

APPENDIX E

**First Quarter 2015 Analytical Laboratory Report,
Chain of Custody, and Validation Report**

APPENDIX E

TABLE OF CONTENTS

Section No.

- 1 Outfall 009 – January 11, 2015 - MEC^x Data Validation Report
- 2 Outfall 009 – January 11, 2015 - Test America Analytical Laboratory
- 3 Outfall 009 – March 3, 2015 - MEC^x Data Validation Report
- 4 Outfall 009 – March 3, 2015 - Test America Analytical Laboratory Report
- 5 Arroyo Simi-Frontier Park – January 11, 2015 - MEC^x Data Validation Report
- 6 Arroyo Simi-Frontier Park – January 11, 2015 - Test America Analytical Laboratory Report
- 7 Arroyo Simi-Frontier Park – January 15, 2015 - MEC^x Data Validation Report
- 8 Arroyo Simi-Frontier Park – January 15, 2015 - Test America Analytical Laboratory Report
- 9 Arroyo Simi-Frontier Park – January 19, 2015 - MEC^x Data Validation Report
- 10 Arroyo Simi-Frontier Park – January 19, 2015 - Test America Analytical Laboratory Report
- 11 Arroyo Simi-Frontier Park – January 23, 2015 - MEC^x Data Validation Report
- 12 Arroyo Simi-Frontier Park – January 23, 2015 - Test America Analytical Laboratory Report
- 13 Arroyo Simi-Frontier Park – January 27, 2015 - MEC^x Data Validation Report
- 14 Arroyo Simi-Frontier Park – January 27, 2015 - Test America Analytical Laboratory Report
- 15 Arroyo Simi-Frontier Park – March 3, 2015 - MEC^x Data Validation Report
- 16 Arroyo Simi-Frontier Park – March 3, 2015 - Test America Analytical Laboratory Report
- 17 Arroyo Simi-Frontier Park Sediment – March 24, 2015 - MEC^x Data Validation Report
- 18 Arroyo Simi-Frontier Park Sediment – March 24, 2015 - Test America Analytical Laboratory Report



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUPS: 440-103199-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
 Contract Task Order: 1272.003H.01 001
 Sample Delivery Group: 440-103199-1
 Project Manager: K. Miller
 Matrix: Water
 QC Level: IV
 No. of Samples: 1
 No. of Reanalyses/Dilutions: 0
 Laboratory: TestAmerica Irvine

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Name</i>	<i>Sample</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
Outfall009_20150303 _Comp	440-103199-2		N/A	Water	3/3/2015 2:43:00 PM	E1613B, E200.8, E900, E901.1, E903.0, E904.0, E905.0, E906.0, HASL-300 U MOD, RADUIM, SM2540D

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice and within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the sample containers were received intact and properly preserved, as applicable. The COCs were appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the sample was delivered to TestAmerica-Irvine by courier. Custody seals were present and intact upon receipt at TestAmerica-Sacramento and TA-St. Louis.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LSC/LSCD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. EPA METHOD 1613B—Dioxin/Furans

Reviewed By: L. Calvin

Date Reviewed: March 23, 2015

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

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
 - GC Column Performance: A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.
 - Mass Spectrometer Performance: The mass spectrometer performance preceding the sample analysis was acceptable with the static resolving power greater than 10,000. The case narrative noted the closing resolution check “crashed,” and was not completed. The resolution check was performed manually 17 hours from the beginning of the analytical run, with acceptable results, indicating instrument performance was not compromised and had been maintained in the interim. No qualifications were assigned.
- Calibration: Calibration criteria were met.
 - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.
 - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

- Blanks: The method blank had detects below the reporting limit for 1,2,3,4,6,7,8-HpCDD (0.00000327 µg/L), 1,2,3,4,6,7,8-HpCDF (0.00000206 µg/L) OCDD (0.0000104 µg/L), OCDF (0.00000288 µg/L, and totals HpCDD, HpCDF, and PeCDD. The result for OCDF was qualified as nondetected (U) at the level of contamination. The remaining isomer method blank concentrations were not sufficient to qualify the sample concentrations. Total PeCDD was not detected in the sample. Totals HpCDD and HpCDF were qualified as estimated (J), as only a portion of the totals was determined to be method blank contamination. The method blank had no other detects above the estimated detection limit (EDL).
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: This SDG had no identified field duplicate samples.
- Internal Standards Performance: The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. As 2,3,7,8-TCDF was not detected in the sample, confirmation analysis was not required.
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike concentrations. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." Any detects between the EDL and the reporting limit (RL) were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. The laboratory coded total HpCDD "DNQ;" however, as the result was above the reporting limit, the code was removed. Nondetects are valid to the EDL.

Isomers 1,2,3,6,7,8-HxCDD and 1,2,3,4,7,8-HxCDF were reported as EMPCs in the sample. The results were qualified as estimated nondetects (UJ) at the level of the EMPC. The peaks comprising total HxCDF were both EMPCs; therefore the result was also qualified as an estimated nondetect (UJ). The results for total HxCDD was qualified as estimated, "J."

B. EPA METHOD 200.8—Metals

Reviewed By: P. Meeks

Date Reviewed: March 20, 2015

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. 0 and DVP-21, Rev. 0)*, *EPA Method 200.8, Standard Methods for the Examination of Water and Wastewater Method (2012) 2340B*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The analytical holding time, six months, was met.
- Calibration: The initial and continuing calibration recoveries were within 90-110% and the CRI recoveries were within the control limits of 70-130%.
- Blanks: Total copper was detected in the method blank at 1.43 µg/L and total antimony was detected in a bracketing CCB at 0.505 µg/L; therefore, total copper and total antimony detected in the sample were qualified as nondetected, “U,” at the levels of contamination. Method blanks and CCBs had no other detects.
- Interference Check Samples: Recoveries were within 80-120%. There were no detects in the ICSA at concentrations above the certified trace impurity concentrations reported by the manufacturer.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the method control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on a sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG for the total analytes. The recoveries were within method control limits of 70-130% and the RPDs were within the laboratory control limit of ≤20%.
- Serial Dilution: No serial dilution analyses were performed on a sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

C. VARIOUS EPA METHODS—Radionuclides

Reviewed By: P. Meeks
Date Reviewed: April 6, 2015

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods 900.0, 901.1, 903.0, 904.0, 905.0, and 906.0, and A-01-R U*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The tritium sample was analyzed within 180 days of collection. Remaining aliquots were prepared within the five-day analytical holding time for unpreserved samples.
- Calibration: The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

The gross alpha and radium-226 detector efficiencies were less than 20%; therefore, the nondetected results for these analytes were qualified as estimated, “UJ,” in the sample. The remaining detector efficiencies were greater than 20%. Carrier/tracer recoveries were within the laboratory control limits of 40-110%. All calibration checks were acceptable.

- Blanks: There were no analytes detected in the method blanks.
- Laboratory Control Samples: The recoveries were within laboratory-established control limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on the sample in this SDG for cesium-137 and potassium-40. The relative error ratio was within the laboratory control limit of ≤ 1 .
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed for the sample in this SDG. Method accuracy was evaluated based on the LCS results.

- **Sample Result Verification:** An EPA Level IV review was performed for the sample in this data package. The sample results and MDCs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Reported nondetects are valid to the MDC.
- **Field QC Samples:** Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - **Field Blanks and Equipment Rinsates:** This SDG had no identified field blank or equipment rinsate samples.
 - **Field Duplicates:** There were no field duplicate samples identified for this SDG.

D. STANDARD METHOD 2540D—Total Suspended Solids (TSS)

Reviewed By: P. Meeks

Date Reviewed: March 20, 2015

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. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Method 2540D*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- **Holding Times:** The TSS sample was analyzed within seven days of collection.
- **Calibration:** The balance calibration check logs were acceptable for the data of analysis.
- **Blanks:** TSS was not detected in the method blank.
- **Blank Spikes and Laboratory Control Samples:** The TSS recovery was within the laboratory control limits of 85-115%.
- **Laboratory Duplicates:** No laboratory duplicate analysis was performed on the sample in this SDG.
- **Matrix Spike/Matrix Spike Duplicate:** MS/MSD samples are not applicable to this method.
- **Sample Result Verification:** Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with

“DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4401031991

Analysis Method E1613B

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000024	0.000099	0.0000010	ug/L	J,DXqMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00055	0.000099	0.0000041	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000013	0.000049	0.00000056	ug/L	J,DXMB	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000046	0.000049	0.0000026	ug/L	J,DXMB	J	DNQ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7		0.000049	0.00000093	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.0000024	0.000049	0.00000062	ug/L	J,DXq	UJ	*III
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000018	0.000049	0.00000056	ug/L	J,DX	J	DNQ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9		0.000049	0.00000052	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000016	0.000049	0.00000049	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9		0.000049	0.00000056	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000019	0.000049	0.00000045	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6		0.000049	0.00000039	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4		0.000049	0.00000061	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5		0.000049	0.00000048	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4		0.000049	0.00000047	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9		0.000099	0.00000042	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6		0.000099	0.00000018	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000032	0.000049	0.00000074	ug/L	J,DXMB	J	B, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.00011	0.000049	0.00000026	ug/L	J,DXMB	J	B

Analysis Method E1613B

Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000068	0.000049	0.00000054	ug/L	J,DXq	UJ	*III
Total Hexachlorodibenzo-p-dioxin (HxCDD)	N	34465-46-8	0.000014	0.000049	0.00000050	ug/L	J,DXq	J	DNQ, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000010	0.000049	0.00000043	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9		0.000049	0.00000061	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5		0.0000099	0.00000042	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5		0.0000099	0.00000018	ug/L	U	U	

Analysis Method E200.8

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.71	2.0	0.50	ug/L	J,DX	U	B
Antimony	D	7440-36-0	0.63	2.0	0.50	ug/L	J,DXQP	J	DNQ
Cadmium	D	7440-43-9		1.0	0.25	ug/L	UQP	U	
Cadmium	T	7440-43-9		1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	3.1	2.0	0.50	ug/L	QP		
Copper	T	7440-50-8	5.3	2.0	0.50	ug/L	MB	U	B
Lead	T	7439-92-1	5.8	1.0	0.50	ug/L			
Lead	D	7439-92-1		1.0	0.50	ug/L	UQP	U	
Thallium	D	7440-28-0		1.0	0.50	ug/L	UQP	U	
Thallium	T	7440-28-0		1.0	0.50	ug/L	U	U	

Analysis Method SM2540D

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	33	3.3	1.7	mg/L			

Validated Sample Result Forms: 4401031991

Analysis Method E900

Sample Name Outfall009_20150303_Comp Matrix Type: WM Result Type: TRG

Sample Date: 3/3/2015 2:43:00 PM Validation Level: 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	GROSSALPHA	1.29	1.34	2.15	2.15	pCi/L	U	UJ	C
Gross Beta Analytes	GROSSBETA	3.19	0.902	1.08	1.08	pCi/L			

Analysis Method E901.1

Sample Name Outfall009_20150303_Comp Matrix Type: WM Result Type: TRG

Sample Date: 3/3/2015 2:43:00 PM Validation Level: 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045-97-3	1.38	4.56	8.35	8.35	pCi/L	U	U	
Potassium-40	13966-00-2	-29.5	123	200	200	pCi/L	U	U	

Analysis Method E903.0

Sample Name Outfall009_20150303_Comp Matrix Type: WM Result Type: TRG

Sample Date: 3/3/2015 2:43:00 PM Validation Level: 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982-63-3	0.0579	0.204	0.373	0.373	pCi/L	U	UJ	C

Analysis Method E904.0

Sample Name Outfall009_20150303_Comp Matrix Type: WM Result Type: TRG

Sample Date: 3/3/2015 2:43:00 PM Validation Level: 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262-20-1	0.406	0.444	0.724	0.724	pCi/L	U	U	

Analysis Method E905.0

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098-97-2	0.0911	0.380	0.664	0.664	pCi/L	U	U	

Analysis Method E906.0

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028-17-8	74.8	189	328	328	pCi/L	U	U	

Analysis Method HASL-300 U Mod

Sample Name Outfall009_20150303_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/3/2015 2:43:00 PM **Validation Level:** 8

Lab Sample Name: 440-103199-2

Analyte	CAS No	Result Value	Total Uncert.	RL	MDC	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	URANIUM	0.324	0.437	0.562	0.562	pCi/L	U	U	

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: 440-103199-1

Client Project/Site: Boeing SSFL outfalls

For:

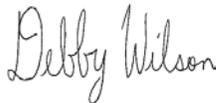
Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

3/17/2015 5:29:07 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

LINKS

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www.testamericainc.com

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

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

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

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



Debby Wilson
Manager of Project Management
3/17/2015 5:29:07 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	9
Lab Chronicle	10
QC Sample Results	11
QC Association Summary	20
Definitions/Glossary	24
Certification Summary	25
Subcontract Data	26
Chain of Custody	44
Receipt Checklists	46
Isotope Dilution Summary	48

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-103199-1	Outfall009_20150303_Grab	Water	03/03/15 07:30	03/03/15 12:16
440-103199-2	Outfall009_20150303_Comp	Water	03/03/15 02:43	03/03/15 12:16

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Job ID: 440-103199-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-103199-1

Comments

Radiological results reported under separate cover: 440-103199-2.

Receipt

The samples were received on 3/3/2015 12:16 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.8° C and 1.9° C.

HPLC/IC

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

Dioxin

Method(s) 1613B: The automatic MS resolution checks at the end of the analytical run (batch 67541) crashed while it was being acquired at 04:52 on 3/7/15, within 12 hours of the run start. Only Function 1 was acquired.

Manual MS resolution checks were performed, without changing any instrument parameters, the following morning when the problem was discovered. Function 1 through Function 5 ending resolution checks were acquired at 10:26 on 3/7/15, approximately 17 hours after the analytical run start. The resolution checks were all acceptable indicating that the instrument's static mass resolving power had maintained acceptable criteria since the analytical run start on 3/6/15 at 17:13: (LCS 320-67314/2-A), (MB 320-67314/1-A), Outfall009_20150303_Comp (440-103199-2)

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.

General Chemistry

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

Subcontract non-Sister

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

Organic Prep

Method(s) 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 242901. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

Dioxin Prep

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Client Sample ID: Outfall009_20150303_Grab

Lab Sample ID: 440-103199-1

Date Collected: 03/03/15 07:30

Matrix: Water

Date Received: 03/03/15 12:16

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.7	1.3	mg/L		03/16/15 11:15	03/16/15 14:26	1

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.0		0.50	0.25	mg/L			03/03/15 22:35	1
Sulfate	3.3		0.50	0.25	mg/L			03/03/15 22:35	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.64		0.15	0.070	mg/L			03/13/15 10:25	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000099	0.000001	ug/L		03/05/15 08:23	03/07/15 03:17	1
2,3,7,8-TCDF	ND		0.000099	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,7,8-PeCDD	ND		0.000049	0.000006	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,7,8-PeCDF	ND		0.000049	0.000003	ug/L		03/05/15 08:23	03/07/15 03:17	1
2,3,4,7,8-PeCDF	ND		0.000049	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,4,7,8-HxCDD	0.000018	J,DX	0.000049	0.000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,6,7,8-HxCDD	0.000016	J,DX q	0.000049	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,7,8,9-HxCDD	0.000019	J,DX	0.000049	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,4,7,8-HxCDF	0.000024	J,DX q	0.000049	0.000006	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,6,7,8-HxCDF	ND		0.000049	0.000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,7,8,9-HxCDF	ND		0.000049	0.000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
2,3,4,6,7,8-HxCDF	ND		0.000049	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,4,6,7,8-HpCDD	0.000046	J,DX MB	0.000049	0.000026	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,4,6,7,8-HpCDF	0.000013	J,DX MB	0.000049	0.000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
1,2,3,4,7,8,9-HpCDF	ND		0.000049	0.000009	ug/L		03/05/15 08:23	03/07/15 03:17	1
OCDD	0.00055	MB	0.000099	0.000041	ug/L		03/05/15 08:23	03/07/15 03:17	1
OCDF	0.000024	J,DX q MB	0.000099	0.000010	ug/L		03/05/15 08:23	03/07/15 03:17	1
Total TCDD	ND		0.000099	0.000001	ug/L		03/05/15 08:23	03/07/15 03:17	1
Total TCDF	ND		0.000099	0.000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
Total PeCDD	ND		0.000049	0.000006	ug/L		03/05/15 08:23	03/07/15 03:17	1

