamericainc.com]
Sent: Monday, August 07, 2017 9:41 PM
To: Kim Schultz <kim.schultz@mecx.net>; Miller, Katherine <KMiller@haleyaldrich.com>
Subject: TestAmerica report files from 440-181474-1 Quarterly ArroyoSimi-Frontier Park

Hello,

Attached please find the report files for job 440-181474-1; Quarterly ArroyoSimi-Frontier Park- Revised to remove level IV from level 2 report per client request.

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

URVASHI PATEL
Project Manager

TestAmerica Irvine
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 949.261,1022

Reference: [392829]
Attachments: 1

CHAIN OF CUSTODY FORM

Client Name/Address:
Haley & Aldrich
9040 Friars Road Suite 220
San Diego, CA 92108-5860

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Dan Smith
Terry Mucrer

Project:
Boeing-SSFL NPDES
Permit 2015
Quarterly Arroyo Simi-Frontier Park
Dry Weather

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
818.350.7312, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Hardness as CaCO3, Recoverable (SM2340B)	Chlorpyrifos, Diazinon (E525.2)	Pesticides: Chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, Dieldrin, Toxaphene + PCBs only (E608)	Comments
Arroyo Simi	Arroyo_Simi_20170406_Grab	4/6/2017/0900	WS	250 mL Poly	3	HNO_3	100	Yes	X			
			WS	1L Glass Amber	6	HCl	275	Yes		X		Extract within 24-Hours of sampling.
			WS	1L Glass Amber	6	None	285	Yes			X	
	Arroyo_Simi_20170406_Grab_Extra	4/6/2017/0900	WS	1L Glass Amber	2	HCl	275	No		H		Hold
			WS	1L Glass Amber	2	None	285	No			H	Hold

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 0955

pH 7.11 pH unit
Temp 15.7 °C/°F

Field readings QC
Checked by: MD
Date/Time: 4-6-17/0905

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	4/6/17	SMA 1100		4-6-17 1100
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	4-6-17	1300		4/6/17 13:00
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

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

Sample Integrity: (Check)
Intact: ____ On Ice: ____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: ____ All Level IV: X

440-181474 Chain of Custody

0.3/0.6
1-3/1.6
1-5/1.8

WK-SCL

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-109419.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-181474-1
Address: 4955 Yarrow Street,	Due Date Requested: 4/18/2017	**Analysis Requested**		**Preservation Codes:**
City: Arvada	TAT Requested (days):			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
State, Zip: CO, 80002				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)
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	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/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	HARD/ (MOD) Local Method	200.7/200.7_P_TR (MOD) B,Ca,Mg	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Arroyo_Simi_20170406_Grab (440-181474-1)	4/6/17	09:00 Pacific		Water			X	X	1	Boeing GW samples- Customized RLs
Arroyo_Simi_20170406_Grab (440-181474-1MS)	4/6/17	09:00 Pacific	MS	Water			X	X	1	Boeing GW samples- Customized RLs
Arroyo_Simi_20170406_Grab (440-181474-1MSD)	4/6/17	09:00 Pacific	MSD	Water			X	X	1	Boeing GW samples- Customized RLs

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification Unconfirmed		*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: [signature]	Date/Time: 4/7/17 12:00 Company: TAI	Received by: [signature]	Date/Time: 4-8-17 0845 Company: TAD
Relinquished by:	Date/Time: Company:	Received by:	Date/Time: Company:
Relinquished by:	Date/Time: Company:	Received by:	Date/Time: Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.1, 2.5 IR7 CF0.0 transferred SPLJ 4-8-17	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-181474-1

Login Number: 181474
List Number: 1
Creator: Avila, Stephanie 1

List Source: TestAmerica 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.	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.	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: 440-181474-1

Login Number: 181474
List Number: 2
Creator: Parrott, Gregg S

List Source: TestAmerica Denver
List Creation: 04/08/17 04:22 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.	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?	N/A	
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").	N/A	
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: 440-181481-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

June 2, 2017

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-181481-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Arroyo_Simi-Sed_20170406	440-181481-1	N/A	Water	4/6/2017 9:20:00 AM	EPA 600/R-95/136, EPA 600/R-94/025, SM4500-NH3 D, SW8081A, SW9060

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chains-of-custody (COCs) provided by the laboratory for sample delivery group (SDG) 440-181481-1:

- The laboratories received the sample in this sample delivery group (SDG) on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The laboratories received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COCs.
- Custody seals were present and intact on the coolers upon receipt at TA-Irvine and Eurofins-Lancaster. Information regarding custody seals was not provided by Weck or Aquatic Bioassay Consulting (ABC).
- Analysis of PCBs was subcontracted to Eurofins-Lancaster.
- Biological analyses, chronic toxicity, were subcontracted to ABC.

TABLE 2 - DATA QUALIFIER REFERENCE

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

TABLE 3 - REASON CODE REFERENCE

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

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

III. METHOD ANALYSES – 608 PESTICIDES AND PCBS

L. Calvin of MEC^X reviewed the SDG on June 2, 2017

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 Method 8081A and 8082*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

III.1. HOLDING TIMES

Extraction and analytical holding times were met. The sample was extracted within seven days of collection and analyzed within 40 days of extraction.

III.2. CALIBRATION

The initial calibrations had %RSDs of ≤10% or r^2 of ≥0.990 on both analytical columns. The initial calibration verification (ICV) and continuing calibration verification (CCV) %Ds were within the control limit of ≤15%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits. Chlordane and toxaphene were not spiked in the pesticide LCS.

III.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) and PCB surrogate decachlorobiphenyl (DCB) were recovered within the laboratory control limits of 10-150% and 10-148%, respectively, in the site sample.

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

Matrix spike (MS)/MS duplicate (MSD) analyses were performed on the sample of this SDG. Recoveries and RPDs were within the laboratory control limits. Chlordane and toxaphene were not spiked in the pesticide MS/MSD.

III.4. FIELD QC SAMPLES

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

III.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

III.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatograms and retention times indicated no issues with target compound identification. The laboratory analyzed for select pesticides and seven Aroclors by Methods 8081A and 8082.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

III.7. SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance.

IV. VARIOUS METHODS — GENERAL CHEMISTRY

Marcia Hilchey of MEC^X reviewed the SDG on June 5, 2017.

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 R-95/136, 600/R-95/025 and 9060A; Standard Methods for the Examination of Water and Wastewater 4500-NH3 D;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. HOLDING TIMES

Chronic Toxicity – mytilus and Chronic Toxicity – eohaustorius analyses were started 11 days after collection, exceeding the QAPP holding time requirement of 36 hours by approximately 8.5 days. Associated sample results were qualified as estimated (J). The analytical holding times as listed below were met:

- 28 days for total organic carbon (TOC)
- 28 days for ammonia

IV.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values, as appropriate, were ≥0.995 and all initial and continuing calibration recoveries were within 90-110%. Analytical balance calibration logs were provided by the laboratory. For chronic toxicity, instruments were calibrated as per the manufacturer requirements and standard reference toxicant testing was performed to verify culture health and sensitivity.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects.

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not reported for the sample in this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for TOC. Recoveries and the RPD met laboratory control limits. MS/MSD analyses for the remaining methods were not performed on the sample in this SDG.

IV.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

IV.5. FIELD QC SAMPLES

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

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4401814811

Analysis Method EPA/600/R-94/025

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Eohaustorius	N	CHRTOXEOHAUST	100			% SURV		J	H

Analysis Method EPA/600/R-95/136

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Mytilus	N	CHRTOXMYTILUS	100			% SURV		J	H

Analysis Method SM4500-NH3 D

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia (as N)	N	7664-41-7N	2.96	13.2	2.64	mg/kg	J,DX	J	DNQ

Analysis Method SW8081A

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8		30	9.1	ug/kg	U	U	
4,4'-DDE	N	72-55-9		30	9.1	ug/kg	U	U	
4,4'-DDT	N	50-29-3		30	9.1	ug/kg	U	U	
Chlordane	N	57-74-9		300	60	ug/kg	U	U	
Dieldrin	N	60-57-1		30	9.1	ug/kg	U	U	
Toxaphene	N	8001-35-2		1200	300	ug/kg	U	U	

Analysis Method SW846 6850

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016 (PCB-1016)	N	12674-11-2		4.6		ug/kg	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2		5.8		ug/kg	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5		10		ug/kg	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9		4.2		ug/kg	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6		4.2		ug/kg	U	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1	26	4.2		ug/kg			
Aroclor-1260 (PCB-1260)	N	11096-82-5		6.2		ug/kg	U	U	

Analysis Method SW9060

Sample Name Arroyo_Simi-Sed_20170406 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 4/6/2017 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-181481-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Organic Carbon (TOC)	N	TOC	14000	100	50	mg/kg			

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-181481-1
Client Project/Site: Annual Sediment Arroyo Simi-Frontier Par
Revision: 1

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

Attn: Katherine Miller

Authorized for release by:
8/7/2017 9:22:20 PM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

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.

Urvashi Patel
Manager of Project Management
8/7/2017 9:22:20 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

TestAmerica Job ID: 440-181481-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-181481-1	Arroyo_Simi-Sed_20170406	Solid	04/06/17 09:20	04/06/17 13:00

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

TestAmerica Job ID: 440-181481-1

Job ID: 440-181481-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-181481-1

Comments
Report revised to remove level IV package from level 2 report per client request. See client email.

Receipt
The samples were received on 4/6/2017 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.6º C, 1.6º C and 1.8º C.

GC Semi VOA
Method(s) 8081A: Surrogate recovery for the following samples was outside control limits: (440-181489-A-3-B). Evidence of matrix interference is present; therefore, re-extraction and re-analysis was not performed.

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

General Chemistry
Method(s) SM 2540G: The sample duplicate (DUP) precision for analytical batch 440-398852 was outside control limits. Reanalysis outside of analytical holding time was within control limits. Sample result in both analysis batches confirmed.

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
Method(s) 3546: The following sample was diluted due to the nature of the sample matrix: Arroyo_Simi-Sed_20170406 (440-181481-1). Elevated reporting limits (RLs) are provided.

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

Subcontract Work
Methods 48-hour Bivalve Embryo toxicity, Bioassay-Chronic 10day eohaustorius: These methods were subcontracted to Aquatic Bioassay - Ventura, CA. 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 Lancaster Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Particle Size: This method was subcontracted to PTS Laboratories, Inc. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample ID: Arroyo_Simi-Sed_20170406
Date Collected: 04/06/17 09:20
Date Received: 04/06/17 13:00

Lab Sample ID: 440-181481-1
Matrix: Solid
Percent Solids: 75.8

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		30	9.1	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1
4,4'-DDE	ND		30	9.1	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1
4,4'-DDT	ND		30	9.1	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1
Chlordane (technical)	ND		300	60	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1
Dieldrin	ND		30	9.1	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1
Toxaphene	ND		1200	300	ug/Kg	☼	04/07/17 05:14	04/07/17 20:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*45*		*45 - 120*	*04/07/17 05:14*	*04/07/17 20:55*	*1*
Tetrachloro-m-xylene	*80*		*35 - 115*	*04/07/17 05:14*	*04/07/17 20:55*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**14000**		100	50	mg/Kg			04/17/17 08:46	1
Ammonia (as N)	**2.96**	**J,DX**	13.2	2.64	mg/Kg	☼	04/10/17 07:00	04/10/17 09:00	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

TestAmerica Job ID: 440-181481-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
9060	Organic Carbon, Total (TOC)	SW846	TAL IRV
Moisture	Percent Moisture	EPA	TAL IRV
SM 2540G	Total, Fixed, and Volatile Solids	SM	TAL IRV
SM 4500 NH3 D	Ammonia	SM	TAL IRV
48-hour Bivalve Embryo toxicity	General Sub Contract Method	NONE	ABC
8082LL- PCB-Lancaster Labs	General Sub Contract Method	NONE	SC0103
Bioassay-Chronic 10day eohaustorius	General Sub Contract Method	NONE	ABC
Particle Size	General Sub Contract Method	NONE	PTSL