TestAmerica Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PeCDF	0.0000010	J,DX	0.000049	0.0000004	ug/L		03/05/15 08:23	03/07/15 03:17	1
				3					
Total HxCDD	0.000014	J,DX q	0.000049	0.0000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
				0					
Total HxCDF	0.0000068	J,DX q	0.000049	0.0000005	ug/L		03/05/15 08:23	03/07/15 03:17	1
				4					
Total HpCDD	0.00011	J,DX MB	0.000049	0.0000026	ug/L		03/05/15 08:23	03/07/15 03:17	1
Total HpCDF	0.000032	J,DX MB	0.000049	0.0000007	ug/L		03/05/15 08:23	03/07/15 03:17	1
				4					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	75		25 - 164				03/05/15 08:23	03/07/15 03:17	1
13C-2,3,7,8-TCDF	77		24 - 169				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,7,8-PeCDD	76		25 - 181				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,7,8-PeCDF	72		24 - 185				03/05/15 08:23	03/07/15 03:17	1
13C-2,3,4,7,8-PeCDF	71		21 - 178				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,6,7,8-HxCDD	80		28 - 130				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,4,7,8-HxCDF	66		26 - 152				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,6,7,8-HxCDF	74		26 - 123				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147				03/05/15 08:23	03/07/15 03:17	1
13C-2,3,4,6,7,8-HxCDF	75		28 - 136				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,4,6,7,8-HpCDD	65		23 - 140				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,4,6,7,8-HpCDF	70		28 - 143				03/05/15 08:23	03/07/15 03:17	1
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138				03/05/15 08:23	03/07/15 03:17	1
13C-OCDD	58		17 - 157				03/05/15 08:23	03/07/15 03:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	93		35 - 197				03/05/15 08:23	03/07/15 03:17	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/10/15 14:05	03/11/15 13:13	1
Copper	5.3	MB	2.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:13	1
Lead	5.8		1.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:13	1
Antimony	0.71	J,DX	2.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:13	1
Thallium	ND		1.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	QP	1.0	0.25	ug/L		03/10/15 10:43	03/11/15 06:33	1
Copper	3.1	QP	2.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:33	1
Lead	ND	QP	1.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:33	1
Antimony	0.63	J,DX QP	2.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:33	1
Thallium	ND	QP	1.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:33	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/03/15 20:04	03/04/15 03:02	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	QP	0.20	0.10	ug/L		03/06/15 12:31	03/06/15 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	68		10	5.0	mg/L			03/10/15 08:44	1
Total Suspended Solids	33		3.3	1.7	mg/L			03/10/15 15:53	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/06/15 12:23	03/06/15 15:56	1



Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
Chronic Cerio, EPA/821-R02-013	Bioassay	NONE	SC0127

Protocol References:

1664A = EPA-821-98-002

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

EPA = US Environmental Protection Agency

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

NONE = NONE

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

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Client Sample ID: Outfall009_20150303_Grab

Lab Sample ID: 440-103199-1

Date Collected: 03/03/15 07:30

Matrix: Water

Date Received: 03/03/15 12:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1060 mL	1000 mL	242901	03/16/15 11:15	AMR	TAL IRV
Total/NA	Analysis	1664A		1	1060 mL	1000 mL	242967	03/16/15 14:26	AMR	TAL IRV

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL		240094	03/03/15 22:35	NN	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			242536	03/13/15 10:25	TN	TAL IRV
Total/NA	Prep	1613B			1012.5 mL	20 uL	67314	03/05/15 08:23	DXD	TAL SAC
Total/NA	Analysis	1613B		1	1012.5 mL	20 uL	67541	03/07/15 03:17	JRB	TAL SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	240732	03/05/15 13:37	APS	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	241619	03/10/15 10:43	ND	TAL IRV
Dissolved	Analysis	200.8		1	25 mL	25 mL	241860	03/11/15 06:33	RC	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	241698	03/10/15 14:05	ND	TAL IRV
Total Recoverable	Analysis	200.8		1	25 mL	25 mL	242042	03/11/15 13:13	NH	TAL IRV
Dissolved	Filtration	FILTRATION			250 mL	250 mL	240732	03/05/15 13:37	APS	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	240990	03/06/15 12:31	DB	TAL IRV
Dissolved	Analysis	245.1		1	20 mL	20 mL	241411	03/06/15 17:26	DB	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	240260	03/03/15 20:04	DB	TAL IRV
Total/NA	Analysis	245.1		1	20 mL	20 mL	240351	03/04/15 03:02	EN	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	241585	03/10/15 08:44	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	300 mL	1000 mL	241739	03/10/15 15:53	NTN	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	240985	03/06/15 12:23	EN	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	241042	03/06/15 15:56	EN	TAL IRV

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-240094/4
Matrix: Water
Analysis Batch: 240094

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			03/03/15 12:23	1
Sulfate	ND		0.50	0.25	mg/L			03/03/15 12:23	1

Lab Sample ID: LCS 440-240094/2
Matrix: Water
Analysis Batch: 240094

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.75		mg/L		95	90 - 110
Sulfate	5.00	4.84		mg/L		97	90 - 110

Lab Sample ID: 440-103137-B-4 MS
Matrix: Water
Analysis Batch: 240094

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	96		50.0	131	LN	mg/L		71	80 - 120
Sulfate	130		50.0	164	LN	mg/L		69	80 - 120

Lab Sample ID: 440-103137-B-4 MSD
Matrix: Water
Analysis Batch: 240094

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	96		50.0	135	LN	mg/L		78	80 - 120	2	20
Sulfate	130		50.0	166	LN	mg/L		75	80 - 120	2	20

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

Lab Sample ID: MB 320-67314/1-A
Matrix: Water
Analysis Batch: 67541

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 67314

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000002	ug/L		03/05/15 08:23	03/06/15 18:39	1
2,3,7,8-TCDF	ND		0.000010	0.0000002	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000012	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000005	ug/L		03/05/15 08:23	03/06/15 18:39	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000007	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000005	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: MB 320-67314/1-A

Matrix: Water

Analysis Batch: 67541

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67314

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000003	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,4,6,7,8-HpCDD	0.00000327	J,DX	0.000050	0.0000006	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,4,6,7,8-HpCDF	0.00000206	J,DX	0.000050	0.0000005	ug/L		03/05/15 08:23	03/06/15 18:39	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000009	ug/L		03/05/15 08:23	03/06/15 18:39	1
OCDD	0.0000104	J,DX q	0.00010	0.0000013	ug/L		03/05/15 08:23	03/06/15 18:39	1
OCDF	0.00000288	J,DX q	0.00010	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total TCDD	ND		0.000010	0.0000002	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total TCDF	ND		0.000010	0.0000002	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total PeCDD	0.00000367	J,DX q	0.000050	0.0000012	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total PeCDF	ND		0.000050	0.0000005	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total HxCDD	ND		0.000050	0.0000004	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total HxCDF	ND		0.000050	0.0000003	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total HpCDD	0.00000619	J,DX	0.000050	0.0000006	ug/L		03/05/15 08:23	03/06/15 18:39	1
Total HpCDF	0.00000206	J,DX	0.000050	0.0000007	ug/L		03/05/15 08:23	03/06/15 18:39	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	77		25 - 164	03/05/15 08:23	03/06/15 18:39	1
13C-2,3,7,8-TCDF	87		24 - 169	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,7,8-PeCDD	70		25 - 181	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,7,8-PeCDF	72		24 - 185	03/05/15 08:23	03/06/15 18:39	1
13C-2,3,4,7,8-PeCDF	71		21 - 178	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,4,7,8-HxCDD	67		32 - 141	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,4,7,8-HxCDF	60		26 - 152	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,7,8,9-HxCDF	65		29 - 147	03/05/15 08:23	03/06/15 18:39	1
13C-2,3,4,6,7,8-HxCDF	70		28 - 136	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,4,6,7,8-HpCDF	63		28 - 143	03/05/15 08:23	03/06/15 18:39	1
13C-1,2,3,4,7,8,9-HpCDF	54		26 - 138	03/05/15 08:23	03/06/15 18:39	1
13C-OCDD	31		17 - 157	03/05/15 08:23	03/06/15 18:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	97		35 - 197	03/05/15 08:23	03/06/15 18:39	1

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: LCS 320-67314/2-A

Matrix: Water

Analysis Batch: 67541

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67314

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000197		ug/L		98	67 - 158
2,3,7,8-TCDF	0.000200	0.000175		ug/L		87	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000978		ug/L		98	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000973		ug/L		97	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00103		ug/L		103	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00102		ug/L		102	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000933		ug/L		93	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000961		ug/L		96	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00109		ug/L		109	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000942		ug/L		94	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000954		ug/L		95	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000970		ug/L		97	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000925	MB	ug/L		92	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000926	MB	ug/L		93	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000979		ug/L		98	78 - 138
OCDD	0.00200	0.00174	MB	ug/L		87	78 - 144
OCDF	0.00200	0.00173	MB	ug/L		86	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	77		20 - 175
13C-2,3,7,8-TCDF	86		22 - 152
13C-1,2,3,7,8-PeCDD	68		21 - 227
13C-1,2,3,7,8-PeCDF	72		21 - 192
13C-2,3,4,7,8-PeCDF	68		13 - 328
13C-1,2,3,4,7,8-HxCDD	68		21 - 193
13C-1,2,3,6,7,8-HxCDD	67		25 - 163
13C-1,2,3,4,7,8-HxCDF	60		19 - 202
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	61		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	67		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	58		20 - 186
13C-OCDD	57		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	95		35 - 197

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-241698/1-A

Matrix: Water

Analysis Batch: 242042

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 241698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/10/15 14:05	03/11/15 13:08	1
Copper	1.43	J,DX	2.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:08	1

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: MB 440-241698/1-A
Matrix: Water
Analysis Batch: 242042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 241698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:08	1
Antimony	ND		2.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:08	1
Thallium	ND		1.0	0.50	ug/L		03/10/15 14:05	03/11/15 13:08	1

Lab Sample ID: LCS 440-241698/2-A
Matrix: Water
Analysis Batch: 242042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 241698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	79.5		ug/L		99	85 - 115
Copper	80.0	80.4		ug/L		101	85 - 115
Lead	80.0	79.9		ug/L		100	85 - 115
Antimony	80.0	84.3		ug/L		105	85 - 115
Thallium	80.0	80.4		ug/L		100	85 - 115

Lab Sample ID: 440-103199-2 MS
Matrix: Water
Analysis Batch: 242042

Client Sample ID: Outfall009_20150303_Comp
Prep Type: Total Recoverable
Prep Batch: 241698

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	79.6		ug/L		99	70 - 130
Copper	5.3	MB	80.0	80.6		ug/L		94	70 - 130
Lead	5.8		80.0	84.1		ug/L		98	70 - 130
Antimony	0.71	J,DX	80.0	82.5		ug/L		102	70 - 130
Thallium	ND		80.0	78.9		ug/L		99	70 - 130

Lab Sample ID: 440-103199-2 MSD
Matrix: Water
Analysis Batch: 242042

Client Sample ID: Outfall009_20150303_Comp
Prep Type: Total Recoverable
Prep Batch: 241698

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	78.5		ug/L		98	70 - 130	1	20
Copper	5.3	MB	80.0	82.8		ug/L		97	70 - 130	3	20
Lead	5.8		80.0	83.1		ug/L		97	70 - 130	1	20
Antimony	0.71	J,DX	80.0	81.1		ug/L		100	70 - 130	2	20
Thallium	ND		80.0	78.8		ug/L		98	70 - 130	0	20

Lab Sample ID: MB 440-240732/1-E
Matrix: Water
Analysis Batch: 241860

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 241619

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/10/15 10:43	03/11/15 06:19	1
Copper	ND		2.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:19	1
Lead	ND		1.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:19	1
Antimony	ND		2.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:19	1
Thallium	ND		1.0	0.50	ug/L		03/10/15 10:43	03/11/15 06:19	1

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: LCS 440-240732/2-E

Matrix: Water

Analysis Batch: 241860

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 241619

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	79.0		ug/L		99	85 - 115
Copper	80.0	78.9		ug/L		99	85 - 115
Lead	80.0	78.9		ug/L		99	85 - 115
Antimony	80.0	85.0		ug/L		106	85 - 115
Thallium	80.0	78.2		ug/L		98	85 - 115

Lab Sample ID: 440-103439-N-1-D MS

Matrix: Water

Analysis Batch: 241860

Client Sample ID: Matrix Spike

Prep Type: Dissolved

Prep Batch: 241619

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	74.7		ug/L		93	70 - 130
Copper	0.94	J,DX	80.0	68.8		ug/L		85	70 - 130
Lead	ND		80.0	74.4		ug/L		93	70 - 130
Antimony	ND		80.0	86.0		ug/L		107	70 - 130
Thallium	ND		80.0	73.8		ug/L		92	70 - 130

Lab Sample ID: 440-103439-N-1-E MSD

Matrix: Water

Analysis Batch: 241860

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved

Prep Batch: 241619

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	74.9		ug/L		94	70 - 130	0	20
Copper	0.94	J,DX	80.0	68.5		ug/L		84	70 - 130	0	20
Lead	ND		80.0	73.2		ug/L		91	70 - 130	2	20
Antimony	ND		80.0	86.6		ug/L		108	70 - 130	1	20
Thallium	ND		80.0	73.6		ug/L		92	70 - 130	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-240260/1-A

Matrix: Water

Analysis Batch: 240351

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 240260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/03/15 20:04	03/04/15 02:02	1

Lab Sample ID: LCS 440-240260/2-A

Matrix: Water

Analysis Batch: 240351

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 240260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	8.00	8.33		ug/L		104	85 - 115

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-103118-D-1-C MS

Matrix: Water

Analysis Batch: 240351

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 240260

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		8.00	8.14		ug/L		102	70 - 130

Lab Sample ID: 440-103118-D-1-D MSD

Matrix: Water

Analysis Batch: 240351

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 240260

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		8.00	8.11		ug/L		101	70 - 130	0	20

Lab Sample ID: MB 440-240732/1-B

Matrix: Water

Analysis Batch: 241411

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 240990

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/06/15 12:31	03/06/15 17:21	1

Lab Sample ID: LCS 440-240732/2-B

Matrix: Water

Analysis Batch: 241411

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 240990

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	8.00	7.92		ug/L		99	85 - 115

Lab Sample ID: 440-103199-2 MS

Matrix: Water

Analysis Batch: 241411

Client Sample ID: Outfall009_20150303_Comp

Prep Type: Dissolved

Prep Batch: 240990

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	QP	8.00	8.06		ug/L		101	70 - 130

Lab Sample ID: 440-103199-2 MSD

Matrix: Water

Analysis Batch: 241411

Client Sample ID: Outfall009_20150303_Comp

Prep Type: Dissolved

Prep Batch: 240990

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	QP	8.00	8.17		ug/L		102	70 - 130	1	20

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-242901/1-A

Matrix: Water

Analysis Batch: 242967

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0	1.4	mg/L		03/16/15 11:15	03/16/15 14:26	1

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: LCS 440-242901/2-A
Matrix: Water
Analysis Batch: 242967

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	19.3		mg/L		96	78 - 114

Lab Sample ID: LCSD 440-242901/3-A
Matrix: Water
Analysis Batch: 242967

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242901

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	19.5		mg/L		97	78 - 114	1	11

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

Lab Sample ID: MB 440-241585/1
Matrix: Water
Analysis Batch: 241585

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.0	mg/L			03/10/15 08:44	1

Lab Sample ID: LCS 440-241585/2
Matrix: Water
Analysis Batch: 241585

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1020		mg/L		102	90 - 110

Lab Sample ID: 440-103343-AB-4 DU
Matrix: Water
Analysis Batch: 241585

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	330		334		mg/L		1	5

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

Lab Sample ID: MB 440-241739/1
Matrix: Water
Analysis Batch: 241739

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/10/15 15:53	1

Lab Sample ID: LCS 440-241739/2
Matrix: Water
Analysis Batch: 241739

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	1010		mg/L		101	85 - 115

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: 440-103433-A-1 DU
Matrix: Water
Analysis Batch: 241739

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	22		21.3		mg/L		3	10

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

Lab Sample ID: MB 440-240985/1-A
Matrix: Water
Analysis Batch: 241042

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 240985

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/06/15 12:23	03/06/15 15:55	1

Lab Sample ID: LCS 440-240985/2-A
Matrix: Water
Analysis Batch: 241042

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 240985

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	97.7		ug/L		98	90 - 110

Lab Sample ID: 440-103023-A-1-B MS
Matrix: Water
Analysis Batch: 241042

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 240985

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	90.3		ug/L		90	70 - 115

Lab Sample ID: 440-103023-A-1-C MSD
Matrix: Water
Analysis Batch: 241042

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 240985

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	85.0		ug/L		85	70 - 115	6	15

Lab Sample ID: MB 440-242103/1-A
Matrix: Water
Analysis Batch: 242149

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242103

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/11/15 18:15	03/11/15 22:37	1

Lab Sample ID: LCS 440-242103/2-A
Matrix: Water
Analysis Batch: 242149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	99.4		ug/L		99	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Lab Sample ID: 440-103023-A-1-E MS

Matrix: Water

Analysis Batch: 242149

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242103

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	104		ug/L		104	70 - 115

Lab Sample ID: 440-103023-A-1-F MSD

Matrix: Water

Analysis Batch: 242149

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 242103

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	104		ug/L		104	70 - 115	1	15

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

HPLC/IC

Analysis Batch: 240094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103137-B-4 MS	Matrix Spike	Total/NA	Water	300.0	
440-103137-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	300.0	
LCS 440-240094/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-240094/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 242536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 67314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	1613B	
LCS 320-67314/2-A	Lab Control Sample	Total/NA	Water	1613B	
MB 320-67314/1-A	Method Blank	Total/NA	Water	1613B	

Analysis Batch: 67541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	1613B	67314
LCS 320-67314/2-A	Lab Control Sample	Total/NA	Water	1613B	67314
MB 320-67314/1-A	Method Blank	Total/NA	Water	1613B	67314

Metals

Prep Batch: 240260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103118-D-1-C MS	Matrix Spike	Total/NA	Water	245.1	
440-103118-D-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	245.1	
LCS 440-240260/2-A	Lab Control Sample	Total/NA	Water	245.1	
MB 440-240260/1-A	Method Blank	Total/NA	Water	245.1	

Analysis Batch: 240351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103118-D-1-C MS	Matrix Spike	Total/NA	Water	245.1	240260
440-103118-D-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	240260
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	245.1	240260
LCS 440-240260/2-A	Lab Control Sample	Total/NA	Water	245.1	240260
MB 440-240260/1-A	Method Blank	Total/NA	Water	245.1	240260