Protocol References:

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:

ABC = Aquatic Bioassay - Ventura, CA, 29 North Olive Street, Ventura, CA 93001
PTSL = PTS Laboratories, Inc, 8100 Secura Way, Santa Fe Springs, CA 90670
SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

TestAmerica Job ID: 440-181481-1

Client Sample ID: Arroyo_Simi-Sed_20170406 — **Lab Sample ID: 440-181481-1**
Date Collected: 04/06/17 09:20 — **Matrix: Solid**
Date Received: 04/06/17 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	0.0051 g	0.0051 g	400473	04/17/17 08:46	YZ	TAL IRV
Total/NA	Analysis	Moisture		1			398844	04/07/17 17:53	EC1	TAL IRV
Total/NA	Analysis	SM 2540G		1			398852	04/07/17 18:24	EC1	TAL IRV

Client Sample ID: Arroyo_Simi-Sed_20170406 — **Lab Sample ID: 440-181481-1**
Date Collected: 04/06/17 09:20 — **Matrix: Solid**
Date Received: 04/06/17 13:00 — **Percent Solids: 75.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			3.27 g	2 mL	398580	04/07/17 05:14	SMF	TAL IRV
Total/NA	Analysis	8081A		1			398741	04/07/17 20:55	KS	TAL IRV
Total/NA	Prep	SM 4500 NH3 B			2.5016 g	50 mL	399117	04/10/17 07:00	YZ	TAL IRV
Total/NA	Analysis	SM 4500 NH3 D		1			399134	04/10/17 09:00	YZ	TAL IRV

Laboratory References:

ABC = Aquatic Bioassay - Ventura, CA, 29 North Olive Street, Ventura, CA 93001

PTSL = PTS Laboratories, Inc, 8100 Secura Way, Santa Fe Springs, CA 90670

SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-398580/1-A
Matrix: Solid
Analysis Batch: 398741

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398580

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		4.9	1.5	ug/Kg		04/06/17 16:04	04/07/17 19:26	1
4,4'-DDE	ND		4.9	1.5	ug/Kg		04/06/17 16:04	04/07/17 19:26	1
4,4'-DDT	ND		4.9	1.5	ug/Kg		04/06/17 16:04	04/07/17 19:26	1
Chlordane (technical)	ND		49	9.9	ug/Kg		04/06/17 16:04	04/07/17 19:26	1
Dieldrin	ND		4.9	1.5	ug/Kg		04/06/17 16:04	04/07/17 19:26	1
Toxaphene	ND		200	49	ug/Kg		04/06/17 16:04	04/07/17 19:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*66*		*45 - 120*	*04/06/17 16:04*	*04/07/17 19:26*	*1*
Tetrachloro-m-xylene	*68*		*35 - 115*	*04/06/17 16:04*	*04/07/17 19:26*	*1*

Lab Sample ID: LCS 440-398580/2-A
Matrix: Solid
Analysis Batch: 398741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398580

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	13.2	9.76		ug/Kg		74	59 - 118
4,4'-DDE	13.2	9.40		ug/Kg		71	55 - 115
4,4'-DDT	13.2	10.1		ug/Kg		77	51 - 131
alpha-Chlordane	13.2	9.62		ug/Kg		73	56 - 115
gamma-Chlordane	13.2	10.0		ug/Kg		76	32 - 143
Dieldrin	13.2	9.72		ug/Kg		74	57 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*67*		*45 - 120*
Tetrachloro-m-xylene	*67*		*35 - 115*

Lab Sample ID: 440-181489-A-3-C MS
Matrix: Solid
Analysis Batch: 398741

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 398580

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		26.6	15.7		ug/Kg		59	40 - 130
4,4'-DDE	ND		26.6	15.5		ug/Kg		58	35 - 130
4,4'-DDT	ND		26.6	16.3		ug/Kg		61	35 - 130
alpha-Chlordane	ND		26.6	15.5		ug/Kg		58	50 - 115
gamma-Chlordane	ND		26.6	16.2		ug/Kg		61	50 - 115
Dieldrin	ND		26.6	15.7		ug/Kg		59	40 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*54*		*45 - 120*
Tetrachloro-m-xylene	*55*		*35 - 115*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 440-181489-A-3-D MSD
Matrix: Solid
Analysis Batch: 398741

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 398580

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		26.4	15.3		ug/Kg		58	40 - 130	3	30
4,4'-DDE	ND		26.4	15.5		ug/Kg		59	35 - 130	4	30
4,4'-DDT	ND		26.4	15.7		ug/Kg		60	35 - 130	4	30
alpha-Chlordane	ND		26.4	15.2		ug/Kg		57	50 - 115	3	30
gamma-Chlordane	ND		26.4	15.7		ug/Kg		60	50 - 115	3	30
Dieldrin	ND		26.4	15.3		ug/Kg		58	40 - 125	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*53*		*45 - 120*
Tetrachloro-m-xylene	*53*		*35 - 115*

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-400473/6
Matrix: Solid
Analysis Batch: 400473

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		100	50	mg/Kg			04/17/17 08:20	1

Lab Sample ID: LCS 440-400473/5
Matrix: Solid
Analysis Batch: 400473

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	250	256		mg/Kg		102	90 - 110

Lab Sample ID: 440-181481-1 MS
Matrix: Solid
Analysis Batch: 400473

Client Sample ID: Arroyo_Simi-Sed_20170406
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	14000		10000	25100		mg/Kg		109	70 - 130

Lab Sample ID: 440-181481-1 MSD
Matrix: Solid
Analysis Batch: 400473

Client Sample ID: Arroyo_Simi-Sed_20170406
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	14000		10400	25500		mg/Kg		109	70 - 130	2	30

Method: SM 4500 NH3 D - Ammonia

Lab Sample ID: MB 440-399117/2-A
Matrix: Solid
Analysis Batch: 399134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399117

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		10.0	2.00	mg/Kg		04/10/17 07:00	04/10/17 09:00	1

Lab Sample ID: LCS 440-399117/1-A
Matrix: Solid
Analysis Batch: 399134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399117

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	50.0	48.72		mg/Kg		97	85 - 115

Lab Sample ID: 440-181112-A-1-L MS
Matrix: Solid
Analysis Batch: 399134

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 399117

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	2.60	J,DX	50.0	48.71		mg/Kg		92	75 - 125

Lab Sample ID: 440-181112-A-1-M MSD
Matrix: Solid
Analysis Batch: 399134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 399117

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	2.60	J,DX	50.0	46.98		mg/Kg		89	75 - 125	4	15

GC Semi VOA

Prep Batch: 398580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	3546	
MB 440-398580/1-A	Method Blank	Total/NA	Solid	3546	
LCS 440-398580/2-A	Lab Control Sample	Total/NA	Solid	3546	
440-181489-A-3-C MS	Matrix Spike	Total/NA	Solid	3546	
440-181489-A-3-D MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	

Analysis Batch: 398741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	8081A	398580
MB 440-398580/1-A	Method Blank	Total/NA	Solid	8081A	398580
LCS 440-398580/2-A	Lab Control Sample	Total/NA	Solid	8081A	398580
440-181489-A-3-C MS	Matrix Spike	Total/NA	Solid	8081A	398580
440-181489-A-3-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	398580

General Chemistry

Analysis Batch: 398844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	Moisture	
440-181481-1 DU	Arroyo_Simi-Sed_20170406	Total/NA	Solid	Moisture	

Analysis Batch: 398852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	SM 2540G	
MB 440-398852/1	Method Blank	Total/NA	Solid	SM 2540G	
440-181481-1 DU	Arroyo_Simi-Sed_20170406	Total/NA	Solid	SM 2540G	

Prep Batch: 399117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	SM 4500 NH3 B	
MB 440-399117/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 B	
LCS 440-399117/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 B	
440-181112-A-1-L MS	Matrix Spike	Total/NA	Solid	SM 4500 NH3 B	
440-181112-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	SM 4500 NH3 B	

Analysis Batch: 399134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	SM 4500 NH3 D	399117
MB 440-399117/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 D	399117
LCS 440-399117/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 D	399117
440-181112-A-1-L MS	Matrix Spike	Total/NA	Solid	SM 4500 NH3 D	399117
440-181112-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	SM 4500 NH3 D	399117

Analysis Batch: 400473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-181481-1	Arroyo_Simi-Sed_20170406	Total/NA	Solid	9060	
MB 440-400473/6	Method Blank	Total/NA	Solid	9060	
LCS 440-400473/5	Lab Control Sample	Total/NA	Solid	9060	
440-181481-1 MS	Arroyo_Simi-Sed_20170406	Total/NA	Solid	9060	
440-181481-1 MSD	Arroyo_Simi-Sed_20170406	Total/NA	Solid	9060	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

TestAmerica Job ID: 440-181481-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc. TestAmerica Job ID: 440-181481-1
Project/Site: Annual Sediment Arroyo Simi-Frontier Par

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-18 *
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 17-003R	01-23-18
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17 *
Nevada	State Program	9	CA015312017-3	07-31-18 *
New Mexico	State Program	6	N/A	01-29-18 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

INVOICE NO. TAM0517.0445

May 2, 2017

Accounts Payable
Test America Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 93614

SAMPLE I.D.:	Arroyo Simi
DATE RECEIVED:	4/7/2017
ABC LAB. NO.:	TAM0417.083

CHRONIC NPDES BIOASSAYS

Eohaustorius estuarius Survival – (1 @ 720.00)	$720.00
Mytilus edulis Development – (1 @ 800.00)	$800.00

TOTAL $1,520.00

Make checks payable to: Aquatic Bioassay & Consulting Labs., Inc.
29 N. Olive St.
Ventura, CA 93001

Terms are net 30 days.

aquatic bioassay & consulting laboratories, inc

May 2, 2017

Debby Wilson
TestAmerica Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Dear Ms. Wilson:

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:	TestAmerica
SAMPLE I.D.:	Arroyo Simi
DATE RECEIVED:	4/7/2017
ABC LAB. NO.:	TAM0417.083

CHRONIC MYTILUS SEDIMENT WATER INTERFACE BIOASSAY

NOEC = 100.00 %
TUc = 1.00

EC25 = >100.00 %
EC50 = >100.00 %
TST RESULT = PASS

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: TAM0417.083m | 00-6821-0766

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-9992-6693	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:01	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Water
Ending Date:	19 Apr-17 13:01	**Species:**	Mytilis galloprovincialis	**Brine:**	
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	06-4033-4428	**Code:**	TAM0417.083m	**Client:**	Test America Irvine
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	11d 4h	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
08-3079-1860	Combined Proportion Norma	Equal Variance t Two-Sample Test	0.9299	100% passed combined proportion normal

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	5	0.9626	0.9449	0.9802	0.9498	0.9863	0.0064	0.0142	1.48%	0.00%
100		5	0.9781	0.9604	0.9957	0.9635	0.9954	0.0064	0.0142	1.45%	-1.61%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9635	0.9498	0.9863	0.9543	0.9589
100		0.9635	0.9863	0.9954	0.9817	0.9635

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/219	208/219	216/219	209/219	210/219
100		211/219	216/219	218/219	215/219	211/219

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	08-3079-1860	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:08	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	11-9992-6693	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:01	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Water
Ending Date:	19 Apr-17 13:01	**Species:**	Mytilis galloprovincialis	**Brine:**	
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	06-4033-4428	**Code:**	TAM0417.083m	**Client:**	Test America Irvine
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	11d 4h	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	100% passed combined proportion normal	2.36%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		100	-1.637	1.86	0.057	8	CDF	0.9299	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0062511	0.0062511	1	2.679	0.1403	Non-Significant Effect
Error	0.018665	0.0023331	8			
Total	0.0249161		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	0.4516	11.26	0.5205	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.645	13.75	0.4525	Equal Variances
Variances	Variance Ratio F Test	1.514	23.15	0.6977	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.4414	3.878	0.2939	Normal Distribution
Distribution	D'Agostino Skewness Test	1.052	2.576	0.2929	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1523	0.3025	0.9111	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.8978	0.7411	0.2074	Normal Distribution

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	0.9626	0.9449	0.9802	0.9589	0.9498	0.9863	0.0064	1.48%	0.00%
100		5	0.9781	0.9604	0.9957	0.9817	0.9635	0.9954	0.0064	1.45%	-1.61%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.38	1.326	1.433	1.367	1.345	1.453	0.01927	3.12%	0.00%
100		5	1.43	1.364	1.496	1.435	1.378	1.503	0.02371	3.71%	-3.62%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9635	0.9498	0.9863	0.9543	0.9589
100		0.9635	0.9863	0.9954	0.9817	0.9635

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.378	1.345	1.453	1.355	1.367
100		1.378	1.453	1.503	1.435	1.378

Analysis ID:	08-3079-1860	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:08	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

CETIS Measurement Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: TAM0417.083m | 00-6821-0766

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-9992-6693	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:01	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Water
Ending Date:	19 Apr-17 13:01	**Species:**	Mytilis galloprovincialis	**Brine:**	
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	06-4033-4428	**Code:**	TAM0417.083m	**Client:**	Test America Irvine
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	11d 4h	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	9.5	4.418	14.58	9.1	9.9	0.4	0.5657	5.96%	0
100		2	9.55	8.915	10.19	9.5	9.6	0.04998	0.07069	0.74%	0
Overall		4	9.525	8.999	10.05	9.1	9.9	0.1652	0.3304	3.47%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.7	7.698	7.702	7.7	7.7	0	0	0.0%	0
100		2	7.75	7.115	8.385	7.7	7.8	0.05001	0.07072	0.91%	0
Overall		4	7.725	7.645	7.805	7.7	7.8	0.025	0.05	0.65%	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	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
100		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
Overall		4	14.65	14.56	14.74	14.6	14.7	0.02887	0.05773	0.39%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	N	9.1	9.9
100		9.5	9.6

pH-Units

Conc-%	Code	1	2
0	N	7.7	7.7
100		7.8	7.7

Salinity-ppt

Conc-%	Code	1	2
0	N	34	34
100		34	34

Temperature-°C

Conc-%	Code	1	2
0	N	14.7	14.6
100		14.7	14.6

aquatic bioassay & consulting laboratories, inc

May 2, 2017

Debby Wilson
TestAmerica Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Dear Ms. Wilson:

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, Method EPA/600/R-94/025.* Results were as follows:

CLIENT:	TestAmerica
SAMPLE I.D.:	Arroyo Simi
DATE RECEIVED:	4/7/2017
ABC LAB. NO.:	TAM0417.083

CHRONIC EOHAUSTORIUS SURVIVAL BIOASSAY

NOEC = 100.00 %
TUc = 1.00

EC25 = >100.00 %
EC50 = >100.00 %
TST RESULT = PASS

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: TAM0417.083 | 09-8808-5782

Eohaustorius 10-d Survival and Reburial Sediment Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	10-9212-3558	**Test Type:**	Survival-Reburial	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:15	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Apr-17 04:15	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 16h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	15-6174-0041	**Code:**	TAM0417.083	**Client:**	Test America
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	8d 3h (4 °C)	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

SIngle Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
19-4440-6611	Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	100% passed survival rate

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
19-4440-6611	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: 02 May-17 14:09 (p 1 of 2)
Test Code: TAM0417.083 | 09-8808-5782

Eohaustorius 10-d Survival and Reburial Sediment Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	19-4440-6611	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:20	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	10-9212-3558	**Test Type:**	Survival-Reburial	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:15	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Apr-17 04:15	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 16h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	15-6174-0041	**Code:**	TAM0417.083	**Client:**	Test America
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	8d 3h (4 °C)	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

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

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	1	0.9	>>	Yes	Passes Criteria

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

Analysis ID:	19-4440-6611	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:20	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

CETIS Measurement Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: TAM0417.083 | 09-8808-5782

Eohaustorius 10-d Survival and Reburial Sediment Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	10-9212-3558	**Test Type:**	Survival-Reburial	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:15	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Apr-17 04:15	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	9d 16h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	15-6174-0041	**Code:**	TAM0417.083	**Client:**	Test America
Sample Date:	06 Apr-17 09:20	**Material:**	Sample Water	**Project:**	Boeing NPDES SSFL Outfalls
Receipt Date:	07 Apr-17 10:30	**Source:**	Bioassay Report		
Sample Age:	8d 3h (4 °C)	**Station:**	Arroyo_Simi_Sed_20170406 (440-181481-		

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	10.05	9.415	10.69	10	10.1	0.05001	0.07073	0.7%	0
100		2	10.15	9.515	10.79	10.1	10.2	0.05	0.0707	0.7%	0
Overall		4	10.1	9.97	10.23	10	10.2	0.04082	0.08165	0.81%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.8	6.529	9.071	7.7	7.9	0.1	0.1414	1.81%	0
100		2	7.65	7.015	8.285	7.6	7.7	0.05	0.07071	0.92%	0
Overall		4	7.725	7.525	7.925	7.6	7.9	0.06292	0.1258	1.63%	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	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
100		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
Overall		4	14.65	14.56	14.74	14.6	14.7	0.02887	0.05773	0.39%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	N	10.1	10
100		10.2	10.1

pH-Units

Conc-%	Code	1	2
0	N	7.9	7.7
100		7.7	7.6

Salinity-ppt

Conc-%	Code	1	2
0	N	20	20
100		20	20

Temperature-°C

Conc-%	Code	1	2
0	N	14.7	14.6
100		14.7	14.6

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-109405.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Aquatic Bioassay		Accreditations Required (See note): State Program - California		Job #: 440-181481-1
Address: 29 North Olive Street,	Due Date Requested: 4/17/2017			
City: Ventura	TAT Requested (days):			
State, Zip: CA, 93001				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

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:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Bioassay-Chronic 10day eohaustorius)/ Bioassay-Chronic 10day eohaustorius	SUB (48-hour Bivalve Embryo toxicity)/ 48-hour Bivalve Embryo toxicity	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Arroyo_Simi-Sed_20170406 (440-181481-1)	4/6/17	09:20 Pacific		Solid			X	X	7	sub to Aquatic Bioassay Consultants-send 4 1 liter wide mouth plastic containers 2483

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/6/17 17:00	TAI	[signature]	4-7-17/0930	ASC LABS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

aquatic bioassay & consulting laboratories, inc

CHRONIC MYTILUS DEVELOPMENT BIOASSAY

DATE: 4/17/2017

STANDARD TOXICANT: Unionized Ammonia

NOEC = 0.02800 mg/l

EC25 = 0.05606 mg/l
EC50 = 0..07438 mg/l

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: MYT041717 | 09-5831-9942

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	07-6035-9134	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	19 Apr-17 13:00	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	20-4176-9786	**Code:**	MYT041717	**Client:**	Internal Lab
Sample Date:	17 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	13h	**Station:**	REF TOX		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
11-1408-2217	Combined Proportion Norma	Dunnett Multiple Comparison Test	0.028	0.051	0.03779		3.91%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	mg/L	95% LCL	95% UCL	TU ✓
07-6939-4415	Combined Proportion Norma	Linear Interpolation (ICPIN)	EC5	0.03391	0.03078	0.03612	
			EC10	0.04043	0.0369	0.04458	
			EC15	0.04696	0.04203	0.05341	
			EC20	0.0524	0.04764	0.05549	
			EC25	0.05606	0.05241	0.05896	
			EC40	0.06705	0.06432	0.06958	
			EC50	0.07438	0.07083	0.0779	

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
11-1408-2217	Combined Proportion Norma	PMSD	0.03914	<<	0.25	No	Passes Criteria

Combined Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	5	0.9689	0.9504	0.9875	0.9498	0.9863	0.0067	0.0149	1.54%	0.00%
0.028		5	0.9644	0.9383	0.9905	0.9452	1.0000	0.0094	0.0210	2.18%	0.47%
0.051		5	0.7936	0.7387	0.8485	0.7534	0.8584	0.0198	0.0442	5.57%	18.10%
0.076		5	0.4630	0.4110	0.5151	0.4018	0.5068	0.0188	0.0419	9.05%	52.21%
0.097		5	0.1973	0.1055	0.2890	0.1187	0.3014	0.0330	0.0739	37.45%	79.64%
0.12		5	0.0311	0.0181	0.0440	0.0137	0.0411	0.0047	0.0104	33.53%	96.80%

Combined Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9635	0.9498	0.9863	0.9817	0.9635
0.028		0.9589	1.0000	0.9635	0.9452	0.9543
0.051		0.8584	0.8174	0.7580	0.7808	0.7534
0.076		0.4703	0.4932	0.4018	0.4429	0.5068
0.097		0.3014	0.1187	0.1416	0.2374	0.1872
0.12		0.0137	0.0365	0.0320	0.0411	0.0320

Combined Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/219	208/219	216/219	215/219	211/219
0.028		210/219	219/219	211/219	207/219	209/219
0.051		188/219	179/219	166/219	171/219	165/219
0.076		103/219	108/219	88/219	97/219	111/219
0.097		66/219	26/219	31/219	52/219	41/219
0.12		3/219	8/219	7/219	9/219	7/219

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	11-1408-2217	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	07-6035-9134	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	19 Apr-17 13:00	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	20-4176-9786	**Code:**	MYT041717	**Client:**	Internal Lab
Sample Date:	17 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	13h	**Station:**	REF TOX		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	0.028	0.051	0.03779		3.91%

Dunnett Multiple Comparison Test

Control	vs	Conc-mg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		0.028	0.09306	2.362	0.093	8	CDF	0.8044	Non-Significant Effect
		0.051*	7.539	2.362	0.093	8	CDF	9.8E-07	Significant Effect
		0.076*	16.49	2.362	0.093	8	CDF	7.6E-07	Significant Effect
		0.097*	23.94	2.362	0.093	8	CDF	7.6E-07	Significant Effect
		0.12*	31.05	2.362	0.093	8	CDF	7.6E-07	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
PMSD	0.03914	<<	0.25	No	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	6.38704	1.27741	5	329.2	<1.0E-37	Significant Effect
Error	0.093125	0.0038802	24			
Total	6.48017		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	5.64	15.09	0.3429	Equal Variances
Variances	Levene Equality of Variance Test	1.452	3.895	0.2423	Equal Variances
Variances	Mod Levene Equality of Variance Test	1.072	4.248	0.4083	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.4349	3.878	0.3044	Normal Distribution
Distribution	D'Agostino Kurtosis Test	0.8253	2.576	0.4092	Normal Distribution
Distribution	D'Agostino Skewness Test	1.67	2.576	0.0948	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus Test	3.471	9.21	0.1763	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1107	0.1853	0.4458	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9592	0.9031	0.2949	Normal Distribution

Combined Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	0.9689	0.9504	0.9875	0.9635	0.9498	0.9863	0.0067	1.54%	0.00%
0.028		5	0.9644	0.9383	0.9905	0.9589	0.9452	1.0000	0.0094	2.18%	0.47%
0.051		5	0.7936	0.7387	0.8485	0.7808	0.7534	0.8584	0.0198	5.57%	18.10%
0.076		5	0.4630	0.4110	0.5151	0.4703	0.4018	0.5068	0.0188	9.05%	52.21%
0.097		5	0.1973	0.1055	0.2890	0.1872	0.1187	0.3014	0.0330	37.45%	79.64%
0.12		5	0.0311	0.0181	0.0440	0.0320	0.0137	0.0411	0.0047	33.53%	96.80%