Filtration Batch: 240732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Dissolved	Water	FILTRATION	
440-103199-2 MS	Outfall009_20150303_Comp	Dissolved	Water	FILTRATION	
440-103199-2 MSD	Outfall009_20150303_Comp	Dissolved	Water	FILTRATION	
440-103439-N-1-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-103439-N-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
LCS 440-240732/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

TestAmerica Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Metals (Continued)

Filtration Batch: 240732 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-240732/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 440-240732/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-240732/1-E	Method Blank	Dissolved	Water	FILTRATION	

Prep Batch: 240990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Dissolved	Water	245.1	240732
440-103199-2 MS	Outfall009_20150303_Comp	Dissolved	Water	245.1	240732
440-103199-2 MSD	Outfall009_20150303_Comp	Dissolved	Water	245.1	240732
LCS 440-240732/2-B	Lab Control Sample	Dissolved	Water	245.1	240732
MB 440-240732/1-B	Method Blank	Dissolved	Water	245.1	240732

Analysis Batch: 241411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Dissolved	Water	245.1	240990
440-103199-2 MS	Outfall009_20150303_Comp	Dissolved	Water	245.1	240990
440-103199-2 MSD	Outfall009_20150303_Comp	Dissolved	Water	245.1	240990
LCS 440-240732/2-B	Lab Control Sample	Dissolved	Water	245.1	240990
MB 440-240732/1-B	Method Blank	Dissolved	Water	245.1	240990

Prep Batch: 241619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Dissolved	Water	200.2	240732
440-103439-N-1-D MS	Matrix Spike	Dissolved	Water	200.2	240732
440-103439-N-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	240732
LCS 440-240732/2-E	Lab Control Sample	Dissolved	Water	200.2	240732
MB 440-240732/1-E	Method Blank	Dissolved	Water	200.2	240732

Prep Batch: 241698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total Recoverable	Water	200.2	
440-103199-2 MS	Outfall009_20150303_Comp	Total Recoverable	Water	200.2	
440-103199-2 MSD	Outfall009_20150303_Comp	Total Recoverable	Water	200.2	
LCS 440-241698/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-241698/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 241860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Dissolved	Water	200.8	241619
440-103439-N-1-D MS	Matrix Spike	Dissolved	Water	200.8	241619
440-103439-N-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	241619
LCS 440-240732/2-E	Lab Control Sample	Dissolved	Water	200.8	241619
MB 440-240732/1-E	Method Blank	Dissolved	Water	200.8	241619

Analysis Batch: 242042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total Recoverable	Water	200.8	241698
440-103199-2 MS	Outfall009_20150303_Comp	Total Recoverable	Water	200.8	241698
440-103199-2 MSD	Outfall009_20150303_Comp	Total Recoverable	Water	200.8	241698
LCS 440-241698/2-A	Lab Control Sample	Total Recoverable	Water	200.8	241698
MB 440-241698/1-A	Method Blank	Total Recoverable	Water	200.8	241698

TestAmerica Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

General Chemistry

Prep Batch: 240985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103023-A-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-103023-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	Distill/CN	
LCS 440-240985/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
MB 440-240985/1-A	Method Blank	Total/NA	Water	Distill/CN	

Analysis Batch: 241042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103023-A-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	240985
440-103023-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	240985
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	SM 4500 CN E	240985
LCS 440-240985/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	240985
MB 440-240985/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	240985

Analysis Batch: 241585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	SM 2540C	
440-103343-AB-4 DU	Duplicate	Total/NA	Water	SM 2540C	
LCS 440-241585/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-241585/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 241739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	SM 2540D	
440-103433-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	
LCS 440-241739/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-241739/1	Method Blank	Total/NA	Water	SM 2540D	

Prep Batch: 242103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103023-A-1-E MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-103023-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	
LCS 440-242103/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
MB 440-242103/1-A	Method Blank	Total/NA	Water	Distill/CN	

Analysis Batch: 242149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103023-A-1-E MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	242103
440-103023-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	242103
LCS 440-242103/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	242103
MB 440-242103/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	242103

Prep Batch: 242901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-1	Outfall009_20150303_Grab	Total/NA	Water	1664A	
LCS 440-242901/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-242901/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-242901/1-A	Method Blank	Total/NA	Water	1664A	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

General Chemistry (Continued)

Analysis Batch: 242967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-1	Outfall009_20150303_Grab	Total/NA	Water	1664A	242901
LCS 440-242901/2-A	Lab Control Sample	Total/NA	Water	1664A	242901
LCSD 440-242901/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	242901
MB 440-242901/1-A	Method Blank	Total/NA	Water	1664A	242901

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
QP	Holding time Immediate. Analyzed as close to receipt as possible
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

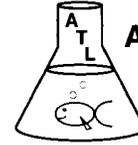
Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-15
Arkansas DEQ	State Program	6	88-0691	06-17-15
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-15
Connecticut	State Program	1	PH-0691	06-30-15
Florida	NELAP	4	E87570	06-30-15
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	10-31-15
Louisiana	NELAP	6	30612	06-30-15
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-15
New Jersey	NELAP	2	CA005	06-30-15
New York	NELAP	2	11666	04-01-15
Oregon	NELAP	10	CA200005	01-29-16
Oregon	NELAP Secondary AB	10	E87570	06-30-15
Pennsylvania	NELAP	3	9947	03-31-15
Texas	NELAP	6	T104704399-08-TX	05-31-15
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Washington	State Program	10	C581	05-05-15
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

* Certification renewal pending - certification considered valid.

LABORATORY REPORT



**Aquatic
Testing
Laboratories**

"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA ELAP Cert. No.: 1775

Date: March 12, 2015

Client: TestAmerica, Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614
Attn: Debby Wilson

Laboratory No.: A-15030403-001
Job No.: 440-103199-1
Sample I.D.: Outfall009_2015_0303_Comp (440-103199-2)

Sample Control: The sample was received by ATL chilled, within the recommended hold time and with the chain of custody record attached. Testing conducted on only one sample per client instruction.

Date Sampled: 03/03/15
Date Received: 03/04/15
Temp. Received: 0.4°C
Chlorine (TRC): 0.0 mg/l
Date Tested: 03/04/15 to 03/11/15

Sample Analysis: The following analyses were performed on your sample:

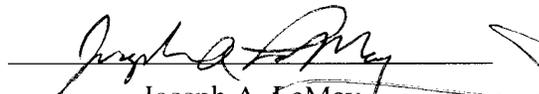
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample. All testing was conducted under the direct supervision of Joseph A. LeMay. Daily test readings were taken by Joseph A. LeMay (initialed: JAL) and Jacob LeMay (initialed: J).

Result Summary:

Chronic:	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-15030403-001
Client/ID: TestAmerica – Outfall 009

Date Tested: 03/04/15 to 03/11/15

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: < 24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-150303.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	26.9
100% Sample	100%	26.6
Sample not statistically significantly less than Control for either endpoint.		

CHRONIC TOXICITY

Survival NOEC	100%
Survival TUC	1.0
Reproduction NOEC	100%
Reproduction TUC	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥ 15 young per surviving control female	Pass (26.9 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction: if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 5.3%)
Statistically significantly different concentrations relative difference >13%	Pass (no concentration significantly different)
Concentration response relationship acceptable	Pass (no significant response at concentration tested)

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

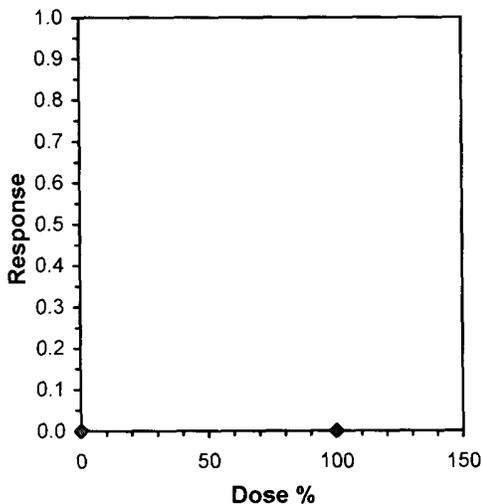
Start Date: 3/4/2015 14:30 Test ID: 15030403c Sample ID: Outfall 009
 End Date: 3/11/2015 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: SRW2-Industrial stormwater
 Sample Date: 3/3/2015 02:43 Protocol: EPAFW02-821-R-02-013 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Isotonic Mean	N-Mean
D-Control	1.0000	1.0000	0	10	10	10			1.0000	1.0000
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	100	>100		1
Treatments vs D-Control				

Linear Interpolation (200 Resamples)				
Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



Ceriodaphnia Survival and Reproduction Test-Reproduction

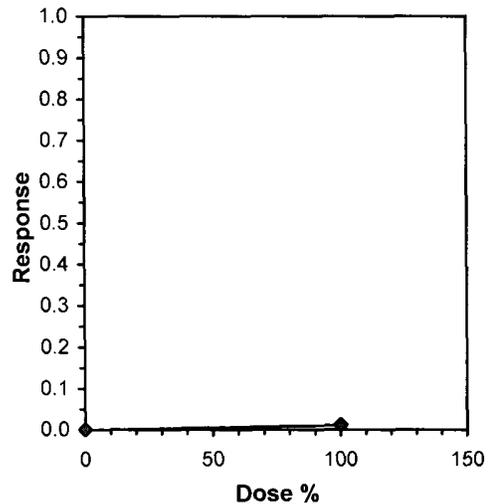
Start Date: 3/4/2015 14:30 Test ID: 15030403c Sample ID: Outfall 009
 End Date: 3/11/2015 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: SRW2-Industrial stormwater
 Sample Date: 3/3/2015 02:43 Protocol: EPAFW02-821-R-02-013 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	26.000	25.000	30.000	27.000	27.000	25.000	28.000	27.000	28.000	26.000
100	28.000	23.000	30.000	27.000	25.000	29.000	25.000	25.000	27.000	27.000

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed Critical	MSD	Isotonic	
			Mean	Min	Max	CV%	Mean					N-Mean	
D-Control	26.900	1.0000	26.900	25.000	30.000	5.665	10				26.900	1.0000	
100	26.600	0.9888	26.600	23.000	30.000	7.965	10	0.364	1.734	1.431	26.600	0.9888	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.96719	0.905	0.14531	-0.201		
F-Test indicates equal variances (p = 0.34)	1.93301	6.54109				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences Treatments vs D-Control	1.43111	0.0532	0.45	3.40556	0.72046	1, 18

Linear Interpolation (200 Resamples)				
Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



CERIODAPHNIA DUBIA CHRONIC BIOASSAY

EPA METHOD 1002.0 Raw Data Sheet



Lab No.: A-15030403-001

Client ID: TestAmerica - Outfall 009

Start Date: 03/04/2015

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		0 hr	24hr												
Analyst Initials:		JK	J	J	J	J	J	J	J	J	JK	JK	J	J	J
Time of Readings:		1430	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Control	DO	8.8	8.3	8.5	8.4	8.9	8.6	8.8	8.2	8.8	8.3	8.7	8.5	8.7	8.1
	pH	7.9	8.0	7.9	8.1	8.0	8.1	8.0	8.0	8.0	7.9	8.0	8.1	8.0	8.1
	Temp	25.2	25.1	25.1	25.1	25.0	24.9	25.1	25.0	25.0	25.1	25.3	25.0	24.9	24.9
100%	DO	9.1	8.7	8.4	8.3	8.7	8.5	8.6	8.3	8.7	8.2	8.4	8.4	8.8	8.5
	pH	8.0	8.1	7.8	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.0	8.0
	Temp	25.1	25.1	25.0	25.0	25.1	25.0	25.1	25.0	25.0	25.0	25.1	25.0	24.9	24.8

Additional Parameters	Control	100% Sample
Conductivity (umohms)	278	799
Alkalinity (mg/l CaCO ₃)	56	30
Hardness (mg/l CaCO ₃)	91	45
Ammonia (mg/l NH ₃ -N)	20.1	0.3

Source of Neonates											
Replicate:	A	B	C	D	E	F	G	H	I	J	
Brood ID:	1A	2A	3A	3C	3F	3G	1I	1J	4A	6A	

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	J
	2	0	0	0	0	0	0	0	0	0	0	0	10	J
	3	4	3	5	0	0	0	0	0	5	3	20	10	J
	4	7	8	7	4	5	4	4	3	0	0	42	10	J
	5	0	0	0	8	8	7	8	7	8	6	52	10	J
	6	15	14	18	0	0	0	0	0	0	17	64	10	J
	7	(15)	(16)	(15)	15	14	14	16	17	15	(17)	91	10	J
	Total	26	25	30	27	27	25	28	27	28	24	269	10	J
100%	1	0	0	0	0	0	0	0	0	0	0	0	10	J
	2	0	0	0	0	0	0	0	0	0	0	0	10	J
	3	4	3	4	0	0	0	0	4	5	3	23	10	J
	4	8	8	9	5	3	5	4	0	0	7	49	10	J
	5	0	0	0	7	8	8	7	6	7	0	43	10	J
	6	16	12	17	0	0	16	0	0	15	17	93	10	J
	7	0	(15)	0	15	14	0	14	15	(18)	0	58	10	J
	Total	28	23	30	27	25	29	25	25	27	27	266	10	J

Circled fourth brood not used in statistical analysis.

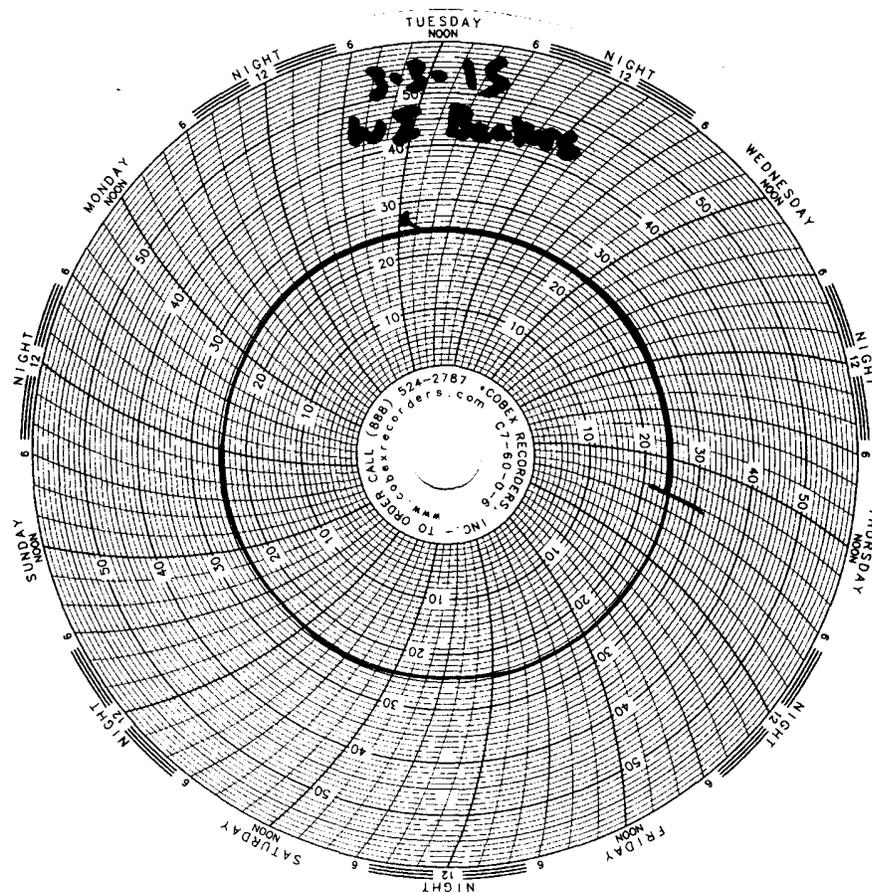
7th day only used if <60% of the surviving control females have produced their third brood.

Test Temperature Chart

Test No: A-15030403

Date Tested: 03/04/15 to 03/11/15

Acceptable Range: 25 +/- 1°C





CHAIN OF CUSTODY

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- 2
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- 14
- 15

Chain of Custody Record

Client Information (Sub Contract Lab)		Lab PM: Wilson, Debby S		Carrier Tracking No(s):	
Client Contact: Shipping/Receiving		Phone: E-Mail: debby.wilson@testamericainc.com		COC No: 440-79645.1	
Company: Aquatic Testing Laboratories		Address: 4350 Transport #107, City: Ventura State, Zip: CA, 93003 Phone: Email:		Page: Page 1 of 1 Job #: 440-103199-1	
Due Date Requested: 3/13/2015 TAT Requested (days):		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 Other:	
PO #: WO #: Project #: 44009879 SSOW#:		Field Filtered Sample (Yes or No)		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)	
Sample Identification - Client ID (Lab ID) Outfall009_20150303_Comp (440-103199-2)		SUB (Chronic Cerio, EPA/821-R02-013) Chronic Cerio, EPA/821-R02-013		Special Instructions/Note:	
Sample Date 3/3/15	Sample Time 02:43 Pacific	Sample Type (C-comp, G-grab)	Matrix (W-water, S-solid, O-organic, M-metal)	Total Number of containers	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Possible Hazard Identification Unconfirmed		Date:		Special Instructions/QC Requirements:	
Deliverable Requested: I, II, III, IV, Other (specify)		Time:		Method of Shipment:	
Empty Kit Relinquished by:		Date:		Received by:	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cobler Temperature(s) °C and Other Remarks: 0.40	





REFERENCE TOXICANT DATA

- 1
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- 13
- 14
- 15

CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0
REFERENCE TOXICANT - NaCl



QA/QC Batch No.: RT-150303

Date Tested: 03/03/15 to 03/10/15

TEST SUMMARY

Test type: Daily static-renewal.
 Species: *Ceriodaphnia dubia*.
 Age: <24 hrs; all released within 8 hrs.
 Test vessel size: 30 ml.
 Number of test organisms per vessel: 1.
 Temperature: 25 +/- 1°C.
 Dilution water: Mod. hard reconstituted (MHRW).
 Reference Toxicant: Sodium chloride (NaCl).