Mussel Shell Development Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	11-1408-2217	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Angular (Corrected) Transformed Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.398	1.342	1.454	1.378	1.345	1.453	0.02008	3.21%	0.00%
0.028		5	1.394	1.293	1.495	1.367	1.335	1.537	0.03637	5.83%	0.26%
0.051		5	1.101	1.031	1.171	1.084	1.051	1.185	0.02513	5.10%	21.24%
0.076		5	0.7483	0.6959	0.8006	0.7557	0.6866	0.7922	0.01886	5.64%	46.48%
0.097		5	0.455	0.34	0.5701	0.4475	0.3518	0.5811	0.04143	20.36%	67.45%
0.12		5	0.1747	0.1329	0.2164	0.1797	0.1173	0.2041	0.01504	19.25%	87.51%

Combined Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9635	0.9498	0.9863	0.9817	0.9635
0.028		0.9589	1.0000	0.9635	0.9452	0.9543
0.051		0.8584	0.8174	0.7580	0.7808	0.7534
0.076		0.4703	0.4932	0.4018	0.4429	0.5068
0.097		0.3014	0.1187	0.1416	0.2374	0.1872
0.12		0.0137	0.0365	0.0320	0.0411	0.0320

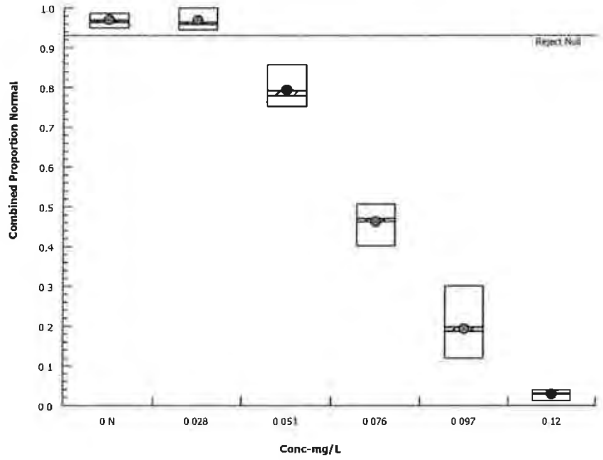
Angular (Corrected) Transformed Detail

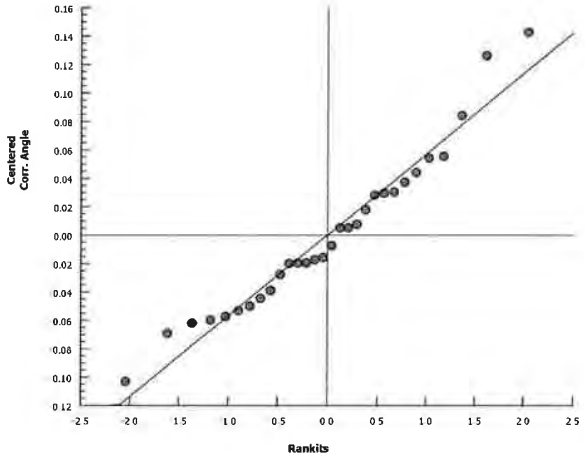
Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.378	1.345	1.453	1.435	1.378
0.028		1.367	1.537	1.378	1.335	1.355
0.051		1.185	1.129	1.056	1.084	1.051
0.076		0.7557	0.7785	0.6866	0.7282	0.7922
0.097		0.5811	0.3518	0.3857	0.509	0.4475
0.12		0.1173	0.1923	0.1797	0.2041	0.1797

Combined Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/219	208/219	216/219	215/219	211/219
0.028		210/219	219/219	211/219	207/219	209/219
0.051		188/219	179/219	166/219	171/219	165/219
0.076		103/219	108/219	88/219	97/219	111/219
0.097		66/219	26/219	31/219	52/219	41/219
0.12		3/219	8/219	7/219	9/219	7/219

Graphics





CETIS Analytical Report

Report Date: 02 May-17 14:08 (p 1 of 2)
Test Code: MYT041717 | 09-5831-9942

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	07-6939-4415	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:03	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	07-6035-9134	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	19 Apr-17 13:00	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	20-4176-9786	**Code:**	MYT041717	**Client:**	Internal Lab
Sample Date:	17 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	13h	**Station:**	REF TOX		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Point Estimates

Level	mg/L	95% LCL	95% UCL
EC5	0.03391	0.03078	0.03612
EC10	0.04043	0.0369	0.04458
EC15	0.04696	0.04203	0.05341
EC20	0.0524	0.04764	0.05549
EC25	0.05606	0.05241	0.05896
EC40	0.06705	0.06432	0.06958
EC50	0.07438	0.07083	0.0779

Combined Proportion Normal Summary — **Calculated Variate(A/B)**

Conc-mg/L	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	N	5	0.9689	0.9498	0.9863	0.0067	0.0149	1.54%	0.0%	1061	1095
0.028		5	0.9644	0.9452	1.0000	0.0094	0.0210	2.18%	0.47%	1056	1095
0.051		5	0.7936	0.7534	0.8584	0.0198	0.0442	5.57%	18.1%	869	1095
0.076		5	0.4630	0.4018	0.5068	0.0188	0.0419	9.06%	52.21%	507	1095
0.097		5	0.1973	0.1187	0.3014	0.0330	0.0739	37.45%	79.64%	216	1095
0.12		5	0.0311	0.0137	0.0411	0.0047	0.0104	33.53%	96.8%	34	1095

Combined Proportion Normal Detail

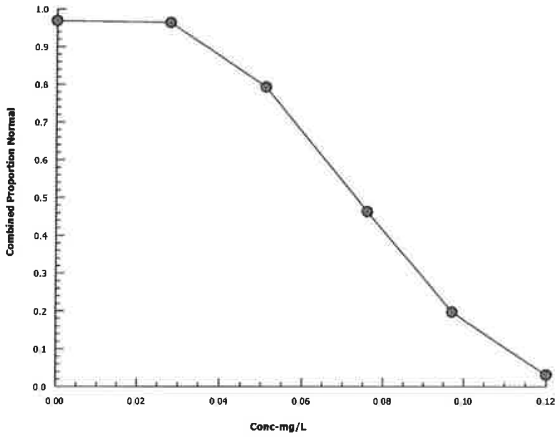
Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.9635	0.9498	0.9863	0.9817	0.9635
0.028		0.9589	1.0000	0.9635	0.9452	0.9543
0.051		0.8584	0.8174	0.7580	0.7808	0.7534
0.076		0.4703	0.4932	0.4018	0.4429	0.5068
0.097		0.3014	0.1187	0.1416	0.2374	0.1872
0.12		0.0137	0.0365	0.0320	0.0411	0.0320

Combined Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	211/219	208/219	216/219	215/219	211/219
0.028		210/219	219/219	211/219	207/219	209/219
0.051		188/219	179/219	166/219	171/219	165/219
0.076		103/219	108/219	88/219	97/219	111/219
0.097		66/219	26/219	31/219	52/219	41/219
0.12		3/219	8/219	7/219	9/219	7/219

Analysis ID:	07-6939-4415	**Endpoint:**	Combined Proportion Normal	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 14:03	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	07-6035-9134	**Test Type:**	Development-Survival	**Analyst:**	Joe Freas
Start Date:	17 Apr-17 13:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	19 Apr-17 13:00	**Species:**	Mytilis galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Carlsbad Aquafarms CA	**Age:**	
Sample ID:	20-4176-9786	**Code:**	MYT041717	**Client:**	Internal Lab
Sample Date:	17 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	13h	**Station:**	REF TOX		

Dissolved Oxygen-mg/L

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	6.75	6.115	7.385	6.7	6.8	0.04999	0.07069	1.05%	0
0.028		2	6.8	2.988	10.61	6.5	7.1	0.3	0.4243	6.24%	0
0.051		2	6.8	0.4469	13.15	6.3	7.3	0.5	0.7071	10.4%	0
0.076		2	6.95	-0.03842	13.94	6.4	7.5	0.55	0.7778	11.19%	0
0.097		2	6.9	3.088	10.71	6.6	7.2	0.3	0.4243	6.15%	0
0.12		2	6.8	0.4469	13.15	6.3	7.3	0.5	0.7071	10.4%	0
Overall		12	6.833	6.561	7.106	6.3	7.5	0.1239	0.4292	6.28%	0 (0%)

pH-Units

Conc-mg/L	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
0.028		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.051		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.076		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.097		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.12		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
Overall		12	7.9	7.9	7.9	7.9	7.9	0	0	0.00%	0 (0%)

Salinity-ppt

Conc-mg/L	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
0.028		2	34	34	34	34	34	0	0	0.0%	0
0.051		2	34	34	34	34	34	0	0	0.0%	0
0.076		2	34	34	34	34	34	0	0	0.0%	0
0.097		2	34	34	34	34	34	0	0	0.0%	0
0.12		2	34	34	34	34	34	0	0	0.0%	0
Overall		12	34	34	34	34	34	0	0	0.00%	0 (0%)

Temperature-°C

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
0.028		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
0.051		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
0.076		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
0.097		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
0.12		2	14.65	14.02	15.28	14.6	14.7	0.04997	0.07067	0.48%	0
Overall		12	14.65	14.62	14.68	14.6	14.7	0.01508	0.05222	0.36%	0 (0%)

Mussel Shell Development Test — Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

Conc-mg/L	Code	1	2
0	N	6.8	6.7
0.028		7.1	6.5
0.051		7.3	6.3
0.076		7.5	6.4
0.097		7.2	6.6
0.12		7.3	6.3

pH-Units

Conc-mg/L	Code	1	2
0	N	7.9	7.9
0.028		7.9	7.9
0.051		7.9	7.9
0.076		7.9	7.9
0.097		7.9	7.9
0.12		7.9	7.9

Salinity-ppt

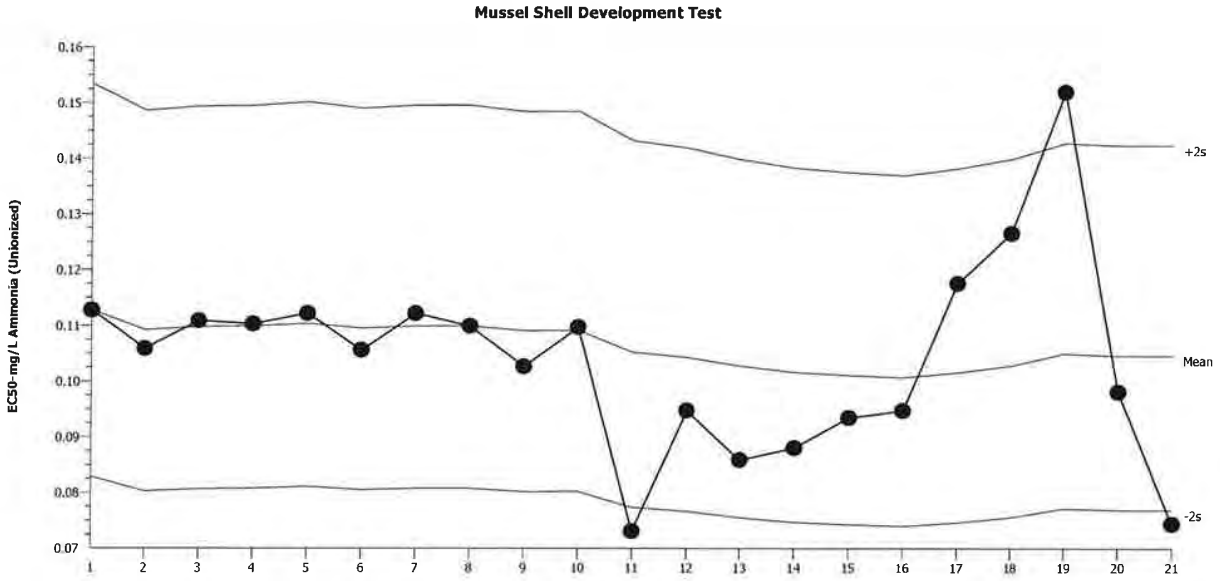
Conc-mg/L	Code	1	2
0	N	34	34
0.028		34	34
0.051		34	34
0.076		34	34
0.097		34	34
0.12		34	34