Endpoints: Survival and Reproduction.
 Source: In-laboratory culture.
 Food: .1 ml YTC, algae per day.
 Test solution volume: 20 ml.
 Number of replicates: 10.
 Photoperiod: 16/8 hrs. light/dark cycle.
 Test duration: 7 days.
 Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival		Mean Number of Young Per Female	
Control	100%		26.2	
0.25 g/L	100%		27.8	
0.5 g/L	100%		26.3	
1.0 g/L	100%		17.0	*
2.0 g/L	90%		2.8	*
4.0 g/L	0%	*	0	**

* Statistically significantly less than control at P = 0.05 level
 ** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Survival LC50	2.6 g/l
Reproduction IC25	0.83 g/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% Survival)
≥ 15 young per surviving control female	Pass (26.2 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction	Pass (PMSD = 9.4%)
Stat. sig. diff. conc. relative difference >13%	Pass (Stat. sig. diff. conc. Relative difference= 35.1%)
Concentration response relationship acceptable	Pass (Response curve normal)

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date: 3/3/2015 14:00 Test ID: RT150303c Sample ID: REF-Ref Toxicant
 End Date: 3/10/2015 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NAACL-Sodium chloride
 Sample Date: 3/3/2015 Protocol: EPAFW02-821-R-02-013 Test Species: CD-Ceriodaphnia dubia
 Comments:

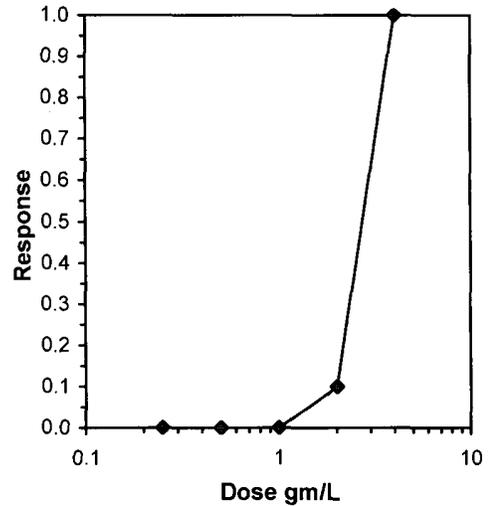
Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Conc-gm/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
D-Control	1.0000	1.0000	0	10	10	10			0	10
0.25	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
0.5	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
1	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
2	0.9000	0.9000	1	9	10	10	0.5000	0.0500	1	10
4	0.0000	0.0000	10	0	10	10			10	10

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2	4	2.82843	
Treatments vs D-Control				

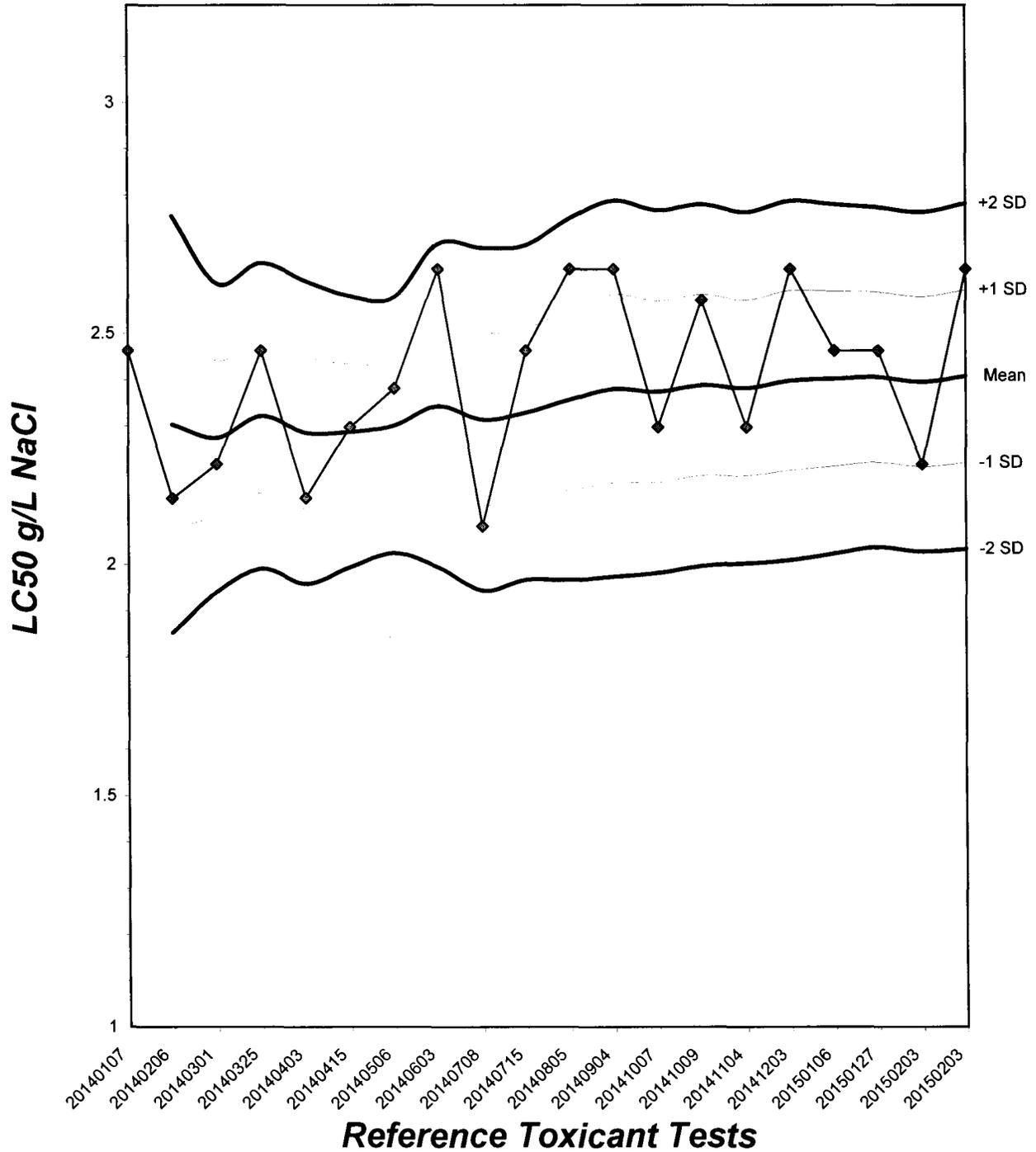
Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	2.6390	2.3138	3.0099
5.0%	2.6984	2.2899	3.1798
10.0%	2.7216	2.5094	2.9517
20.0%	2.7216	2.5094	2.9517
Auto-0.0%	2.6390	2.3138	3.0099



Ceriodaphnia Chronic Survival Laboratory Control Chart

CV% = 7.77



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 3/3/2015 14:00 Test ID: RT150303c Sample ID: REF-Ref Toxicant
 End Date: 3/10/2015 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NACL-Sodium chloride
 Sample Date: 3/3/2015 Protocol: EPAFW02-821-R-02-013 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	21.000	27.000	26.000	25.000	25.000	23.000	28.000	30.000	31.000	26.000
0.25	21.000	30.000	32.000	30.000	26.000	27.000	26.000	29.000	28.000	29.000
0.5	25.000	28.000	29.000	22.000	22.000	29.000	29.000	25.000	26.000	28.000
1	17.000	14.000	20.000	17.000	15.000	18.000	16.000	18.000	17.000	18.000
2	3.000	3.000	3.000	2.000	2.000	2.000	5.000	4.000	4.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

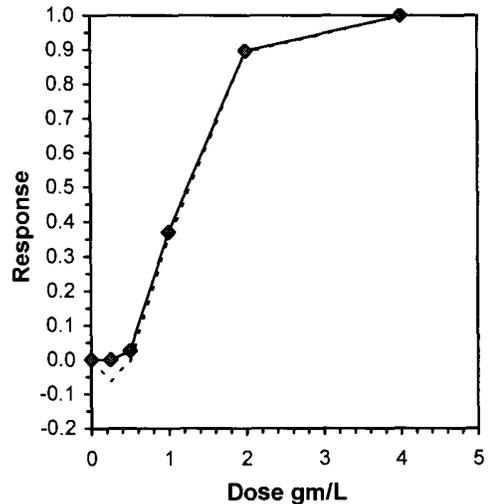
Conc-gm/L	Transform: Untransformed							1-Tailed			Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	26.200	1.0000	26.200	21.000	31.000	11.493	10				27.000	1.0000
0.25	27.800	1.0611	27.800	21.000	32.000	10.963	10	-1.442	2.223	2.466	27.000	1.0000
0.5	26.300	1.0038	26.300	22.000	29.000	10.459	10	-0.090	2.223	2.466	26.300	0.9741
*1	17.000	0.6489	17.000	14.000	20.000	9.998	10	8.293	2.223	2.466	17.000	0.6296
*2	2.800	0.1069	2.800	0.000	5.000	49.943	10	21.093	2.223	2.466	2.800	0.1037
4	0.000	0.0000	0.000	0.000	0.000	0.000	10				0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.97514	0.947	-0.5424	0.59957
Bartlett's Test indicates equal variances (p = 0.10)	7.72298	13.2767		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	0.5	1	0.70711		2.46646	0.09414	1109.52	6.15333	4.4E-27	4, 45

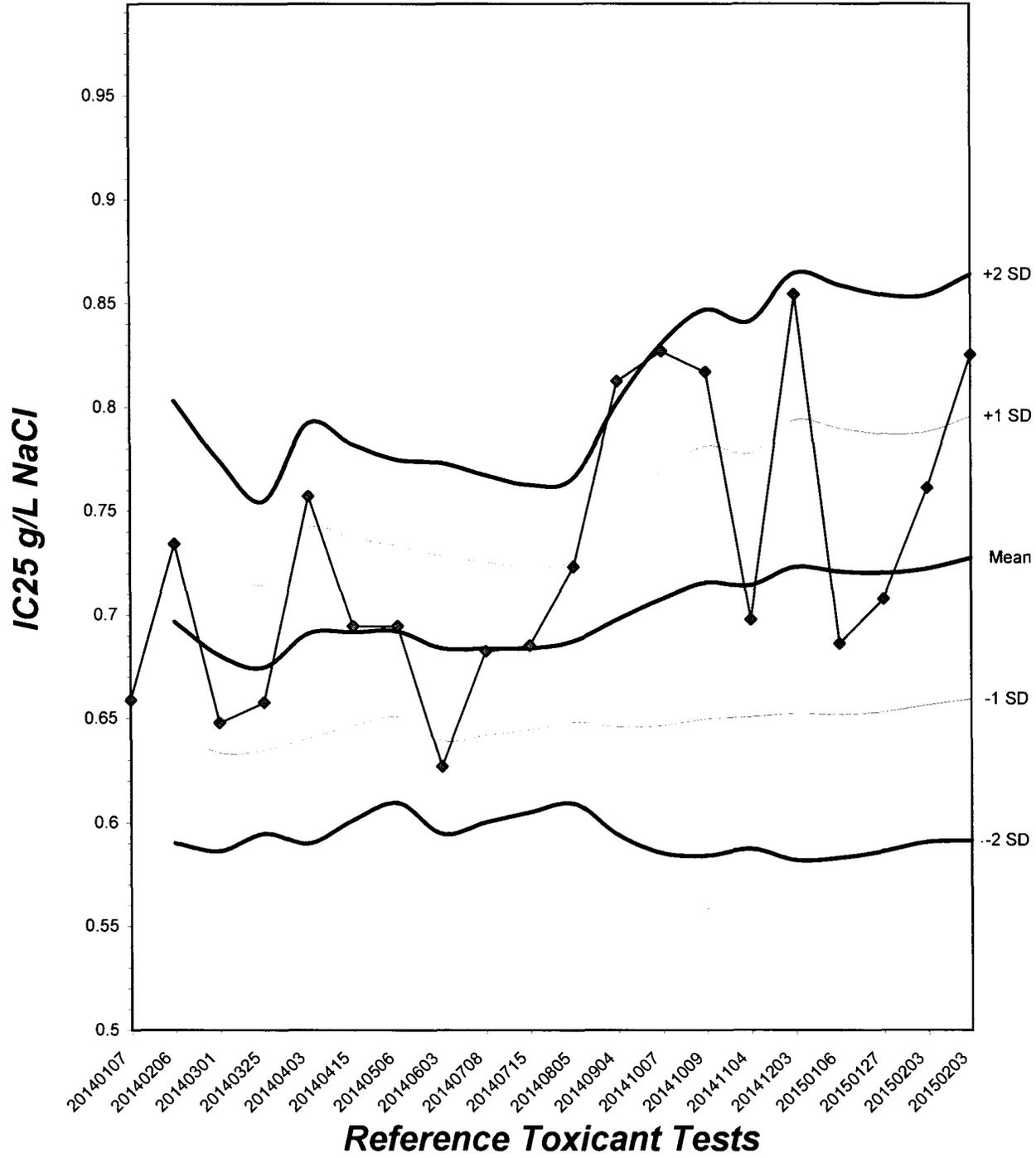
Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL	Skew
IC05	0.5349	0.0645	0.3428 0.5748	-1.7201
IC10	0.6075	0.0449	0.4726 0.6497	-1.4818
IC15	0.6801	0.0398	0.5695 0.7245	-1.3027
IC20	0.7527	0.0352	0.6630 0.7993	-0.8980
IC25	0.8253	0.0321	0.7492 0.8742	-0.4011
IC40	1.0563	0.0384	0.9851 1.1324	-0.0036
IC50	1.2465	0.0335	1.1845 1.3086	-0.2075



Ceriodaphnia Chronic Reproduction Laboratory Control Chart

CV% = 9.35



- 1
- 2
- 3
- 4
- 5
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- 8
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- 10
- 11
- 12
- 13
- 14
- 15

CERIODAPHNIA DUBIA CHRONIC BIOASSAY
Reference Toxicant - NaCl
Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-150303

Start Date:03/03/2015

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	R
	2	0	0	0	0	0	0	0	0	0	0	0	10	R
	3	5	4	0	0	4	3	0	0	5	4	25	10	R
	4	7	0	5	5	0	0	4	5	0	0	26	10	R
	5	0	7	7	8	7	6	9	8	9	7	68	10	R
	6	9	0	14	0	0	14	15	0	0	15	67	10	R
	7	16	16	12	14	0	17	17	19			76	10	R
	Total	21	27	26	25	25	23	28	30	31	26	262	10	R
0.25 g/l	1	0	0	0	0	0	0	0	0	0	0	10	R	
	2	0	0	0	0	0	0	0	0	0	0	10	R	
	3	0	4	5	0	4	4	0	0	5	5	27	10	R
	4	4	0	0	5	0	8	4	5	0	0	26	10	R
	5	7	9	9	8	7	15	7	9	7	9	87	10	R
	6	0	17	0	0	15	0	15	0	16	0	63	10	R
	7	10	0	18	17	0	16	15	0	15		75	10	R
	Total	21	30	32	30	26	27	26	29	28	29	278	10	R
0.5 g/l	1	0	0	0	0	0	0	0	0	0	0	10	R	
	2	0	0	0	0	0	0	0	0	0	0	10	R	
	3	0	4	4	5	3	0	0	0	4	5	25	10	R
	4	5	0	0	8	0	5	3	5	0	0	26	10	R
	5	6	8	9	0	7	8	9	8	7	9	71	10	R
	6	14	16	16	9	12	17	0	15	0		99	10	R
	7	0	0	0	17	0	16	0	12	0	14	42	10	R
	Total	25	28	29	22	22	29	29	25	26	26	263	10	R

Circled fourth brood not used in statistical analysis.
 7th day only used if <60% of the surviving control females have produced their third brood.

CERIODAPHNIA DUBIA CHRONIC BIOASSAY
Reference Toxicant - NaCl
Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-150303

Start Date:03/03/2015

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
1.0 g/l	1	0	0	0	0	0	0	0	0	0	0	0	10	<i>ML</i>
	2	0	0	0	0	0	0	0	0	0	0	0	10	<i>ML</i>
	3	3	0	3	0	3	4	0	0	4	5	22	10	<i>ML</i>
	4	7	4	0	2	0	0	4	3	0	0	20	10	<i>ML</i>
	5	0	0	7	6	6	7	8	6	6	7	53	10	<i>ML</i>
	6	0	10	10	0	6	7	0	0	7	6	46	10	<i>ML</i>
	7	7	0	0	9	(10)	(14)	4	9	(10)	0	29	10	<i>ML</i>
	Total	17	14	20	17	15	18	16	18	17	18	170	10	<i>ML</i>
2.0 g/l	1	0	0	0	0	0	0	0	0	0	0	10	<i>ML</i>	
	2	0	0	0	0	0	0	0	0	0	0	10	<i>ML</i>	
	3	0	0	0	0	0	0	0	2	2	0	4	10	<i>ML</i>
	4	0	3	3	0	0	0	3	0	0	0	9	10	<i>ML</i>
	5	0	0	0	2	0	0	2	0	2	0	6	10	<i>ML</i>
	6	3	0	0	0	2	2	0	0	0	0	7	10	<i>ML</i>
	7	0	0	0	0	0	0	0	2	0	X	2	9	<i>ML</i>
	Total	3	3	3	2	2	2	5	4	4	0	28	9	<i>ML</i>
4.0 g/l	1	X	X	X	X	X	X	X	X	X	X	0	0	<i>ML</i>
	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	0	0	0	0	0	0	0	0	0	0	0	0	<i>ML</i>

Circled fourth brood not used in statistical analysis.
 7th day only used if <60% of the surviving control females have produced their third brood.

CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl Water Chemistries Raw Data Sheet



QA/QC No.: RT-150303

Start Date: 03/03/2015

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		Initial	Final												
Analyst Initials:		J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Time of Readings:		1400	1300	1300	1300	1300	1330	1330	1330	1330	1330	1400	1400	1400	1400
Control	DO	8.9	8.6	8.3	8.1	8.3	8.8	9.0	8.7	8.9	8.5	8.9	8.2	8.7	8.5
	pH	7.9	8.0	8.2	8.2	8.1	8.0	8.0	8.1	7.9	8.1	8.0	7.9	8.0	8.0
	Temp	24.8	24.7	25.1	25.0	25.0	25.0	25.1	25.0	25.1	24.9	24.9	24.8	25.3	25.0
0.25 g/l	DO	8.8	7.9	8.2	8.0	8.6	8.7	9.0	8.5	8.9	8.6	8.9	8.3	8.6	8.4
	pH	7.8	8.1	8.1	8.1	7.9	8.0	7.9	8.0	7.9	8.0	8.0	7.9	8.0	8.0
	Temp	24.8	24.8	25.2	25.1	25.1	25.0	25.0	25.0	25.0	24.9	24.9	24.7	25.2	25.0
0.5 g/l	DO	8.8	8.0	8.2	8.0	8.5	8.7	8.9	8.5	9.0	8.1	8.8	8.2	8.5	8.5
	pH	7.9	8.1	8.1	8.1	7.9	8.0	7.9	8.0	8.0	8.0	7.9	7.9	8.0	8.0
	Temp	24.8	24.7	25.2	25.0	25.0	25.1	25.1	25.0	25.0	24.9	24.9	24.9	25.1	25.1
1.0 g/l	DO	8.8	8.0	8.2	8.2	8.4	8.3	8.7	8.6	8.9	8.2	8.8	8.1	8.4	8.1
	pH	7.9	8.0	8.1	8.1	7.9	8.1	8.0	8.1	8.0	8.1	7.9	7.8	8.0	8.1
	Temp	24.8	24.6	25.2	25.0	25.1	25.1	25.1	25.0	25.0	24.9	24.9	24.9	25.2	25.1
2.0 g/l	DO	8.8	7.5	8.2	8.1	8.5	8.4	8.7	8.7	8.9	8.2	8.7	8.3	8.6	8.1
	pH	7.9	8.0	8.1	8.1	7.9	8.0	8.0	8.1	8.0	8.1	7.9	7.9	8.0	8.1
	Temp	24.8	24.7	25.1	25.0	25.0	25.1	25.3	24.9	25.0	24.9	24.9	24.9	25.3	25.1
4.0 g/l	DO	8.8	8.0	-	-	-	-	-	-	-	-	-	-	-	-
	pH	7.9	8.0	-	-	-	-	-	-	-	-	-	-	-	-
	Temp	24.8	24.5	-	-	-	-	-	-	-	-	-	-	-	-

Dissolved Oxygen (DO) readings are in mg/l O₂; Temperature (Temp) readings are in °C.

Additional Parameters	Control			High Concentration		
	Day 1	Day 3	Day 5	Day 1	Day 3	Day 5
Conductivity (µS)	278	279	280	6541	3471	3278
Alkalinity (mg/l CaCO ₃)	56	57	57	57	57	57
Hardness (mg/l CaCO ₃)	91	91	91	92	91	92

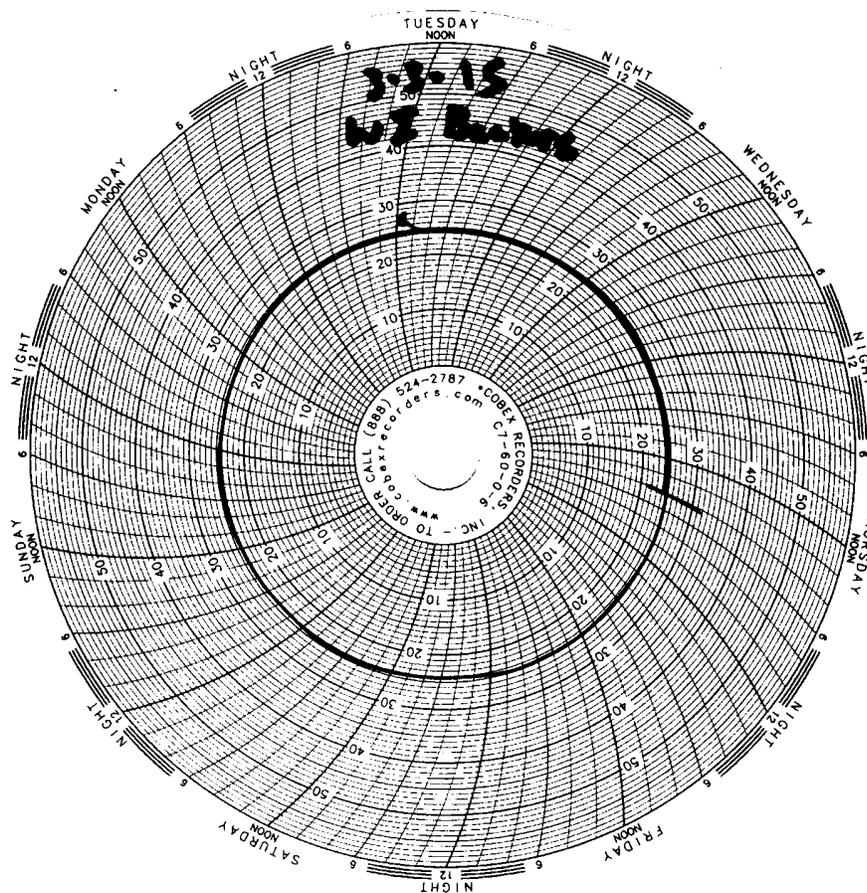
Source of Neonates										
Replicate:	A	B	C	D	E	F	G	H	I	J
Brood ID:	1A	2B	2C	1E	2E	2F	3F	2H	1J	1J

Test Temperature Chart

Test No: RT-150303

Date Tested: 03/03/15 to 03/10/15

Acceptable Range: 25 +/- 1°C





440-103199 Chain of Custody

Client Name/Address: Haley & Aldrich 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Routine Outfall 009 GRAB Stormwater at SW-13		ANALYSIS REQUIRED		Field Readings Field readings: (include units) UHVVAADIC Time of readings: 0730		Meter serial #	
Test America Contact: Debby Wilson		Phone Number: 619.285.7132, 858.337.4061 (cell) Field Manager: Jeff Bannon 818.350.7340, 818.414.5608 (cell)		Oil & Grease (1664-HEM)		pH 6.54 pH unit Temp 7.25 °C/F		Field readings QC Checked by: <i>Autosomal</i> Date/Time: 3-3-15-0740	
Project Manager: Nancy Gardiner Sampler: <i>RODRIGUES</i> <i>BOGAN SENON</i> <i>SHA</i>	Sample Matrix: W	Container Type: 1L Amber	# of Cont.: 2	Sample I.D.: <i>032215</i> Outfall 009_2015_032215_Grab	Sampling Date/Time: 3/3/15 0730	Preservative: HCl	Bottle #: 1A-1B	Comments	
Relinquished By: <i>DAVID</i> Date/Time: 3/3/15 1005									
Relinquished By: <i>Shatio NABI</i> Date/Time: 3/3/15 1216pm									
Relinquished By: <i>Olga Orelas</i> Date/Time: 3/3/15 12:16									
Received By: <i>Shatio NABI</i> Date/Time: 3/3/15									
Received By: <i>Olga Orelas</i> Date/Time: 12:16									
These Samples are the Grab Portion of Outfall 009 for this storm event. Composite samples will follow and are to be added to this work order.									
Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ 48 Hour: _____ 5 Day: _____ Normal: _____									
Sample Integrity: (Check) In tact: _____ On Ice: _____									
Data Requirements: (Check) No Level IV: _____ All Level IV: NPDES Level IV: _____									

00
02/3/15
16:00

2.3°C/1.8°C
 1.6°C/1.1°C
 2.4°C/1.9°C
 JK-64



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-103199-1

Login Number: 103199

List Number: 1

Creator: Soderblom, Tim

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.	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: 440-103199-1

Login Number: 103199

List Number: 2

Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

List Creation: 03/04/15 12:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5
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.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF1 (24-185)	PeCDF2 (21-178)	HxCDD1 (32-141)	HxCDD2 (28-130)	HxCDF1 (26-152)
440-103199-2	Outfall009_20150303_Comp	75	77	76	72	71	70	80	66
MB 320-67314/1-A	Method Blank	77	87	70	72	71	67	66	60

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxCDF2 (26-123)	HxCDF4 (29-147)	HxCDF3 (28-136)	HpCDD (23-140)	HpCDF1 (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-103199-2	Outfall009_20150303_Comp	74	71	75	65	70	59	58
MB 320-67314/1-A	Method Blank	66	65	70	56	63	54	31

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF1 = 13C-1,2,3,7,8-PeCDF
 PeCDF2 = 13C-2,3,4,7,8-PeCDF
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
 HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
 HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 OCDD = 13C-OCDD

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF1 (21-192)	PeCDF2 (13-328)	HxCDD1 (21-193)	HxCDD2 (25-163)	HxCDF1 (19-202)
LCS 320-67314/2-A	Lab Control Sample	77	86	68	72	68	68	67	60

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxCDF2 (21-159)	HxCDF4 (17-205)	HxCDF3 (22-176)	HpCDD (26-166)	HpCDF1 (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-67314/2-A	Lab Control Sample	68	66	70	61	67	58	57

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF1 = 13C-1,2,3,7,8-PeCDF
 PeCDF2 = 13C-2,3,4,7,8-PeCDF
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
 HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
 HxCDF3 = 13C-2,3,4,6,7,8-HxCDF

TestAmerica Irvine

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-1

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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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: 440-103199-2

Client Project/Site: Boeing SSFL outfalls

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

4/5/2015 4:12:20 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

LINKS

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results through
TotalAccess

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www.testamericainc.com

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

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

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

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



Debby Wilson
Manager of Project Management
4/5/2015 4:12:20 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	9
Lab Chronicle	10
QC Sample Results	11
QC Association Summary	17
Definitions/Glossary	19
Certification Summary	20
Chain of Custody	21
Receipt Checklists	23
Tracer Carrier Summary	25

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-103199-2	Outfall009_20150303_Comp	Water	03/03/15 02:43	03/03/15 12:16
440-103199-3	Outfall009_20150303_TB	Water	03/03/15 12:16	03/03/15 12:16

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Job ID: 440-103199-2

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-103199-2

Comments

This report includes radiological tests only. Other analyses previously reported under separate cover.

Receipt

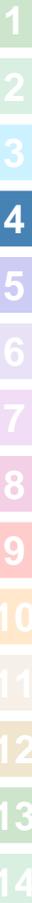
The samples were received on 3/3/2015 12:16 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.8° C and 1.9° C.

RAD

Method(s) ExtChrom: 178927: The sample is orange in color and contains sediment. A reduced aliquot was used to prevent matrix interference: Outfall009_20150303_Comp (440-103199-2)

Method(s) PrecSep-21, PrecSep_0: radium-228 batch #178156 and radium-226 batch #178164: Sample Outfall009_20150303_Comp (440-103199-2) was reduced to 500 mL because it was yellow.

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



Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Gross Alpha	1.29	U	1.33	1.34	2.15	pCi/L	03/12/15 11:18	03/15/15 21:10	1
Gross Beta	3.19		0.844	0.902	1.08	pCi/L	03/12/15 11:18	03/15/15 21:10	1

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

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Cesium-137	1.38	U	4.55	4.56	8.35	pCi/L	03/09/15 14:59	03/10/15 13:31	1
Potassium-40	-29.5	U	123	123	200	pCi/L	03/09/15 14:59	03/10/15 13:31	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Radium-226	0.0579	U	0.204	0.204	0.373	pCi/L	03/10/15 14:54	04/01/15 06:54	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110				03/10/15 14:54	04/01/15 06:54	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Radium-228	0.406	U	0.442	0.444	0.724	pCi/L	03/10/15 14:13	03/31/15 10:53	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110				03/10/15 14:13	03/31/15 10:53	1
Y Carrier	86.4		40 - 110				03/10/15 14:13	03/31/15 10:53	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Strontium-90	0.0911	U	0.380	0.380	0.664	pCi/L	03/10/15 13:35	03/19/15 18:38	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Sr Carrier	84.9		40 - 110				03/10/15 13:35	03/19/15 18:38	1
Y Carrier	91.6		40 - 110				03/10/15 13:35	03/19/15 18:38	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.					
			(2σ+/-)	(2σ+/-)					
Tritium	74.8	U	189	189	328	pCi/L	03/17/15 07:22	03/18/15 02:46	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.324	U	0.436	0.437	0.562	pCi/L	03/12/15 12:53	03/18/15 10:41	1

Client Sample ID: Outfall009_20150303_TB

Lab Sample ID: 440-103199-3

Date Collected: 03/03/15 12:16

Matrix: Water

Date Received: 03/03/15 12:16

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.194	U	0.610	0.611	1.13	pCi/L	03/12/15 11:18	03/15/15 21:25	1
Gross Beta	0.296	U	0.552	0.553	0.934	pCi/L	03/12/15 11:18	03/15/15 21:25	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-1.49	U	6.25	6.25	11.3	pCi/L	03/09/15 14:59	03/10/15 17:10	1
Potassium-40	-53.3	U	189	189	212	pCi/L	03/09/15 14:59	03/10/15 17:10	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0560	U	0.0937	0.0939	0.162	pCi/L	03/10/15 14:54	04/01/15 06:54	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Ba Carrier	106		40 - 110				03/10/15 14:54	04/01/15 06:54	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.115	U	0.161	0.161	0.311	pCi/L	03/10/15 14:13	03/31/15 10:53	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Ba Carrier	106		40 - 110				03/10/15 14:13	03/31/15 10:53	1
Y Carrier	90.8		40 - 110				03/10/15 14:13	03/31/15 10:53	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.134	U	0.171	0.172	0.285	pCi/L	03/10/15 13:35	03/19/15 18:38	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Sr Carrier	87.1		40 - 110				03/10/15 13:35	03/19/15 18:38	1
Y Carrier	89.3		40 - 110				03/10/15 13:35	03/19/15 18:38	1

TestAmerica Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Client Sample ID: Outfall009_20150303_TB

Lab Sample ID: 440-103199-3

Date Collected: 03/03/15 12:16

Matrix: Water

Date Received: 03/03/15 12:16

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.0269	U	0.07777	0.07796	0.170	pCi/L	03/12/15 12:53	03/23/15 20:22	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

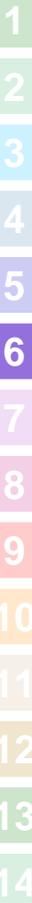
Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Client Sample ID: Outfall009_20150303_Comp

Lab Sample ID: 440-103199-2

Date Collected: 03/03/15 02:43

Matrix: Water

Date Received: 03/03/15 12:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200 mL	1.0 g	178910	03/12/15 11:18	MJS	TAL SL
Total/NA	Analysis	900.0		1	200 mL		179041	03/15/15 21:10	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	177802	03/09/15 14:59	R1S	TAL SL
Total/NA	Analysis	901.1		1	1000 mL		178132	03/10/15 13:31	SMP	TAL SL
Total/NA	Prep	PrecSep-21			502.96 mL	1.0 g	178164	03/10/15 14:54	MSS	TAL SL
Total/NA	Analysis	903.0		1	502.96 mL		182699	04/01/15 06:54	RTM	TAL SL
Total/NA	Prep	PrecSep_0			502.96 mL	1.0 g	178156	03/10/15 14:13	MSS	TAL SL
Total/NA	Analysis	904.0		1	502.96 mL		182503	03/31/15 10:53	RTM	TAL SL
Total/NA	Prep	PrecSep-7			500.52 mL	1.0 g	178146	03/10/15 13:35	CMC	TAL SL
Total/NA	Analysis	905		1	500.52 mL		180114	03/19/15 18:38	RTM	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.01 mL	1.0 g	179548	03/17/15 07:22	JDL	TAL SL
Total/NA	Analysis	906.0		1	100.01 mL		179999	03/18/15 02:46	RTM	TAL SL
Total/NA	Prep	ExtChrom			100.21 mL	1.0 mL	178927	03/12/15 12:53	SCB	TAL SL
Total/NA	Analysis	A-01-R		1	100.21 mL		179923	03/18/15 10:41	MLK	TAL SL

Client Sample ID: Outfall009_20150303_TB

Lab Sample ID: 440-103199-3

Date Collected: 03/03/15 12:16

Matrix: Water

Date Received: 03/03/15 12:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200 mL	1.0 g	178910	03/12/15 11:18	MJS	TAL SL
Total/NA	Analysis	900.0		1	200 mL		179394	03/15/15 21:25	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	177802	03/09/15 14:59	R1S	TAL SL
Total/NA	Analysis	901.1		1	1000 mL		178132	03/10/15 17:10	SMP	TAL SL
Total/NA	Prep	PrecSep-21			989.68 mL	1.0 g	178164	03/10/15 14:54	MSS	TAL SL
Total/NA	Analysis	903.0		1	989.68 mL		182699	04/01/15 06:54	RTM	TAL SL
Total/NA	Prep	PrecSep_0			989.68 mL	1.0 g	178156	03/10/15 14:13	MSS	TAL SL
Total/NA	Analysis	904.0		1	989.68 mL		182503	03/31/15 10:53	RTM	TAL SL
Total/NA	Prep	PrecSep-7			975.53 mL	1.0 g	178146	03/10/15 13:35	CMC	TAL SL
Total/NA	Analysis	905		1	975.53 mL		180114	03/19/15 18:38	RTM	TAL SL
Total/NA	Prep	ExtChrom			499.50 mL	1.0 mL	178927	03/12/15 12:53	SCB	TAL SL
Total/NA	Analysis	A-01-R		1	499.50 mL		180833	03/23/15 20:22	MLK	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-178910/1-A
Matrix: Water
Analysis Batch: 179393

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178910

Analyte	MB	MB	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.					
Gross Alpha	-0.3896	U	0.588	0.590	1.31	pCi/L	03/12/15 11:18	03/15/15 20:56	1
Gross Beta	-0.1130	U	0.428	0.429	0.811	pCi/L	03/12/15 11:18	03/15/15 20:56	1

Lab Sample ID: LCS 160-178910/2-A
Matrix: Water
Analysis Batch: 179487

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178910

Analyte	Spike Added	LCS Result	LCS Qual	Total	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)				
Gross Alpha	50.1	64.52		9.23	2.03	pCi/L	129	73 - 133

Lab Sample ID: LCSB 160-178910/3-A
Matrix: Water
Analysis Batch: 179393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178910

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)				
Gross Beta	95.5	96.14		10.1	1.03	pCi/L	101	75 - 125

Lab Sample ID: 160-10783-A-1-B MS
Matrix: Water
Analysis Batch: 179393

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 178910

Analyte	Sample	Sample	Spike Added	MS	MS	Total	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)				
Gross Alpha	7.82		50.1	61.83		10.5	5.02	pCi/L	108	35 - 150

Lab Sample ID: 160-10783-A-1-C MSBT
Matrix: Water
Analysis Batch: 179393

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 178910

Analyte	Sample	Sample	Spike Added	MSBT	MSBT	Total	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)				
Gross Beta	13.3		95.4	103.3		10.9	0.756	pCi/L	94	89 - 143

Lab Sample ID: 160-10783-A-1-D DU
Matrix: Water
Analysis Batch: 179487

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 178910

Analyte	Sample	Sample	DU	DU	Total	MDC	Unit	RER	RER Limit
	Result	Qual		Result	Qual				
Gross Alpha	7.82		6.091		1.63	1.70	pCi/L	0.48	1
Gross Beta	13.3		14.87		1.73	0.762	pCi/L	0.46	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

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

Lab Sample ID: MB 160-177802/1-A
Matrix: Water
Analysis Batch: 178132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 177802

Analyte	MB MB		Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)					
Cesium-137	-3.707	U	7.48	7.49	12.8	pCi/L	03/09/15 14:59	03/10/15 10:02	1
Potassium-40	-20.99	U	105	105	195	pCi/L	03/09/15 14:59	03/10/15 10:02	1

Lab Sample ID: LCS 160-177802/2-A
Matrix: Water
Analysis Batch: 178132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 177802

Analyte	Spike Added	LCS Result	LCS Qual	Total	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)				Limits
Americium-241	137000	138700		16000	461	pCi/L	101	90 - 111
Cesium-137	49200	49270		4910	184	pCi/L	100	90 - 111
Cobalt-60	51300	50150		4950	116	pCi/L	98	89 - 110

Lab Sample ID: 440-103199-2 DU
Matrix: Water
Analysis Batch: 178131

Client Sample ID: Outfall009_20150303_Comp
Prep Type: Total/NA
Prep Batch: 177802

Analyte	Sample Sample		DU DU		Total	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)				Limit
Cesium-137	1.38	U	-0.9674	U	6.29	11.4	pCi/L	0.22	1
Potassium-40	-29.5	U	-71.02	U	29600	180	pCi/L	0	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-178164/1-A
Matrix: Water
Analysis Batch: 182699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178164

Analyte	MB MB		Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)					
Radium-226	0.02491	U	0.0882	0.0882	0.162	pCi/L	03/10/15 14:54	04/01/15 06:54	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110	03/10/15 14:54	04/01/15 06:54	1

Lab Sample ID: LCS 160-178164/2-A
Matrix: Water
Analysis Batch: 182699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178164

Analyte	Spike Added	LCS Result	LCS Qual	Total	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)				Limits
Radium-226	11.2	10.17		1.09	0.189	pCi/L	91	68 - 137

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	104		40 - 110

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 160-10778-I-3-E MS

Matrix: Water

Analysis Batch: 182699

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 178164

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits	
Radium-226	0.350		11.3	12.11		1.28	0.223	pCi/L	104	75 - 138	
Carrier	%Yield	MS MS Qualifier	Limits								
Ba Carrier	100		40 - 110								

Lab Sample ID: 160-10778-I-3-F MSD

Matrix: Water

Analysis Batch: 182699

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 178164

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.350		11.3	11.38		1.21	0.202	pCi/L	97	75 - 138	0.29	1
Carrier	%Yield	MSD MSD Qualifier	Limits									
Ba Carrier	104		40 - 110									

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-178156/1-A

Matrix: Water

Analysis Batch: 182503

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 178156

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	-0.08654	U	0.187	0.187	0.348	pCi/L	03/10/15 14:13	03/31/15 10:52	1	
Carrier	%Yield	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	104		40 - 110	03/10/15 14:13	03/31/15 10:52	1				
Y Carrier	90.1		40 - 110	03/10/15 14:13	03/31/15 10:52	1				

Lab Sample ID: LCS 160-178156/2-A

Matrix: Water

Analysis Batch: 182503

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 178156

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits
Radium-228	3.47	3.132		0.484	0.342	pCi/L	90	56 - 140
Carrier	%Yield	LCS LCS Qualifier	Limits					
Ba Carrier	104		40 - 110					
Y Carrier	88.2		40 - 110					

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 160-10778-I-3-B MS

Matrix: Water

Analysis Batch: 182501

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 178156

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits
	Result	Qual		Result	Qual					
Radium-228	0.163	U	3.53	3.343		0.508	0.341	pCi/L	95	45 - 150
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	100		40 - 110							
Y Carrier	88.6		40 - 110							

Lab Sample ID: 160-10778-I-3-C MSD

Matrix: Water

Analysis Batch: 182501

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 178156

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
	Result	Qual		Result	Qual							
Radium-228	0.163	U	3.53	3.365		0.513	0.358	pCi/L	95	45 - 150	0.02	1
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	104		40 - 110									
Y Carrier	87.5		40 - 110									

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-178146/1-A

Matrix: Water

Analysis Batch: 180061

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 178146

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Strontium-90	-0.05817	U	0.177	0.177	0.332	pCi/L	03/10/15 13:35	03/19/15 18:32	1
Carrier	%Yield	Qualifier	Limits						
Sr Carrier	74.5		40 - 110						
Y Carrier	91.2		40 - 110						
							Prepared	Analyzed	Dil Fac
							03/10/15 13:35	03/19/15 18:32	1
							03/10/15 13:35	03/19/15 18:32	1

Lab Sample ID: LCS 160-178146/2-A

Matrix: Water

Analysis Batch: 180061

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 178146

Analyte	Spike Added	LCS	LCS	Total Uncert. (2σ+/-)	MDC	Unit	%Rec	%Rec. Limits
		Result	Qual					
Strontium-90	8.91	8.703		0.927	0.336	pCi/L	98	90 - 134
Carrier	%Yield	Qualifier	Limits					
Sr Carrier	86.8		40 - 110					
Y Carrier	88.2		40 - 110					

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: 440-103199-3 DU
Matrix: Water
Analysis Batch: 180114

Client Sample ID: Outfall009_20150303_TB
Prep Type: Total/NA
Prep Batch: 178146

Analyte	Sample	Sample	DU	DU	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)							
Strontium-90	0.134	U	0.1848	U	0.181	0.292	pCi/L				0.14	1
DU DU												
Carrier	%Yield	Qualifier	Limits									
Sr Carrier	87.2		40 - 110									
Y Carrier	94.6		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-179548/1-A
Matrix: Water
Analysis Batch: 179999

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179548

Analyte	MB	MB	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)					
Tritium	-70.27	U	175	176	335	pCi/L	03/17/15 07:22	03/17/15 22:33	1

Lab Sample ID: LCS 160-179548/2-A
Matrix: Water
Analysis Batch: 179999

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179548

Analyte	Spike	LCS	LCS	Total	MDC	Unit	%Rec	%Rec.	Limits
	Added	Result	Qual	Uncert. (2σ+/-)					
Tritium	3410	3656		546	338	pCi/L	107	74 - 114	

Lab Sample ID: 160-10785-B-1-B MS
Matrix: Water
Analysis Batch: 179999

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 179548

Analyte	Sample	Sample	Spike	MS	MS	Total	MDC	Unit	%Rec	%Rec.	Limits
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					
Tritium	2910		4540	7449		884	332	pCi/L	100	67 - 130	

Lab Sample ID: 160-10784-B-1-B DU
Matrix: Water
Analysis Batch: 179999

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 179548

Analyte	Sample	Sample	DU	DU	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)							
Tritium	2960		2985		481	332	pCi/L				0.02	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

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

Lab Sample ID: MB 160-178927/1-A
Matrix: Water
Analysis Batch: 179918

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178927

Analyte	MB	MB	Count	Total	MDC	Unit	Prepared	Analyzed	Dil	Fac
	Result	Qualifier	Uncert.	Uncert.						
Total Uranium	0.03945	U	0.07756	0.07762	0.123	pCi/L	03/12/15 12:53	03/18/15 10:41		1

Lab Sample ID: LCS 160-178927/2-A
Matrix: Water
Analysis Batch: 179920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178927

Analyte	Spike Added	LCS	LCS	Total	MDC	Unit	%Rec	%Rec.
		Result	Qual	Uncert.				
Uranium-234	12.7	13.48		1.59	0.121	pCi/L	106	84 - 120
Uranium-238	13.0	12.99		1.55	0.121	pCi/L	100	83 - 121

Tracer	LCS	LCS	Limits
	%Yield	Qualifier	
Uranium-232	82.2		30 - 110

Lab Sample ID: 440-103199-3 DU
Matrix: Water
Analysis Batch: 180834

Client Sample ID: Outfall009_20150303_TB
Prep Type: Total/NA
Prep Batch: 178927

Analyte	Sample	Sample	DU	DU	Total	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert.					
Total Uranium	0.0269	U	0.05255	U	0.07673	0.123	pCi/L		0.17	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Rad

Prep Batch: 177802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	Fill_Geo-0	
440-103199-2 DU	Outfall009_20150303_Comp	Total/NA	Water	Fill_Geo-0	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	Fill_Geo-0	
LCS 160-177802/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-177802/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Prep Batch: 178146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	PrecSep-7	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	PrecSep-7	
440-103199-3 DU	Outfall009_20150303_TB	Total/NA	Water	PrecSep-7	
LCS 160-178146/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
MB 160-178146/1-A	Method Blank	Total/NA	Water	PrecSep-7	

Prep Batch: 178156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10778-I-3-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	
160-10778-I-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	PrecSep_0	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	PrecSep_0	
LCS 160-178156/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-178156/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 178164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10778-I-3-E MS	Matrix Spike	Total/NA	Water	PrecSep-21	
160-10778-I-3-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	PrecSep-21	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	PrecSep-21	
LCS 160-178164/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-178164/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 178910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10783-A-1-B MS	Matrix Spike	Total/NA	Water	Evaporation	
160-10783-A-1-C MSBT	Matrix Spike	Total/NA	Water	Evaporation	
160-10783-A-1-D DU	Duplicate	Total/NA	Water	Evaporation	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	Evaporation	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	Evaporation	
LCS 160-178910/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-178910/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
MB 160-178910/1-A	Method Blank	Total/NA	Water	Evaporation	

Prep Batch: 178927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	ExtChrom	
440-103199-3	Outfall009_20150303_TB	Total/NA	Water	ExtChrom	
440-103199-3 DU	Outfall009_20150303_TB	Total/NA	Water	ExtChrom	
LCS 160-178927/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-178927/1-A	Method Blank	Total/NA	Water	ExtChrom	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Rad (Continued)

Prep Batch: 179548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10784-B-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	
160-10785-B-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-103199-2	Outfall009_20150303_Comp	Total/NA	Water	LSC_Dist_Susp	
LCS 160-179548/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
MB 160-179548/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
Connecticut	State Program	1	PH-0241	03-31-15 *
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.



440-103199 Chain of Custody

Client Name/Address: Haley & Aldrich 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Routine Outfall 009 GRAB Stormwater at SW-13		ANALYSIS REQUIRED		Field Readings Field readings: (include units) UHVVAADIC Time of readings: 0730		Meter serial #	
Test America Contact: Debby Wilson		Phone Number: 619.285.7132, 858.337.4061 (cell) Field Manager: Jeff Bannon 818.350.7340, 818.414.5608 (cell)		Oil & Grease (1664-HEM)		pH 6.54 pH unit Temp 7.25 °C/F		Field readings QC Checked by: <i>Autosomal</i> Date/Time: 3-3-15-0740	
Sample Description Outfall 009	Sample Matrix W	Container Type 1L Amber	# of Cont. 2	Sample I.D. Outfall009_2015032215	Sampling Date/Time 3/3/15 0730	Preservative HCl	Bottle # 1A-1B	Comments	
Relinquished By: DADON 3/3/15 1005 Date/Time:									
Relinquished By: Shatio NABI 3/3/15 12:16pm Date/Time:									
Relinquished By: Olga Orelas 3/3/15 12:16 Date/Time:									
Received By: Shatio NABI 3/3/15 Date/Time:									
These Samples are the Grab Portion of Outfall 009 for this storm event. Composite samples will follow and are to be added to this work order.									
Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ 48 Hour: _____ 5 Day: _____ Normal: _____									
Sample Integrity: (Check) In tact: _____ On Ice: _____									
Data Requirements: (Check) No Level IV: _____ All Level IV: NPDES Level IV: _____									

00
02/3/15
16:00

2.3°C/1.8°C
 1.6°C/1.1°C
 2.4°C/1.9°C
 JK-64



Client Name/Address: Haley & Aldrich 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing SSFL NPDES Routine Outfall 009 COMPOSITE Stormwater at SW-13	
Test America Contact: Debby Wilson		Phone Number: 619.285.7132, 658.337.4081(cell) Field Manager: Jeff Bannon 818.350.7340, 818.414.5608(cell)	
Project Manager: Nancy Gardiner Sampler: <i>BRAN BENSON</i> <i>REY NARANJO</i>		Sample I.D.: Outfall009_2015 0303Comp	
Sample Description Outfall 009	Matrix W	Container Type 1L Poly	# of Cont. 1
Outfall 009	W	1L Amber	2
Outfall 009	W	500 mL Poly	2
Outfall 009	W	500 mL Poly	1
Outfall 009	W	1L Poly	1
Outfall 009	W	2.5 Gal Outie	1
Outfall 009	W	500 mL Amber	1
Outfall 009	W	1 Gal Poly	1
Outfall 009	W	500 mL Poly	1
Outfall 009	W	1L Poly	1

Sample Description	Matrix	Container Type	# of Cont.	Preservative	Sample I.D.	Sampling Date/Time	Botlle #	ANALYSIS REQUIRED	Comments
Outfall 009	W	1L Poly	1	HNO ₃	Outfall009_2015 0303Comp	3/13/15	2A	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl TCDD (and all congeners) Cr, SO ₄ , NO ₃ , NO ₂ , N TDS Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl Gross Alpha(900.0), Gross Beta(900.0), Tritium (H-3) (900.0), Sr-90 (905.0), Total Combined Radium 226 (903.0 or 903.1) & Radium 228 (904.0), Uranium (908.0), K-40, CS-137 (901.0 or 901.1)	
Outfall 009	W	1L Amber	2	None		0243	3A, 3B	Chronic Toxicity ✓	
Outfall 009	W	500 mL Poly	2	None			4A, 4B		
Outfall 009	W	500 mL Poly	1	None			5		
Outfall 009	W	1L Poly	1	None			6		
Outfall 009	W	2.5 Gal Outie	1	None			7A		Filter with 24hrs of receipt at lab
Outfall 009	W	500 mL Amber	1	None			7B		Unfiltered and unpreserved analysis
Outfall 009	W	1 Gal Poly	1	None			8		Only test if first or second rain events of the year
Outfall 009	W	500 mL Poly	1	NaOH			9		
Outfall 009	W	1L Poly	1	None			5		

COC Page 2 of 2 list the Composite Samples for Outfall 009 for this storm event.
These must be added to the same work order for COC Page 1 of 2 for Outfall 009 for the same event.