Temperature-°C

Conc-mg/L	Code	1	2
0	N	14.7	14.6
0.028		14.7	14.6
0.051		14.7	14.6
0.076		14.7	14.6
0.097		14.7	14.6
0.12		14.7	14.6

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Test Type:	Development-Survival	**Organism:**	Mytilis galloprovincialis (Bay Mussel)	**Material:**	Ammonia (Unionized)
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Combined Proportion Normal	**Source:**	Reference Toxicant-REF



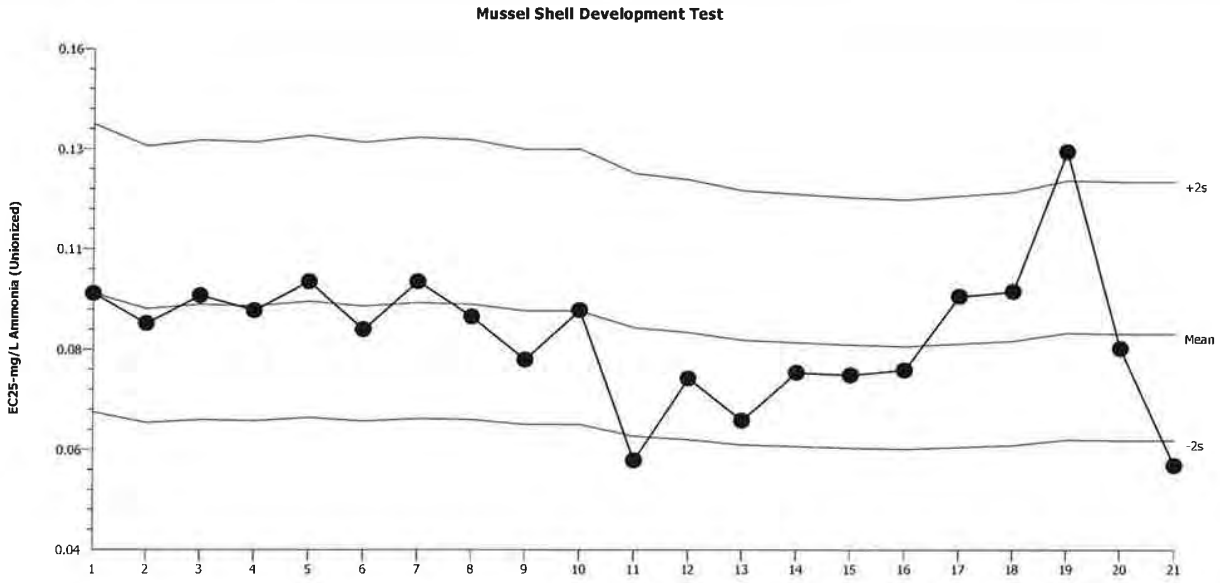
Mean:	0.1047	**Count:**	20	**-2s Action Limit:**	0.0769
Sigma:	n/a	**CV:**	16.60%	**+2s Action Limit:**	0.1423

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2015	Feb	3	11:01	0.1127	0.008077	0.483			02-3264-0254	04-2015-0412
2			4	13:00	0.1059	0.001202	0.07422			16-7070-4383	01-6920-6839
3			6	18:00	0.1109	0.006186	0.3731			12-0226-5766	20-4063-5760
4			7	15:00	0.1103	0.005658	0.3421			05-8900-5334	01-0312-4066
5		Mar	2	12:00	0.1122	0.007518	0.4507			13-3957-4687	06-7935-4536
6			13	13:11	0.1056	0.0009235	0.05708			10-1325-2256	11-2995-0388
7			25	12:07	0.1122	0.007518	0.4507			07-2930-8292	02-2197-8026
8			27	13:00	0.1099	0.00524	0.3174			11-3853-2256	13-5054-4782
9		Apr	7	11:45	0.1026	-0.002017	-0.1264			12-2502-7105	10-2162-0221
10			8	11:09	0.1097	0.005028	0.3049			00-3845-6517	14-9860-8731
11		May	5	15:50	0.07308	-0.03159	-2.334		(-)	06-5240-5858	05-1777-9314
12	2016	Jun	20	0:03	0.09473	-0.009929	-0.6476			09-1849-9021	02-0742-5358
13		Aug	29	13:15	0.08589	-0.01877	-1.284			16-9120-9803	14-7955-7716
14			30	13:31	0.08804	-0.01662	-1.124			02-4232-7593	19-6882-0866
15			31	12:01	0.09348	-0.01119	-0.7345			02-8216-1505	04-6017-0013
16		Sep	1	13:52	0.09473	-0.009938	-0.6483			18-3025-2961	13-8859-5437
17	2017	Feb	2	14:30	0.1176	0.01289	0.7544			01-6286-1304	11-0921-4960
18			3	15:00	0.1266	0.02191	1.235			17-1265-1098	11-2623-5578
19			28	15:00	0.152	0.0473	2.423		(+)	13-0755-9035	10-0162-3171
20		Apr	3	11:00	0.09808	-0.006581	-0.422			10-9925-1083	01-6782-6637
21			17	13:00	0.07438	-0.03029	-2.22		(-)	09-5831-9942	07-6939-4415

Mussel Shell Development Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Test Type:	Development-Survival	**Organism:**	Mytilis galloprovincialis (Bay Mussel)	**Material:**	Ammonia (Unionized)
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Combined Proportion Normal	**Source:**	Reference Toxicant-REF



Mean:	0.08892	**Count:**	20	**-2s Action Limit:**	0.06232
Sigma:	n/a	**CV:**	19.40%	**+2s Action Limit:**	0.1268

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2015	Feb	3	11:01	0.09897	0.01004	0.6026			02-3264-0254	04-2015-0412
2			4	13:00	0.09144	0.002515	0.157			16-7070-4383	01-6920-6839
3			6	18:00	0.09839	0.009468	0.5697			12-0226-5766	20-4063-5760
4			7	15:00	0.09471	0.00579	0.3552			05-8900-5334	01-0312-4066
5		Mar	2	12:00	0.1019	0.013	0.7681			13-3957-4687	06-7935-4536
6			13	13:11	0.08994	0.001019	0.06418			10-1325-2256	11-2995-0388
7			25	12:07	0.1019	0.013	0.7681			07-2930-8292	02-2197-8026
8			27	13:00	0.09312	0.004194	0.2595			11-3853-2256	13-5054-4782
9		Apr	7	11:45	0.08241	-0.006507	-0.4279			12-2502-7105	10-2162-0221
10			8	11:09	0.09475	0.005829	0.3575			00-3845-6517	14-9860-8731
11		May	5	15:50	0.05732	-0.03161	-2.473		(-)	06-5240-5858	05-1777-9314
12	2016	Jun	20	0:03	0.07776	-0.01116	-0.7553			09-1849-9021	02-0742-5358
13		Aug	29	13:15	0.06724	-0.02168	-1.574			16-9120-9803	14-7955-7716
14			30	13:31	0.07917	-0.00975	-0.6539			02-4232-7593	19-6882-0866
15			31	12:01	0.07858	-0.01034	-0.696			02-8216-1505	04-6017-0013
16		Sep	1	13:52	0.07979	-0.009127	-0.6098			18-3025-2961	13-8859-5437
17	2017	Feb	2	14:30	0.09816	0.009234	0.5563			01-6286-1304	11-0921-4960
18			3	15:00	0.09941	0.01049	0.6281			17-1265-1098	11-2623-5578
19			28	15:00	0.1343	0.04533	2.32		(+)	13-0755-9035	10-0162-3171
20		Apr	3	11:00	0.0852	-0.003721	-0.2407			10-9925-1083	01-6782-6637
21			17	13:00	0.05606	-0.03286	-2.598		(-)	09-5831-9942	07-6939-4415

aquatic bioassay & consulting laboratories, inc

96 Hour *Eohaustorius estuarius* Survival Bioassay - Standard Toxicant

DATE: 4/14/2017

STANDARD TOXICANT: Ammonium Chloride

ENDPOINT: SURVIVAL

UNIONIZED AMMONIA

NOEC = 0.4330mg/L

EC25 = 0.6887mg/L
EC50 = 1.0480mg/L

Yours very truly,

Scott Johnson
Laboratory Director

29 north olive st. ventura, ca 93001 (805) 643 5621 www.aquabio.org

CETIS Summary Report

Report Date: 02 May-17 14:09 (p 1 of 1)
Test Code: EOH041417 | 14-7376-2339

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	01-6280-0140	**Test Type:**	Survival	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:16	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	18 Apr-17 13:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	4d 1h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	00-2999-6979	**Code:**	EOH041417	**Client:**	Internal Lab
Sample Date:	14 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	12h	**Station:**	REF TOX		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
05-6933-5163	Survival Rate	Steel Many-One Rank Sum Test	0.433	0.791	0.5852		10.1%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	mg/L	95% LCL	95% UCL	TU ✓
20-3852-9867	Survival Rate	Linear Interpolation (ICPIN)	EC5	0.4841	0.4626	0.5169	
			EC10	0.5353	0.4922	0.6007	
			EC15	0.5864	0.5218	0.6846	
			EC20	0.6376	0.5514	0.7685	
			EC25	0.6887	0.581	0.8524	
			EC40	0.8766	0.6492	1.099	
			EC50	1.048	0.7739	1.294	

Survival Rate Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.215		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.433		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.791		4	0.6500	0.4446	0.8554	0.5000	0.8000	0.0646	0.1291	19.86%	35.00%
1.561		4	0.2000	0.0000	0.4250	0.1000	0.4000	0.0707	0.1414	70.71%	80.00%
4.131		4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Survival Rate Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
0.215		1.0000	1.0000	1.0000	1.0000
0.433		1.0000	1.0000	1.0000	1.0000
0.791		0.8000	0.6000	0.7000	0.5000
1.561		0.4000	0.1000	0.2000	0.1000
4.131		0.0000	0.0000	0.0000	0.0000

Survival Rate Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	10/10	10/10	10/10	10/10
0.215		10/10	10/10	10/10	10/10
0.433		10/10	10/10	10/10	10/10
0.791		8/10	6/10	7/10	5/10
1.561		4/10	1/10	2/10	1/10
4.131		0/10	0/10	0/10	0/10

CETIS Analytical Report

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	05-6933-5163	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:31	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	01-6280-0140	**Test Type:**	Survival	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:16	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	18 Apr-17 13:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	4d 1h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	00-2999-6979	**Code:**	EOH041417	**Client:**	Internal Lab
Sample Date:	14 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	12h	**Station:**	REF TOX		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	0.433	0.791	0.5852		10.07%

Steel Many-One Rank Sum Test

Control	vs	Conc-mg/L	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		0.215	18	10	1	6	Asymp	0.8000	Non-Significant Effect
		0.433	18	10	1	6	Asymp	0.8000	Non-Significant Effect
		0.791*	10	10	0	6	Asymp	0.0350	Significant Effect
		1.561*	10	10	0	6	Asymp	0.0350	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.95534	0.738834	4	76.17	<1.0E-37	Significant Effect
Error	0.1455	0.0097	15			
Total	3.10084		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	6.817	4.893	0.0025	Unequal Variances
Variances	Mod Levene Equality of Variance Test	5.092	4.893	0.0086	Unequal Variances
Distribution	Anderson-Darling A2 Normality Test	2.457	3.878	<1.0E-37	Non-Normal Distribution
Distribution	D'Agostino Kurtosis Test	2.025	2.576	0.0429	Normal Distribution
Distribution	D'Agostino Skewness Test	1.677	2.576	0.0936	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus Test	6.911	9.21	0.0316	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.3	0.2235	5.0E-05	Non-Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.7933	0.866	6.9E-04	Non-Normal Distribution

Survival Rate Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
0.215		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
0.433		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
0.791		4	0.6500	0.4446	0.8554	0.6500	0.5000	0.8000	0.0646	19.86%	35.00%
1.561		4	0.2000	0.0000	0.4250	0.1500	0.1000	0.4000	0.0707	70.71%	80.00%
4.131		4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Angular (Corrected) Transformed Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
0.215		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
0.433		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
0.791		4	0.9424	0.7225	1.162	0.9386	0.7854	1.107	0.06913	14.67%	33.26%
1.561		4	0.448	0.1752	0.7207	0.3927	0.3218	0.6847	0.08571	38.27%	68.27%
4.131		4	0.1588	0.1588	0.1588	0.1588	0.1588	0.1588	0	0.00%	88.76%

Reference Toxicant 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	05-6933-5163	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:31	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
0.215		1.0000	1.0000	1.0000	1.0000
0.433		1.0000	1.0000	1.0000	1.0000
0.791		0.8000	0.6000	0.7000	0.5000
1.561		0.4000	0.1000	0.2000	0.1000
4.131		0.0000	0.0000	0.0000	0.0000

Angular (Corrected) Transformed Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.412	1.412	1.412	1.412
0.215		1.412	1.412	1.412	1.412
0.433		1.412	1.412	1.412	1.412
0.791		1.107	0.8861	0.9912	0.7854
1.561		0.6847	0.3218	0.4636	0.3218
4.131		0.1588	0.1588	0.1588	0.1588

CETIS Analytical Report

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	20-3852-9867	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:31	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	01-6280-0140	**Test Type:**	Survival	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:16	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	18 Apr-17 13:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	4d 1h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	00-2999-6979	**Code:**	EOH041417	**Client:**	Internal Lab
Sample Date:	14 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	12h	**Station:**	REF TOX		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Point Estimates

Level	mg/L	95% LCL	95% UCL
EC5	0.4841	0.4626	0.5169
EC10	0.5353	0.4922	0.6007
EC15	0.5864	0.5218	0.6846
EC20	0.6376	0.5514	0.7685
EC25	0.6887	0.581	0.8524
EC40	0.8766	0.6492	1.099
EC50	1.048	0.7739	1.294

Survival Rate Summary — Calculated Variate(A/B)

Conc-mg/L	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	N	4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
0.215		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
0.433		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
0.791		4	0.6500	0.5000	0.8000	0.0646	0.1291	19.86%	35.0%	26	40
1.561		4	0.2000	0.1000	0.4000	0.0707	0.1414	70.71%	80.0%	8	40
4.131		4	0.0000	0.0000	0.0000	0.0000	0.0000		100.0%	0	40

Survival Rate Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
0.215		1.0000	1.0000	1.0000	1.0000
0.433		1.0000	1.0000	1.0000	1.0000
0.791		0.8000	0.6000	0.7000	0.5000
1.561		0.4000	0.1000	0.2000	0.1000
4.131		0.0000	0.0000	0.0000	0.0000

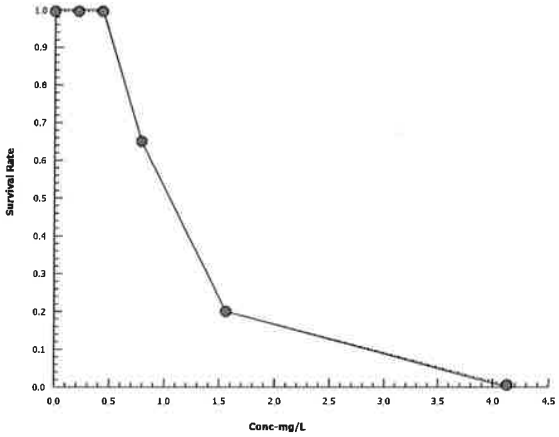
Survival Rate Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	10/10	10/10	10/10	10/10
0.215		10/10	10/10	10/10	10/10
0.433		10/10	10/10	10/10	10/10
0.791		8/10	6/10	7/10	5/10
1.561		4/10	1/10	2/10	1/10
4.131		0/10	0/10	0/10	0/10

Reference Toxicant 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	20-3852-9867	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	02 May-17 11:31	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	01-6280-0140	**Test Type:**	Survival	**Analyst:**	Joe Freas
Start Date:	14 Apr-17 12:16	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	18 Apr-17 13:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	4d 1h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	
Sample ID:	00-2999-6979	**Code:**	EOH041417	**Client:**	Internal Lab
Sample Date:	14 Apr-17	**Material:**	Ammonia (Unionized)	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	12h	**Station:**	REF TOX		

Dissolved Oxygen-mg/L

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	5.95	-4.85	16.75	5.1	6.8	0.85	1.202	20.2%	0
0.215		2	6.1	-4.065	16.26	5.3	6.9	0.8	1.131	18.55%	0
0.433		2	6.15	-5.921	18.22	5.2	7.1	0.95	1.344	21.85%	0
0.791		2	5.95	-4.85	16.75	5.1	6.8	0.85	1.202	20.2%	0
1.561		2	5.6	-2.024	13.22	5	6.2	0.6	0.8485	15.15%	0
4.131		2	5.75	-5.05	16.55	4.9	6.6	0.85	1.202	20.91%	0
Overall		12	5.917	5.356	6.478	4.9	7.1	0.2549	0.883	14.92%	0 (0%)

pH-Units

Conc-mg/L	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
0.215		2	7.85	7.215	8.485	7.8	7.9	0.05	0.07071	0.9%	0
0.433		2	7.8	6.529	9.071	7.7	7.9	0.1	0.1414	1.81%	0
0.791		2	7.75	5.844	9.656	7.6	7.9	0.15	0.2121	2.74%	0
1.561		2	7.75	5.844	9.656	7.6	7.9	0.15	0.2121	2.74%	0
4.131		2	7.7	5.159	10.24	7.5	7.9	0.2	0.2828	3.67%	0
Overall		12	7.792	7.696	7.887	7.5	7.9	0.04345	0.1505	1.93%	0 (0%)

Salinity-ppt

Conc-mg/L	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
0.215		2	20	20	20	20	20	0	0	0.0%	0
0.433		2	20	20	20	20	20	0	0	0.0%	0
0.791		2	20	20	20	20	20	0	0	0.0%	0
1.561		2	20	20	20	20	20	0	0	0.0%	0
4.131		2	20	20	20	20	20	0	0	0.0%	0
Overall		12	20	20	20	20	20	0	0	0.00%	0 (0%)

Temperature-°C

Conc-mg/L	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
0.215		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.433		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.791		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
1.561		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
4.131		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
Overall		12	14.85	14.82	14.88	14.8	14.9	0.01508	0.05222	0.35%	0 (0%)

Reference Toxicant 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

Conc-mg/L	Code	1	2
0	N	6.8	5.1
0.215		6.9	5.3
0.433		7.1	5.2
0.791		6.8	5.1
1.561		6.2	5
4.131		6.6	4.9

pH-Units

Conc-mg/L	Code	1	2
0	N	7.9	7.9
0.215		7.9	7.8
0.433		7.9	7.7
0.791		7.9	7.6
1.561		7.9	7.6
4.131		7.9	7.5

Salinity-ppt

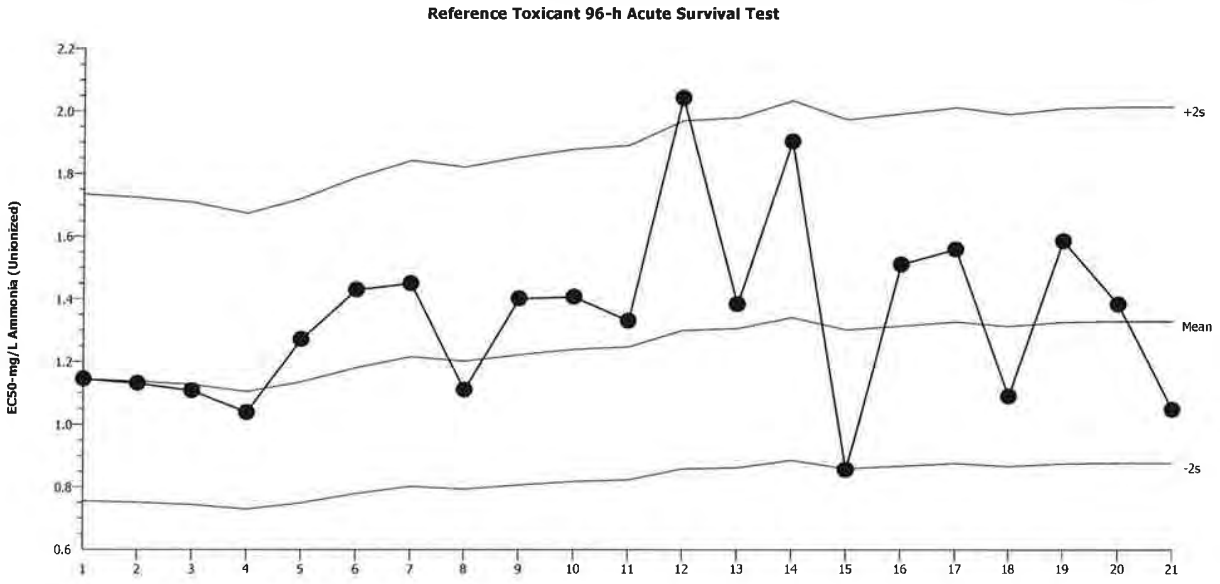
Conc-mg/L	Code	1	2
0	N	20	20
0.215		20	20
0.433		20	20
0.791		20	20
1.561		20	20
4.131		20	20

Temperature-°C

Conc-mg/L	Code	1	2
0	N	14.9	14.8
0.215		14.9	14.8
0.433		14.9	14.8
0.791		14.9	14.8
1.561		14.9	14.8
4.131		14.9	14.8

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Test Type:	Survival	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Ammonia (Unionized)
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	Survival Rate	**Source:**	Reference Toxicant-REF



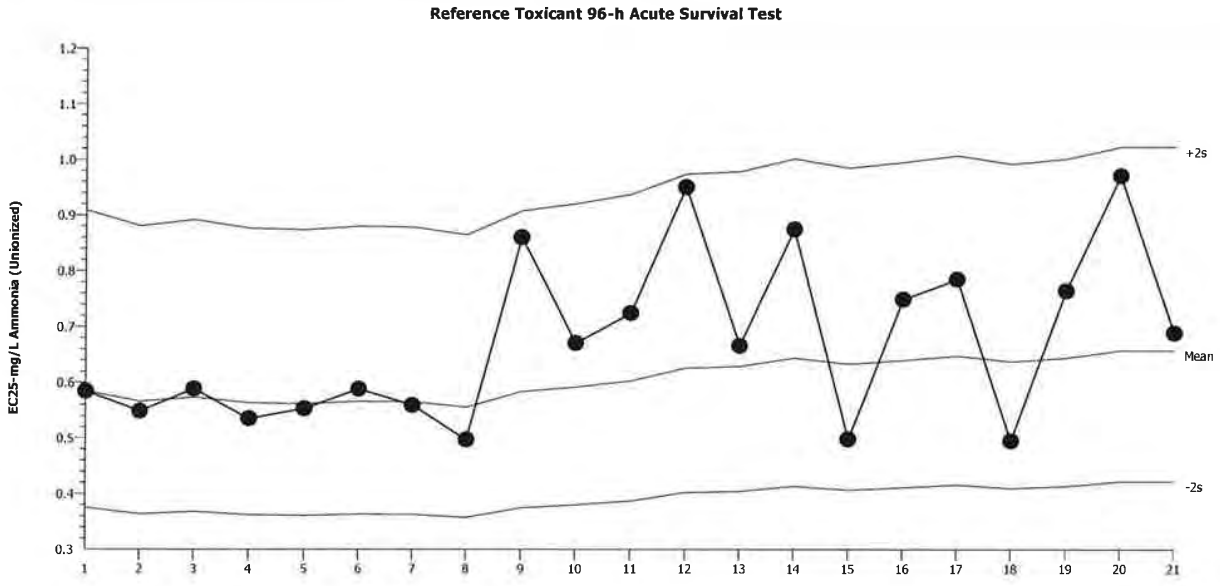
Mean:	1.329	**Count:**	20	**-2s Action Limit:**	0.8771
Sigma:	n/a	**CV:**	23.10%	**+2s Action Limit:**	2.014