Relinquished By: <i>TS Dea</i> Date/Time: 3/13/15 10:05	Received By: <i>Shah-Nabi</i> Date/Time: 3/13/15 / 10:36
Relinquished By: <i>Shah-Nabi</i> Date/Time: 3/13/15 12:16pm	Received By: <i>Olga Omedas</i> Date/Time: 3/13/15 12:16

10 Day: _____
 72 Hour: _____
 5 Day: _____
 24 Hour: _____
 10 Day: _____
 Normal: _____
 Sample Integrity (Check)
 Inject: _____ On Ice: _____
 Date Requirements (Check)
 No Level IV: _____ All Level IV: _____
 NPDES Level IV: _____

23°C / 1.8°C
 1.6°C / 1.10°C
 2.4°C / 1.9°C
 IR-64

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-103199-2

Login Number: 103199

List Number: 1

Creator: Soderblom, Tim

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.	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: 440-103199-2

Login Number: 103199

List Number: 3

Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

List Creation: 03/09/15 12:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
160-10778-I-3-E MS	Matrix Spike	100
160-10778-I-3-F MSD	Matrix Spike Duplicate	104
440-103199-2	Outfall009_20150303_Comp	93.5
440-103199-3	Outfall009_20150303_TB	106
LCS 160-178164/2-A	Lab Control Sample	104
MB 160-178164/1-A	Method Blank	104

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
160-10778-I-3-B MS	Matrix Spike	100	88.6
160-10778-I-3-C MSD	Matrix Spike Duplicate	104	87.5
440-103199-2	Outfall009_20150303_Comp	93.5	86.4
440-103199-3	Outfall009_20150303_TB	106	90.8
LCS 160-178156/2-A	Lab Control Sample	104	88.2
MB 160-178156/1-A	Method Blank	104	90.1

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (C) (40-110)	Y (40-110)
440-103199-2	Outfall009_20150303_Comp	84.9	91.6
440-103199-3	Outfall009_20150303_TB	87.1	89.3
440-103199-3 DU	Outfall009_20150303_TB	87.2	94.6
LCS 160-178146/2-A	Lab Control Sample	86.8	88.2
MB 160-178146/1-A	Method Blank	74.5	91.2

Tracer/Carrier Legend

Sr (C) = Sr Carrier

Y = Y Carrier

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
440-103199-3 DU	Outfall009_20150303_TB	87.9

TestAmerica Irvine

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103199-2

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
LCS 160-178927/2-A	Lab Control Sample	82.2
MB 160-178927/1-A	Method Blank	91.5

Tracer/Carrier Legend

U-232 = Uranium-232

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-98715-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-98715-1
Project Manager: K. 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 Name	Matrix	Collection	Method
ArroyoSimi_20150111	440-98715-1	N/A	Water	1/11/2015 11:00:00 AM	1613B, SM2340, SM2540D, SM9221E, SM9221F

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratories on ice. The sample was transported directly from the field via courier and was received at TestAmerica-Irvine below the temperature limits of 4°C ±2°C; however, as the sample was not noted to be frozen or damaged, no qualifications were required. According to the laboratory sample receipt log for this SDG, the sample containers were received intact and properly preserved, if applicable. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were present and intact upon receipt at the subcontract laboratories.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. EPA METHOD 1613B—Dioxin/Furans

Reviewed By: L. Calvin

Date Reviewed: February 26, 2015

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

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
 - GC Column Performance: A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.
 - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.
- Calibration: Calibration criteria were met.
 - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.
 - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.
- Blanks: The method blank had detects below the reporting limit for 1,2,3,4,6,7,8-HpCDD at 0.00000226 $\mu\text{g/L}$, OCDD at 0.00000902 $\mu\text{g/L}$, OCDF at 0.00000425 $\mu\text{g/L}$, and total HpCDD at 0.00000361 $\mu\text{g/L}$. The sample concentrations of 1,2,3,4,6,7,8-HpCDD and OCDD exceeded five times and ten times the method blank concentrations, respectively, and required no qualification. The result for OCDF was qualified as nondetected, "U," at

the level of contamination, and the result for total HpCDD was qualified as estimated, "J," as only a portion of the total was found to be method blank contamination. The method blank had no other detects above the estimated detection limit (EDL).

- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613B.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: This SDG had no identified field duplicate samples.
- Internal Standards Performance: The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. As 2,3,7,8-TCDF was not detected in the sample, confirmation analysis was not necessary.
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike concentrations. The laboratory calculated and reported compound-specific detection limits, EDLs. Any detects below the laboratory lower calibration level were qualified as estimated, "J." Any detects between the EDL and the reporting limit (RL) were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Nondetects are valid to the EDL.

Isomers 1,2,3,6,7,8-HxCDD and 1,2,3,4,6,7,8-HpCDF were each reported as an estimated maximum possible concentration (EMPC) in the sample. The results were qualified as estimated nondetects, "UJ," at the level of the EMPC. Totals HpCDF, HxCDD, and HxCDF also contained one or more EMPC peaks. The results for the totals were qualified as estimated, "J."

B. EPA METHOD 200.7 and SM2340B—Hardness

Reviewed By: P. Meeks

Date Reviewed: February 12, 2015

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 200.7, Standard Methods for the Examination of Water and Wastewater Method (2012) 2340B*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The analytical holding time, six months, was met.
- Calibration: Calibration criteria were met. Initial calibration r^2 values were ≥ 0.995 and all initial and continuing calibration recoveries were within 90-110%. The CRDL recoveries were within the control limits of 70-130%.
- Blanks: The method blank and CCBs had no detects.
- Interference Check Samples: Recoveries were within 80-120%.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on the LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary form were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

C. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: February 12, 2015

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. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Methods 2540D, 9221E, and 9221F*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The e. coli and fecal coliform analytical holding times are listed as immediate. As the sample was prepared the day it was collected, no qualifications were required. TSS was analyzed within seven days of collection.
- Calibration: The balance calibration logs and biological controls were acceptable.
- Blanks: TSS was not detected in the method blank. The method blank is not applicable to the biological methods.
- Blank Spikes and Laboratory Control Samples: The TSS recovery was within laboratory-established QC limits. The presumptive test was analyzed for the biological methods with the positive detects for the target bacteria.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD samples are not applicable to these methods.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC

data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 440987151

Analysis Method E1613B

Sample Name ArroyoSimi_20150111 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2015 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-98715-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000027	0.000095	0.0000014	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00022	0.000095	0.0000050	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.000011	0.000048	0.0000013	ug/L	J,DXq	UJ	*III
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000025	0.000048	0.0000031	ug/L	J,DXMB	J	DNQ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7		0.000048	0.0000019	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9		0.000048	0.00000067	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6		0.000048	0.00000060	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9		0.000048	0.00000056	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000014	0.000048	0.00000052	ug/L	J,DXq	UJ	*III
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9		0.000048	0.00000084	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000018	0.000048	0.00000047	ug/L	J,DX	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6		0.000048	0.00000061	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4		0.000048	0.00000086	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5		0.000048	0.00000064	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4		0.000048	0.00000065	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9		0.000095	0.00000045	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6		0.000095	0.00000057	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000025	0.000048	0.0000016	ug/L	J,DXq	J	DNQ, *III
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000055	0.000048	0.0000031	ug/L	MB	J	B

Analysis Method E1613B

Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000066	0.000048	0.00000068	ug/L	J,DXq	J	DNQ, *III
Total Hexachlorodibenzo-p-dioxin (HxCDD)	N	34465-46-8	0.0000091	0.000048	0.00000053	ug/L	J,DXq	J	DNQ, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000017	0.000048	0.00000063	ug/L	J,DX	J	DNQ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9		0.000048	0.00000086	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5		0.0000095	0.00000045	ug/L	U	U	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5		0.0000095	0.00000057	ug/L	U	U	

Analysis Method SM2340

Sample Name ArroyoSimi_20150111 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2015 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-98715-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	N	HARDNESSCA CO3	170	0.33	0.17	mg/L			

Analysis Method SM2540D

Sample Name ArroyoSimi_20150111 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2015 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-98715-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	250	14	7.1	mg/L			

Analysis Method SM9221E

Sample Name ArroyoSimi_20150111 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2015 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-98715-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Fecal Coliform Bacteria	N	COLIFORMFEC >1600 AL		1.8	1.8	mpn/100			

Analysis Method *SM9221F*

Sample Name ArroyoSimi_20150111 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/11/2015 11:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-98715-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	>1600	1.8	1.8	mpn/100			

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: 440-98715-1

Client Project/Site: Annual Arroyo Simi-Frontier Park

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

2/4/2015 6:38:30 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

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



Debby Wilson
Manager of Project Management
2/4/2015 6:38:30 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	9
Lab Chronicle	10
QC Sample Results	11
QC Association Summary	17
Definitions/Glossary	19
Certification Summary	20
Chain of Custody	21
Receipt Checklists	22
Isotope Dilution Summary	24

Sample Summary

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

TestAmerica Job ID: 440-98715-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-98715-1	ArroyoSimi_20150111	Water	01/11/15 11:00	01/11/15 13:46

- 1
- 2
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Case Narrative

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

TestAmerica Job ID: 440-98715-1

Job ID: 440-98715-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-98715-1

Comments

No additional comments.

Receipt

The samples were received on 1/11/2015 1:46 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.6° C and 1.2° C.

GC/MS Semi VOA

Method(s) 525.2: Surrogate recovery (Triphenylphosphate) for the following sample(s) was outside the upper control limit: ArroyoSimi_20150111 (440-98715-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 525.2: The internal standard recovery (Chrysene-d12) for the following sample was outside of acceptance: ArroyoSimi_20150111 (440-98715-1). A high bias is implied. The sample was reported based on ND results for all target analytes. No bias detected.

Method(s) 525.2: The laboratory control sample duplicate (LCSD) associated with batch 230069 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed due to a 24 hour holding time; therefore, the data has been reported based on the batch laboratory control sample (LCS) and matrix spike/matrix spike duplicate (MS/MSD) being within acceptance limits and may be used to evaluate matrix performance. Recovery for Diazinon may be biased low.

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

GC Semi VOA

Method(s) 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 229709. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. (LCS 440-229709/4-A)

Method(s) 608: Surrogate recovery for the following sample(s) was outside the upper control limit: (MB 440-229709/1-A). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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

Dioxin

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

Metals

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

General Chemistry

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

Biology

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

Organic Prep

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

Dioxin Prep

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

Client Sample Results

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

TestAmerica Job ID: 440-98715-1

Client Sample ID: ArroyoSimi_20150111

Lab Sample ID: 440-98715-1

Date Collected: 01/11/15 11:00

Matrix: Water

Date Received: 01/11/15 13:46

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorpyrifos	ND		0.95	0.48	ug/L		01/12/15 09:14	01/16/15 07:00	1
Diazinon	ND	LR BA	0.24	0.11	ug/L		01/12/15 09:14	01/16/15 07:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,3-Dimethyl-2-nitrobenzene	101		70 - 130				01/12/15 09:14	01/16/15 07:00	1
Perylene-d12	92		70 - 130				01/12/15 09:14	01/16/15 07:00	1
Triphenylphosphate	360	LH	70 - 130				01/12/15 09:14	01/16/15 07:00	1

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.095	0.076	ug/L		01/14/15 09:59	01/15/15 18:20	1
Dieldrin	ND		0.0048	0.0019	ug/L		01/14/15 09:59	01/15/15 18:20	1
Toxaphene	ND		0.48	0.24	ug/L		01/14/15 09:59	01/15/15 18:20	1
4,4'-DDD	ND		0.0048	0.0038	ug/L		01/14/15 09:59	01/15/15 18:20	1
4,4'-DDE	ND		0.0048	0.0029	ug/L		01/14/15 09:59	01/15/15 18:20	1
4,4'-DDT	ND		0.0095	0.0038	ug/L		01/14/15 09:59	01/15/15 18:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	46		10 - 139				01/14/15 09:59	01/15/15 18:20	1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1221	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1232	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1242	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1248	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1254	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Aroclor 1260	ND		0.48	0.24	ug/L		01/14/15 14:34	01/14/15 22:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	69		29 - 115				01/14/15 14:34	01/14/15 22:25	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000005	ug/L		01/13/15 12:55	01/30/15 03:43	1
2,3,7,8-TCDF	ND		0.0000095	0.0000004	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000008	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,4,7,8-HxCDD	ND		0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,6,7,8-HxCDD	0.0000014	J,DX q	0.000048	0.0000005	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,7,8,9-HxCDD	0.0000018	J,DX	0.000048	0.0000004	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1

TestAmerica Irvine

Client Sample Results

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

TestAmerica Job ID: 440-98715-1

Client Sample ID: ArroyoSimi_20150111

Lab Sample ID: 440-98715-1

Date Collected: 01/11/15 11:00

Matrix: Water

Date Received: 01/11/15 13:46

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000005	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,7,8,9-HxCDF	ND		0.000048	0.0000008	ug/L		01/13/15 12:55	01/30/15 03:43	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,4,6,7,8-HpCDD	0.000025	J,DX MB	0.000048	0.0000031	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,4,6,7,8-HpCDF	0.000011	J,DX q	0.000048	0.0000013	ug/L		01/13/15 12:55	01/30/15 03:43	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000019	ug/L		01/13/15 12:55	01/30/15 03:43	1
OCDD	0.00022	MB	0.000095	0.0000050	ug/L		01/13/15 12:55	01/30/15 03:43	1
OCDF	0.000027	J,DX MB	0.000095	0.0000014	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total TCDD	ND		0.0000095	0.0000005	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total TCDF	ND		0.0000095	0.0000004	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total PeCDD	ND		0.000048	0.0000008	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total PeCDF	0.0000017	J,DX	0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total HxCDD	0.0000091	J,DX q	0.000048	0.0000005	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total HxCDF	0.0000066	J,DX q	0.000048	0.0000006	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total HpCDD	0.000055	MB	0.000048	0.0000031	ug/L		01/13/15 12:55	01/30/15 03:43	1
Total HpCDF	0.000025	J,DX q	0.000048	0.0000016	ug/L		01/13/15 12:55	01/30/15 03:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	50		25 - 164				01/13/15 12:55	01/30/15 03:43	1
13C-2,3,7,8-TCDF	50		24 - 169				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,7,8-PeCDD	48		25 - 181				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,7,8-PeCDF	50		24 - 185				01/13/15 12:55	01/30/15 03:43	1
13C-2,3,4,7,8-PeCDF	48		21 - 178				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,4,7,8-HxCDD	53		32 - 141				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,6,7,8-HxCDD	53		28 - 130				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,4,7,8-HxCDF	56		26 - 152				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,7,8,9-HxCDF	56		29 - 147				01/13/15 12:55	01/30/15 03:43	1
13C-2,3,4,6,7,8-HxCDF	56		28 - 136				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,4,6,7,8-HpCDD	53		23 - 140				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,4,6,7,8-HpCDF	56		28 - 143				01/13/15 12:55	01/30/15 03:43	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138				01/13/15 12:55	01/30/15 03:43	1
13C-OCDD	48		17 - 157				01/13/15 12:55	01/30/15 03:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	86		35 - 197				01/13/15 12:55	01/30/15 03:43	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	170		0.33	0.17	mg/L			01/22/15 08:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	250		14	7.1	mg/L			01/13/15 13:24	1

TestAmerica Irvine

Client Sample Results

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

TestAmerica Job ID: 440-98715-1

Client Sample ID: ArroyoSimi_20150111

Lab Sample ID: 440-98715-1

Date Collected: 01/11/15 11:00

Matrix: Water

Date Received: 01/11/15 13:46

Method: SM 9221E - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	>1600		1.8	1.8	MPN/100mL			01/11/15 14:21	1

Method: SM 9221F - E.Coli (Multiple-Tube Fermentation; EC-MUG)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	>1600		1.8	1.8	MPN/100mL			01/11/15 14:21	1

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- 14

Method Summary

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

TestAmerica Job ID: 440-98715-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	TAL IRV
608	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL IRV
608	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 9221E	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

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

TestAmerica Job ID: 440-98715-1

Client Sample ID: ArroyoSimi_20150111

Lab Sample ID: 440-98715-1

Date Collected: 01/11/15 11:00

Matrix: Water

Date Received: 01/11/15 13:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	525.2			1050 mL	1 mL	229243	01/12/15 09:14	CN	TAL IRV
Total/NA	Analysis	525.2		1	1050 mL	1 mL	230069	01/16/15 07:00	CN	TAL IRV
Total/NA	Prep	608			1045 mL	2 mL	229709	01/14/15 14:34	AP	TAL IRV
Total/NA	Analysis	608		1	1045 mL	2 mL	229866	01/14/15 22:25	CN	TAL IRV
Total/NA	Prep	608			1050 mL	2 mL	229709	01/14/15 09:59	AP	TAL IRV
Total/NA	Analysis	608		1	1050 mL	2 mL	230026	01/15/15 18:20	KS	TAL IRV
Total/NA	Prep	1613B			1052.2 mL	20 uL	62851	01/13/15 12:55	DXD	TAL SAC
Total/NA	Analysis	1613B		1	1052.2 mL	20 uL	64096	01/30/15 03:43	KSS	TAL SAC
Total Recoverable	Analysis	SM 2340B		1			227842	01/22/15 08:04	DT	TAL IRV
Total/NA	Analysis	SM 2540D		1	70 mL	1000 mL	229531	01/13/15 13:24	NTN	TAL IRV
Total/NA	Analysis	SM 9221E		1	100 mL	100 mL	229773		ST	TAL IRV
							(Start)	01/11/15 14:21		
							(End)	01/13/15 12:04		
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	229774		ST	TAL IRV
							(Start)	01/11/15 14:21		
							(End)	01/13/15 12:04		