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2013	Dec	2	12:05	1.145	-0.184	-0.7174			20-0403-8831	16-1241-2320
2	2014	Mar	3	15:00	1.131	-0.1981	-0.7767			09-4566-0644	02-5347-5723
3			29	12:05	1.107	-0.2219	-0.879			12-6769-6316	19-3437-9784
4		May	26	12:00	1.038	-0.2909	-1.189			18-3389-0225	21-0956-2019
5		Jun	27	15:10	1.272	-0.05742	-0.2126			14-4723-2072	13-8013-1186
6		Aug	4	14:30	1.429	0.1005	0.3509			05-5751-2262	04-4319-1587
7		Dec	19	14:20	1.45	0.1208	0.4186			15-5240-9390	02-6462-0171
8	2015	Jan	23	13:15	1.11	-0.2191	-0.8672			08-5097-8055	21-3310-7104
9		Mar	2	12:00	1.401	0.07241	0.2553			15-0539-9864	01-6817-9780
10		Apr	3	13:00	1.407	0.0779	0.2741			08-1167-0633	12-3933-9277
11		Jul	3	9:59	1.33	0.001203	0.004352			11-3802-2759	04-6629-3041
12		Aug	4	12:01	2.042	0.7134	2.068		(+)	00-8259-5742	03-1846-1391
13		Sep	18	0:00	1.384	0.05482	0.1945			09-1456-1591	15-5936-2326
14	2016	Apr	8	8:20	1.903	0.5745	1.729			19-5616-1906	00-4116-5566
15		Jun	17	0:00	0.855	-0.474	-2.122		(-)	06-7252-3890	10-1091-7700
16		Aug	16	17:06	1.511	0.182	0.6178			12-7085-3464	08-3302-7432
17			19	14:40	1.559	0.23	0.7683			10-2042-5258	19-8914-6087
18			26	15:01	1.09	-0.2393	-0.9556			12-0805-1911	03-7828-2656
19		Nov	21	12:00	1.585	0.2564	0.8491			12-2687-2350	04-0042-5960
20	2017	Apr	4	0:00	1.383	0.05437	0.193			12-3817-1970	03-8517-0024
21			14	12:16	1.048	-0.2813	-1.145			14-7376-2339	20-3852-9867

Reference Toxicant 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Test Type:	Survival	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Ammonia (Unionized)
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	0.6572	**Count:**	20	**-2s Action Limit:**	0.4224
Sigma:	n/a	**CV:**	24.70%	**+2s Action Limit:**	1.023

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2013	Dec	2	12:05	0.584	-0.07319	-0.534			20-0403-8831	16-1241-2320
2	2014	Mar	3	15:00	0.5483	-0.1089	-0.8196			09-4566-0644	02-5347-5723
3			29	12:05	0.5885	-0.06874	-0.4997			12-6769-6316	19-3437-9784
4		May	26	12:00	0.5349	-0.1224	-0.9318			18-3389-0225	21-0956-2019
5		Jun	27	15:10	0.553	-0.1043	-0.7814			14-4723-2072	13-8013-1186
6		Aug	4	14:30	0.5881	-0.06914	-0.5028			05-5751-2262	04-4319-1587
7		Dec	19	14:20	0.5588	-0.09844	-0.7339			15-5240-9390	02-6462-0171
8	2015	Jan	23	13:15	0.4969	-0.1603	-1.265			08-5097-8055	21-3310-7104
9		Mar	2	12:00	0.8601	0.2029	1.217			15-0539-9864	01-6817-9780
10		Apr	3	13:00	0.6702	0.01297	0.08842			08-1167-0633	12-3933-9277
11		Jul	3	9:59	0.7242	0.06693	0.4386			11-3802-2759	04-6629-3041
12		Aug	4	12:01	0.9503	0.2931	1.668			00-8259-5742	03-1846-1391
13		Sep	18	0:00	0.6657	0.008438	0.0577			09-1456-1591	15-5936-2326
14	2016	Apr	8	8:20	0.8749	0.2176	1.294			19-5616-1906	00-4116-5566
15		Jun	17	0:00	0.4981	-0.1592	-1.254			06-7252-3890	10-1091-7700
16		Aug	16	17:06	0.7489	0.09164	0.5904			12-7085-3464	08-3302-7432
17			19	14:40	0.785	0.1278	0.8034			10-2042-5258	19-8914-6087
18			26	15:01	0.495	-0.1622	-1.282			12-0805-1911	03-7828-2656
19		Nov	21	12:00	0.7644	0.1071	0.6828			12-2687-2350	04-0042-5960
20	2017	Apr	4	0:00	0.971	0.3137	1.765			12-3817-1970	03-8517-0024
21			14	12:16	0.6887	0.03147	0.2115			14-7376-2339	20-3852-9867

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

April 25, 2017

Ms. Urvashi Patel
TestAmerica Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Re: PTS File No: 47200
Physical Properties Data
Boeing NPDES SSFL outfalls; 44009879
TestAmerica Job#: 440-181481-1

Dear Ms. Patel:

Please find enclosed report for Physical Properties analyses conducted upon sample received from your Boeing NPDES SSFL outfalls; 44009879 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The sample is currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the sample will be disposed of at that time. You may contact me regarding storage, disposal, or return of the sample.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name: Boeing NPDES SSFL outfalls
Project Number: 44009879; TA Job#: 440-181481-1

PTS File No: 47200
Client: TestAmerica Irvine

TEST PROGRAM - 20170410

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis					Comments
		Plugs:	Grab					
Date Received: 20170407								
Arroyo_Simi-Sed_20170406 (440-181481-1)	**N/A**	**N/A**	**X**					
TOTALS:		**1 Jar**	**1**					

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing NPDES SSFL outfalls
PROJECT NO: 44009879; TA Job#: 440-181481-1

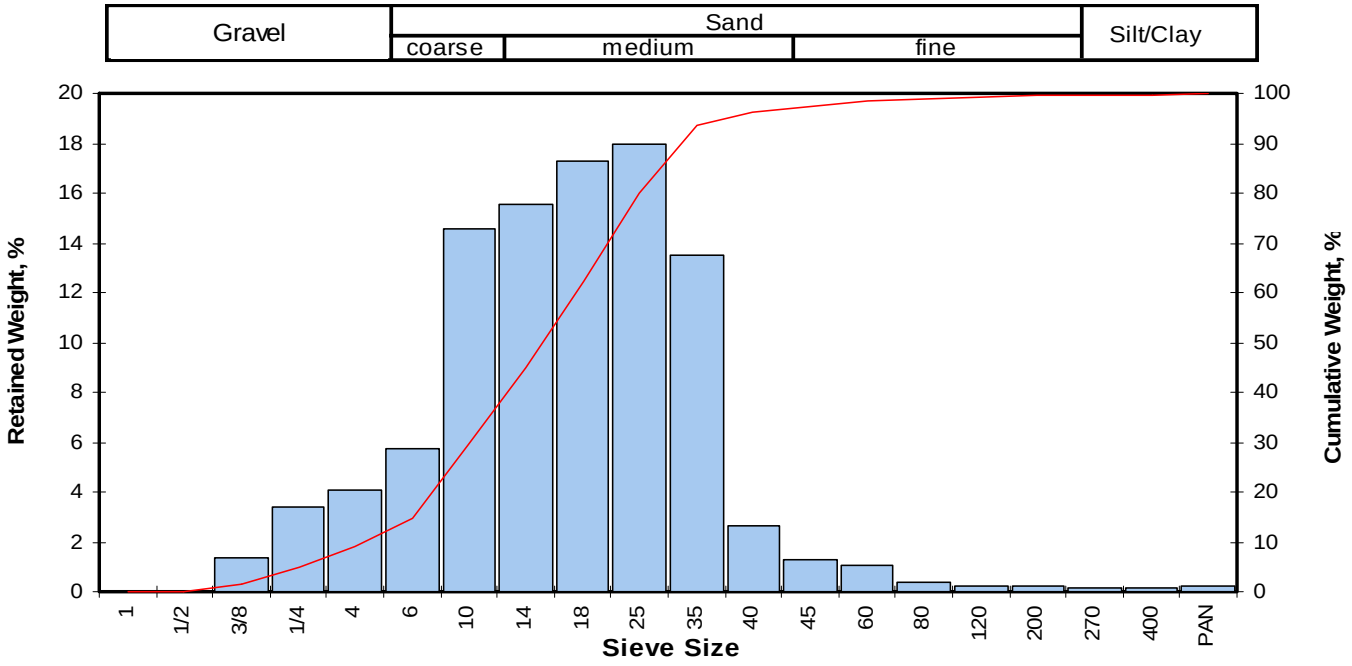
Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
Arroyo_Simi-Sed_20170406 (440-181481-1)	N/A	Medium sand	1.275	8.91	20.36	66.98	3.19	0.56

(1) Based on Mean fromTrask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	TestAmerica Irvine	**PTS File No:**	47200
Project:	Boeing NPDES SSFL outfalls	**Sample ID:**	Arroyo_Simi-Sed_20170406 (440-181481-1)
Project No:	44009879; TA Job#: 440-181481-1	**Depth, ft:**	N/A



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	2.69	1.40	1.40
0.2500	6.351	-2.67	1/4	6.61	3.43	4.83
0.1873	4.757	-2.25	4	7.86	4.08	8.91
0.1324	3.364	-1.75	6	11.12	5.77	14.68
0.0787	2.000	-1.00	10	28.11	14.59	29.27
0.0557	1.414	-0.50	14	30.00	15.57	44.84
0.0394	1.000	0.00	18	33.35	17.31	62.15
0.0278	0.707	0.50	25	34.66	17.99	80.14
0.0197	0.500	1.00	35	26.00	13.49	93.63
0.0166	0.420	1.25	40	5.04	2.62	96.25
0.0139	0.354	1.50	45	2.47	1.28	97.53
0.0098	0.250	2.00	60	2.04	1.06	98.59
0.0070	0.177	2.50	80	0.76	0.39	98.98
0.0049	0.125	3.00	120	0.43	0.22	99.21
0.0029	0.074	3.75	200	0.45	0.23	99.44
0.0021	0.053	4.25	270	0.30	0.16	99.60
0.0015	0.037	4.75	400	0.31	0.16	99.76
			PAN	0.47	0.24	100.00
TOTALS				192.67	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-2.65	0.2470	6.274
10	-2.16	0.1754	4.454
16	-1.68	0.1263	3.209
25	-1.22	0.0917	2.328
40	-0.66	0.0620	1.575
50	-0.35	0.0502	1.275
60	-0.06	0.0411	1.044
75	0.36	0.0307	0.781
84	0.64	0.0252	0.640
90	0.87	0.0216	0.549
95	1.13	0.0180	0.457

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.35	-0.35	-0.35
Median, in.	0.0502	0.0502	0.0502
Median, mm	1.275	1.275	1.275
Mean, phi	-0.64	-0.52	-0.46
Mean, in.	0.0612	0.0564	0.0543
Mean, mm	1.555	1.433	1.379
Sorting	1.727	1.163	1.154
Skewness	1.057	-0.145	-0.181
Kurtosis	0.198	0.626	0.983

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	8.91
Coarse Sand	10	20.36
Medium Sand	40	66.98
Fine Sand	200	3.19
Silt/Clay	<200	0.56
	Total	100

Phone: (562) 907-3607
Fax: (562) 907-3610

47200

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-109414.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: PTS laboratories, Inc		Accreditations Required (See note): State Program - California		Job #: 440-181481-1
Address: 8100 Secura Way, ,	Due Date Requested: 4/17/2017			
City: Santa Fe Springs	TAT Requested (days):			
State, Zip: CA, 90670				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Particle Size)/ Particle Size	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyo_Simi-Sed_20170406 (440-181481-1)	4/6/17	09:20 Pacific		Solid			X	1	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: [signature]	Date/Time: 4/6/17 17:00	Company TAI	Received by: [signature]	Date/Time: 4/7/17 11:25	Company PTS Labs Inc
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

Report Date: April 13, 2017

Project: Boeing NPDES SSFL Outfalls

Submittal Date: 04/07/2017
Group Number: 1786729
SDG: SSF04
PO Number: 440-109410.1
State of Sample Origin: CA

Client Sample Description	Lancaster Labs (LL) #
Arroyo_Simi-Sed_20170406(440-181481-1) Soil	8927971

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Test America Attn: Urvashi Patel

Respectfully Submitted,

Kay Hower

(717) 556-7364

Sample Description: Arroyo_Simi-Sed_20170406(440-181481-1) Soil
Boeing NPDES SSFL Outfalls

LL Sample # SW 8927971
LL Group # 1786729
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 04/06/2017 09:20

Submitted: 04/07/2017 09:40
Reported: 04/13/2017 10:55

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

SSF04 SDG#: SSF04-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		ug/kg	ug/kg	ug/kg	
10736	PCB-1016	12674-11-2	N.D.	4.6	22	1
10736	PCB-1221	11104-28-2	N.D.	5.8	22	1
10736	PCB-1232	11141-16-5	N.D.	10	22	1
10736	PCB-1242	53469-21-9	N.D.	4.2	22	1
10736	PCB-1248	12672-29-6	N.D.	4.2	22	1
10736	PCB-1254	11097-69-1	26	4.2	22	1
10736	PCB-1260	11096-82-5	N.D.	6.2	22	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	22.6	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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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	170970045A	04/11/2017 00:51	Kirby B Turner	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	170970045A	04/10/2017 08:00	Joshua Ruth	1
00111	Moisture	SM 2540 G-1997	1	17101820008B	04/12/2017 01:08	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Test America
Reported: 04/13/2017 10:55

Group Number: 1786729

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
Batch number: 170970045A	Sample number(s): 8927971		
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: 170970045A	Sample number(s): 8927971								
PCB-1016	168	159.92			95		76-121		
PCB-1260	167	180.35			108		79-130		
	%	%	%	%					
Batch number: 17101820008B	Sample number(s): 8927971								
Moisture	89.5	89.4			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: 170970045A	Sample number(s): 8927971 UNSPK: P927541									
PCB-1016	N.D.	166	135.64	165	123.17	82	75*	76-121	10	50
PCB-1260	N.D.	166	144.98	165	117.71	87	71*	79-130	21	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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Test America
Reported: 04/13/2017 10:55

Group Number: 1786729

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Batch number: 17101820008B	Sample number(s): 8927971 BKG: P927190			
Moisture	2.62	2.54	3	5

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: 170970045A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8927971	112	101
Blank	117	110
LCS	113	104
MS	100	87
MSD	94	80
Limits:	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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

41440 | 1786729 | 8927971

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-109410.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@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 #: 440-181481-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 4/19/2017			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (8082LL- PCB- Lancaster Labs)/ 8082LL- PCB- Lancaster Labs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyo_Simi-Sed_20170406 (440-181481-1)	4/6/17	09:20 Pacific		Solid			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/6/17 17:00	TAT			
				4/7/17 9:40	ECL

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 180259

Group Number(s): 1786729

Client: TEST AMERICA

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/07/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 13:26 on 04/07/2017

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	DT121	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< 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.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
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.

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.

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.

Patel, Urvashi

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, August 07, 2017 12:41 PM
To: Patel, Urvashi
Subject: RE: Revised lab reports

Eurofins did separate into a Level 2 and Level 4 reports, you just included both the in the Level 2. The page numbers to delete are the Level 4 as listed below.

440-181481: remove pages 52-382
440-181474: remove pages 156-496

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi [mailto:Urvashi.Patel@testamericainc.com]
Sent: Monday, August 07, 2017 12:35 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>
Subject: RE: Revised lab reports

Hi Katherine
You need TA level 2 reports revised, correct? Would you happen to have the TA job number? The ones listed below are Eurofins jobs and I'll see if Eurofins can separate the level IV from the standard report.

Thank You,

URVASHI PATEL
Manager of Project Management

Test America
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Ave, Suite #100
Irvine, CA 92614
TEL 949-261-1022 | FAX 949-260-3297
DIRECT 949-260-3269
CELL 949-333-9055

www.testamericainc.com

From: Miller, Katherine [mailto:KMiller@haleyaldrich.com]
Sent: Monday, August 07, 2017 12:15 PM
To: Patel, Urvashi

Subject: Revised lab reports
Importance: High

Urvashi,

Could you revise 2 Level 2 lab reports by tomorrow EOB? The subcontract data is taking up too much space and that information is Level 4 and not Level 2. I only need the Level 2 sections for Eurofins for 81474 and 81481.

81481: remove pages 52-382
81474: remove pages 156-496

Katherine Miller
Project Manager

Haley Aldrich, Inc.
600 South Meyer Ave. | Suite 100
Tucson, AZ 85701

T: (520) 289.8606
C: (520) 904.6944

www.haleyaldrich.com

CHAIN OF CUSTODY FORM

Client Name/Address:	Project:	Project Manager:	Field Manager:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2015 Annual Sediment Arroyo Simi-Frontier Park	Katherine Miller 520.289.8606, 520.904.6944 (cell)	Mark Dominick 818.350.7312, 818.599.0702 (cell)
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055			
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.			
Sampler: Dan Smith Terry Maurer			

Sample Description	Sample I.D.	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)	Chronic 10-day eohaustorius estuarius Toxicity (EPA/600/R-94/025)	% Moisture (2540G)	Particle Size Distribution (D422M)	Comments
Arroyo Simi	Arroyo_Simi-Sed_20170406	4/6/2017 0920	SE	9 oz Jar	1	None	165	No	X								
			SE	9 oz Jar	1	None	246	No		X							
			SE	9 oz Jar	1	None	260	No			X						PCBs to Eurofins
			SE	9 oz Jar	1	None	290	No				X					
			SE	1L wide mouth Plastic	3	None	295	No					X				
			SE	1L wide mouth Plastic	4	4C in the Dark	300	No						X			Keep sample in cooler in the dark until delivered to ABC Labs
			SE	9 oz Jar	1	None	305	No							X		
			SE	9 oz Jar	1	None	310	No								X	

ANALYSIS REQUIRED

Field Readings | **Meter serial #**

Field readings: (Include units)

Time of readings 0915

pH 7.09 6.96 pH unit

Temp 15.75 °C/°F

DO = 4.46 mg/L

Conductivity = 2.16 mS µmhos/cm

Velocity 0.0 ft/sec

Field readings QC

Checked by: MD

Date/Time: 0925

Relinquished By	Date/Time	Company	Received By	Date/Time
	4/6/17	JMA 1100		4-6-17 1100
	4-6-17	1300 IA		4/6/17 1300

Turn-around time: (Check)

24 Hour: ___ 72 Hour: ___ 10 Day: _X_

48 Hour: ___ 5 Day: ___ Normal: ___

Sample Integrity: (Check)

Intact: ___ On Ice: ___

Store samples for 6 months.

Data Requirements: (Check)

No Level IV: __ All Level IV: _X_

440-181481 Chain of Custody

0.3/0.6

1.3/1.6 IA 5C6

1.5/1.8

BM

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-181481-1

Login Number: 181481
List Number: 1
Creator: Garcia, Veronica G

List Source: TestAmerica 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.	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.	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	

APPENDIX E

Second Quarter 2017 Storm Water Pollution Prevention Plan
Annual Evaluation Report

APPENDIX E

STORM WATER POLLUTION PREVENTION PLAN ANNUAL EVALUATION REPORT REPORTING YEAR JULY 1, 2016 – JUNE 30, 2017

This Storm Water Pollution Prevention Plan (SWPPP) Annual 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, 2016 – June 30, 2017. The Annual Comprehensive Site Compliance Evaluation (Annual Evaluation) was conducted by Haley & Aldrich Qualified SWPPP Practitioner (QSP) (Dwayne Baluran) between May 16 and 18, 2017.

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.

Review of Visual Observations Records and Sampling and Analysis Results

The QSP reviewed all inspection forms that documented inspections/visual observations for reporting year July 1, 2016 – June 30, 2017; each inspection form was complete. A process exists for non-compliance items to be properly evaluated and adjusted to correct these items.

Sampling and analysis results are evaluated in each quarterly discharge monitoring report.

Potential Pollutant Source Visual Inspection

Visual inspections at the Site were conducted during reporting year July 1, 2016 – June 30, 2017 at buildings, equipment, and surrounding areas to evaluate if any pollutant sources exist. Areas where known potential pollutants exist have Best Management Practices (BMPs) implemented to minimize and/or eliminate the potential for pollutant releases. No other areas were observed to require additional BMPs.

Best Management Practice Review

As noted above, the Site was inspected throughout reporting year July 1, 2016 – June 30, 2017. As a result, BMPs were reviewed and evaluated to see if they were adequate, properly implemented and maintained, or whether additional BMPs were required. Items that required repair, upgrades, and/or maintenance were identified on the inspection forms. Subsequent inspections noted the date corrective actions were completed.

Boeing also completed SWPPP reviews, updates, and inspections in accordance with Site and project-specific SWPPPs and BMP Plans. These documents, which are maintained per regulatory requirements, will be updated in August 2017 to document Boeing's proactive efforts to mitigate and minimize the potential for sediments, constituents, or on-Site activities to impact surface water. Boeing's continued effort to improve and upgrade BMPs at the Site demonstrates their commitment to address previous exceedances and improve surface water discharge quality as indicated in the quarterly discharge monitoring reports.

SWPPP Revisions and Schedule

As noted above, the 2015 Permit was adopted on February 12, 2015, and became effective on April 1, 2015. The Site-Wide SWPPP was updated in accordance with the terms of the 2015 Permit and submitted to the Regional Board on June 30, 2016. Version 3 of the SWPPP will be completed in August 2017 based on observations made during the Annual Evaluation. Revisions include:

- Updated signatory for the certification statement;
- Updated Pollution Prevention Team (section 1.4);
- Updated surface water drainage text for Bell Creek Drainage (section 2.4.1);

- Updated surface water pond text for R-2 Pond (section 2.4.2);
- Updated surface water monitoring location text (section 2.4.3);
- Updated groundwater treatment text for Outfall 019 (section 2.5.2);
- Updated Area I text for the Hazardous Waste Storage Yard Building 1407 and Building 1449 – Groundwater Extraction and Treatment System (section 2.9.1)
- Updated and clarified the authorized non-stormwater discharges (sections 2.12 and 3.1.3);
- Added text for the inactive sewage treatment plant (section 3.1.4);
- Updated good housekeeping and preventive maintenance text (section 4.2.1.);
- Updated employee training text (section 4.2.4);
- Updated waste handling / waste recycling text (section 4.2.5);
- Updated figures;
- Updated BMP Plan (Appendix B);
- Updated Significant Materials Inventory (Appendix C);
- Updated California Stormwater Handbook BMP Fact sheets (Appendix D);
- Updated Amendment to the SPRP (Appendix E); and
- Updated inspection form (Appendix F).

Non-Compliance Incidents and Corrective Actions Taken

Non-compliance issues and corrective actions are listed in the discharge monitoring reports. Minor recommendations including vegetation removal and reinstalling fabric on weir boards were noted as a result of the Annual Evaluation conducted in May 2017. SWPPP Training for Key Personnel was completed in November 2016.