Laboratory References:

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-229243/1-A

Matrix: Water

Analysis Batch: 230069

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 229243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorpyrifos	ND		1.0	0.50	ug/L		01/12/15 09:14	01/16/15 01:57	1
Diazinon	ND		0.25	0.12	ug/L		01/12/15 09:14	01/16/15 01:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dimethyl-2-nitrobenzene	104		70 - 130	01/12/15 09:14	01/16/15 01:57	1
Perylene-d12	97		70 - 130	01/12/15 09:14	01/16/15 01:57	1
Triphenylphosphate	105		70 - 130	01/12/15 09:14	01/16/15 01:57	1

Lab Sample ID: LCS 440-229243/2-A

Matrix: Water

Analysis Batch: 230069

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 229243

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Chlorpyrifos	5.00	5.42		ug/L		108	70 - 130
Diazinon	5.00	4.47		ug/L		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,3-Dimethyl-2-nitrobenzene	92		70 - 130
Perylene-d12	103		70 - 130
Triphenylphosphate	106		70 - 130

Lab Sample ID: LCSD 440-229243/3-A

Matrix: Water

Analysis Batch: 230069

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 229243

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chlorpyrifos	5.00	5.46		ug/L		109	70 - 130	1	30
Diazinon	5.00	3.28	LR BA	ug/L		66	70 - 130	31	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,3-Dimethyl-2-nitrobenzene	95		70 - 130
Perylene-d12	101		70 - 130
Triphenylphosphate	110		70 - 130

Lab Sample ID: 550-37860-A-1-A MS

Matrix: Water

Analysis Batch: 230069

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 229243

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Chlorpyrifos	ND		4.90	5.46		ug/L		111	70 - 130
Diazinon	ND	LR BA	4.90	4.65		ug/L		95	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1,3-Dimethyl-2-nitrobenzene	101		70 - 130
Perylene-d12	102		70 - 130
Triphenylphosphate	104		70 - 130

TestAmerica Irvine

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 550-37860-A-1-B MSD

Matrix: Water

Analysis Batch: 230069

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 229243

Analyte	Sample		Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	
	Result	Qualifier		Result	Qualifier				Limits	RPD	Limit	
Chlorpyrifos	ND		4.81	5.37		ug/L		112	70 - 130	2	30	
Diazinon	ND	LR BA	4.81	3.65		ug/L		76	70 - 130	24	30	
MSD MSD												
Surrogate	%Recovery		Qualifier	Limits								
1,3-Dimethyl-2-nitrobenzene	96			70 - 130								
Perylene-d12	104			70 - 130								
Triphenylphosphate	105			70 - 130								

Method: 608 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-229709/1-A

Matrix: Water

Analysis Batch: 230026

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 229709

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.10	0.080	ug/L		01/14/15 09:59	01/15/15 16:09	1
Dieldrin	ND		0.0050	0.0020	ug/L		01/14/15 09:59	01/15/15 16:09	1
Toxaphene	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 16:09	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		01/14/15 09:59	01/15/15 16:09	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		01/14/15 09:59	01/15/15 16:09	1
4,4'-DDT	ND		0.010	0.0040	ug/L		01/14/15 09:59	01/15/15 16:09	1
MB MB									
Surrogate	%Recovery		Qualifier	Limits		Prepared	Analyzed	Dil Fac	
Tetrachloro-m-xylene	20			10 - 139		01/14/15 09:59	01/15/15 16:09	1	

Lab Sample ID: LCS 440-229709/2-A

Matrix: Water

Analysis Batch: 230026

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 229709

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
Dieldrin	0.250	0.190		ug/L		76	32 - 139	
4,4'-DDD	0.250	0.194		ug/L		78	37 - 142	
4,4'-DDE	0.250	0.187		ug/L		75	33 - 139	
4,4'-DDT	0.250	0.207		ug/L		83	36 - 145	
LCS LCS								
Surrogate	%Recovery		Qualifier	Limits				
Tetrachloro-m-xylene	26			10 - 139				

Lab Sample ID: LCSD 440-229709/3-A

Matrix: Water

Analysis Batch: 230026

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 229709

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec.		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Dieldrin	0.250	0.166		ug/L		66	32 - 139	13	35	
4,4'-DDD	0.250	0.190		ug/L		76	37 - 142	2	35	
4,4'-DDE	0.250	0.158		ug/L		63	33 - 139	17	35	
4,4'-DDT	0.250	0.186		ug/L		74	36 - 145	10	35	

TestAmerica Irvine

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCSD 440-229709/3-A
Matrix: Water
Analysis Batch: 230026

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 229709

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	29		10 - 139

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 440-229709/1-A
Matrix: Water
Analysis Batch: 229866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 229709

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1221	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1232	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1242	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1248	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1254	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1
Aroclor 1260	ND		0.50	0.25	ug/L		01/14/15 09:59	01/15/15 15:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	120	LH	29 - 115	01/14/15 09:59	01/15/15 15:24	1

Lab Sample ID: LCS 440-229709/4-A
Matrix: Water
Analysis Batch: 229866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 229709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	4.00	1.57		ug/L		39	39 - 145
Aroclor 1260	4.00	2.89		ug/L		72	37 - 137

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	81		29 - 115

Lab Sample ID: LCSD 440-229709/5-A
Matrix: Water
Analysis Batch: 229866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 229709

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	4.00	1.58		ug/L		39	39 - 145	1	30
Aroclor 1260	4.00	3.14		ug/L		78	37 - 137	6	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	82		29 - 115

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

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

Lab Sample ID: MB 320-62851/1-A

Matrix: Water

Analysis Batch: 64096

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62851

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000004	ug/L		01/13/15 12:55	01/30/15 02:10	1
2,3,7,8-TCDF	ND		0.000010	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000006	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000004	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000004	ug/L		01/13/15 12:55	01/30/15 02:10	1
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,4,6,7,8-HpCDD	0.00000226	J,DX	0.000050	0.0000008	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000006	ug/L		01/13/15 12:55	01/30/15 02:10	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000009	ug/L		01/13/15 12:55	01/30/15 02:10	1
OCDD	0.00000902	J,DX q	0.00010	0.0000012	ug/L		01/13/15 12:55	01/30/15 02:10	1
OCDF	0.00000425	J,DX	0.00010	0.0000011	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total TCDD	ND		0.000010	0.0000004	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total TCDF	ND		0.000010	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total PeCDD	ND		0.000050	0.0000006	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total PeCDF	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total HxCDD	ND		0.000050	0.0000003	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total HxCDF	ND		0.000050	0.0000002	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total HpCDD	0.00000361	J,DX	0.000050	0.0000008	ug/L		01/13/15 12:55	01/30/15 02:10	1
Total HpCDF	ND		0.000050	0.0000006	ug/L		01/13/15 12:55	01/30/15 02:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	65		25 - 164				01/13/15 12:55	01/30/15 02:10	1
13C-2,3,7,8-TCDF	58		24 - 169				01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,7,8-PeCDD	60		25 - 181				01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,7,8-PeCDF	67		24 - 185				01/13/15 12:55	01/30/15 02:10	1

TestAmerica Irvine

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

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

Lab Sample ID: MB 320-62851/1-A

Matrix: Water

Analysis Batch: 64096

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62851

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	56		21 - 178	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,4,7,8-HxCDD	58		32 - 141	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,6,7,8-HxCDD	68		28 - 130	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,4,7,8-HxCDF	68		26 - 152	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,6,7,8-HxCDF	77		26 - 123	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,7,8,9-HxCDF	70		29 - 147	01/13/15 12:55	01/30/15 02:10	1
13C-2,3,4,6,7,8-HxCDF	66		28 - 136	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,4,6,7,8-HpCDD	64		23 - 140	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,4,6,7,8-HpCDF	70		28 - 143	01/13/15 12:55	01/30/15 02:10	1
13C-1,2,3,4,7,8,9-HpCDF	67		26 - 138	01/13/15 12:55	01/30/15 02:10	1
13C-OCDD	56		17 - 157	01/13/15 12:55	01/30/15 02:10	1
MB MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	01/13/15 12:55	01/30/15 02:10	1

Lab Sample ID: LCS 320-62851/2-A

Matrix: Water

Analysis Batch: 64096

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
2,3,7,8-TCDD	0.000200	0.000216		ug/L		108	67 - 158	
2,3,7,8-TCDF	0.000200	0.000222		ug/L		111	75 - 158	
1,2,3,7,8-PeCDD	0.00100	0.00110		ug/L		110	70 - 142	
1,2,3,7,8-PeCDF	0.00100	0.00110		ug/L		110	80 - 134	
2,3,4,7,8-PeCDF	0.00100	0.00110		ug/L		110	68 - 160	
1,2,3,4,7,8-HxCDD	0.00100	0.00110		ug/L		110	70 - 164	
1,2,3,6,7,8-HxCDD	0.00100	0.00110		ug/L		110	76 - 134	
1,2,3,7,8,9-HxCDD	0.00100	0.00110		ug/L		110	64 - 162	
1,2,3,4,7,8-HxCDF	0.00100	0.00108		ug/L		108	72 - 134	
1,2,3,6,7,8-HxCDF	0.00100	0.00111		ug/L		111	84 - 130	
1,2,3,7,8,9-HxCDF	0.00100	0.00109		ug/L		109	78 - 130	
2,3,4,6,7,8-HxCDF	0.00100	0.00109		ug/L		109	70 - 156	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00102	MB	ug/L		102	70 - 140	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00104		ug/L		104	82 - 122	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138	
OCDD	0.00200	0.00191	MB	ug/L		95	78 - 144	
OCDF	0.00200	0.00206	MB	ug/L		103	63 - 170	
LCS LCS								
Isotope Dilution	%Recovery	Qualifier	Limits					
13C-2,3,7,8-TCDD	69		20 - 175					
13C-2,3,7,8-TCDF	71		22 - 152					
13C-1,2,3,7,8-PeCDD	65		21 - 227					
13C-1,2,3,7,8-PeCDF	65		21 - 192					
13C-2,3,4,7,8-PeCDF	66		13 - 328					
13C-1,2,3,4,7,8-HxCDD	63		21 - 193					
13C-1,2,3,6,7,8-HxCDD	68		25 - 163					
13C-1,2,3,4,7,8-HxCDF	68		19 - 202					
13C-1,2,3,6,7,8-HxCDF	72		21 - 159					

TestAmerica Irvine

QC Sample Results

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

TestAmerica Job ID: 440-98715-1

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

Lab Sample ID: LCS 320-62851/2-A
Matrix: Water
Analysis Batch: 64096

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 62851

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	72		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	62		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	65		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	64		20 - 186
13C-OCDD	56		13 - 199

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	92		35 - 197

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

Lab Sample ID: MB 440-229531/2
Matrix: Water
Analysis Batch: 229531

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			01/13/15 13:24	1

Lab Sample ID: LCS 440-229531/1
Matrix: Water
Analysis Batch: 229531

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	987		mg/L		99	85 - 115

Lab Sample ID: 440-98671-A-2 DU
Matrix: Water
Analysis Batch: 229531

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	290		280		mg/L		2	10

QC Association Summary

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

TestAmerica Job ID: 440-98715-1

GC/MS Semi VOA

Prep Batch: 229243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	525.2	
550-37860-A-1-A MS	Matrix Spike	Total/NA	Water	525.2	
550-37860-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	525.2	
LCS 440-229243/2-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 440-229243/3-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MB 440-229243/1-A	Method Blank	Total/NA	Water	525.2	

Analysis Batch: 230069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	525.2	229243
550-37860-A-1-A MS	Matrix Spike	Total/NA	Water	525.2	229243
550-37860-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	525.2	229243
LCS 440-229243/2-A	Lab Control Sample	Total/NA	Water	525.2	229243
LCSD 440-229243/3-A	Lab Control Sample Dup	Total/NA	Water	525.2	229243
MB 440-229243/1-A	Method Blank	Total/NA	Water	525.2	229243

GC Semi VOA

Prep Batch: 229709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	608	
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	608	
LCS 440-229709/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-229709/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-229709/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 440-229709/5-A	Lab Control Sample Dup	Total/NA	Water	608	
MB 440-229709/1-A	Method Blank	Total/NA	Water	608	

Analysis Batch: 229866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	608	229709
LCS 440-229709/4-A	Lab Control Sample	Total/NA	Water	608	229709
LCSD 440-229709/5-A	Lab Control Sample Dup	Total/NA	Water	608	229709
MB 440-229709/1-A	Method Blank	Total/NA	Water	608	229709

Analysis Batch: 230026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	608	229709
LCS 440-229709/2-A	Lab Control Sample	Total/NA	Water	608	229709
LCSD 440-229709/3-A	Lab Control Sample Dup	Total/NA	Water	608	229709
MB 440-229709/1-A	Method Blank	Total/NA	Water	608	229709

Specialty Organics

Prep Batch: 62851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	1613B	
LCS 320-62851/2-A	Lab Control Sample	Total/NA	Water	1613B	
MB 320-62851/1-A	Method Blank	Total/NA	Water	1613B	

TestAmerica Irvine

QC Association Summary

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

TestAmerica Job ID: 440-98715-1

Specialty Organics (Continued)

Analysis Batch: 64096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	1613B	62851
LCS 320-62851/2-A	Lab Control Sample	Total/NA	Water	1613B	62851
MB 320-62851/1-A	Method Blank	Total/NA	Water	1613B	62851

Metals

Analysis Batch: 227842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 229531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98671-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	SM 2540D	
LCS 440-229531/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-229531/2	Method Blank	Total/NA	Water	SM 2540D	

Biology

Analysis Batch: 229773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	SM 9221E	

Analysis Batch: 229774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-98715-1	ArroyoSimi_20150111	Total/NA	Water	SM 9221F	

Definitions/Glossary

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

TestAmerica Job ID: 440-98715-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LR	LCS/LCSD recovery below method control limits
LH	Surrogate Recoveries were higher than QC limits

GC Semi VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

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

TestAmerica Job ID: 440-98715-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-15
Arkansas DEQ	State Program	6	88-0691	06-17-15
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-15
Connecticut	State Program	1	PH-0691	06-30-15
Florida	NELAP	4	E87570	06-30-15
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	10-31-15
Louisiana	NELAP	6	30612	06-30-15
Michigan	State Program	5	9947	01-31-15 *
Nevada	State Program	9	CA44	07-31-15
New Jersey	NELAP	2	CA005	06-30-15
New York	NELAP	2	11666	04-01-15
Oregon	NELAP	10	CA200005	01-29-16
Oregon	NELAP Secondary AB	10	E87570	06-30-15
Pennsylvania	NELAP	3	9947	03-31-15
Texas	NELAP	6	T104704399-08-TX	05-31-15
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-15
Washington	State Program	10	C581	05-05-15
West Virginia (DW)	State Program	3	9930C	12-31-14 *
Wyoming	State Program	8	8TMS-Q	01-29-15 *

* Certification renewal pending - certification considered valid.

Client Name/Address: Haley & Aldrich, Inc. 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Annual Arroyo Simi-Frontier Park		Field readings: Time of readings <u>11:00</u> Meter Serial # <u>VLIQUVKT</u> pH <u>6.87</u> pH unit Temp <u>15.14</u> °C/F Velocity <u>0.4</u> ft/sec Field readings QC Checked by: <u>J. Bannan</u> Date/Time: <u>1-11-15 / 11:00</u>												
Test America Contact: Debby Wilson Project Manager: Nancy Gardiner Sampler: <u>Dan Smith</u>		Phone Number: 619.285.7132, 858.337.4061 (cell) Field Manager: Jeff Bannan: 818.350.7340, 818.414.5608 (cell)		Comments												
Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	Hardness as CaCO ₃	PCBs (608)	Chlorpyrifos, Diazinon (525.2)	Chlordane, Dieldrin, Toxaphene (608), 4,4-DDD, 4,4-DDE, 4,4-DT	TSS	Fecal coliform (SM9221)	E. coli (SM9221)	TCDD (and all congeners)	ANALYSIS REQUIRED
Arroyo Simi	W	1L Poly	1 ✓	ArroyoSimi-20150111	01/11/15 11:00	HNO ₃	1	X								
Arroyo Simi	W	1L Amber	2 ✓	ArroyoSimi-20150111	01/11/15 11:00	None	2A, 2B		X							
Arroyo Simi	W	1L Amber	2 ✓	ArroyoSimi-20150111	01/11/15 11:00	HCl	3A, 3B			X						
Arroyo Simi	W	1L Amber	2 ✓	ArroyoSimi-20150111	01/11/15 11:00	None	4A, 4B				X					
Arroyo Simi	W	1L Poly	1 ✓	ArroyoSimi-20150111	01/11/15 11:00	None	5A					X				
Arroyo Simi	W	125mL Poly	1 ✓	ArroyoSimi-20150111	01/11/15 11:00	Na ₂ S ₂ O ₃	6A						X			
Arroyo Simi	W	125mL Poly	1 ✓	ArroyoSimi-20150111	01/11/15 11:00	Na ₂ S ₂ O ₃	7A							X		
Arroyo Simi	W	1L Amber	2 ✓	ArroyoSimi-20150111	01/11/15 11:00	None	8A, 8B								X	
								Extract within 36-Hours of sampling								
								 440-98715 Chain of Custody								
Relinquished By ANITRA RICE <u>JPR/ci</u>				Date/Time 1-11-15 / 12:05				Relinquished By SHAFIA NABI				Date/Time 1-11-15 / 13:46				
Relinquished By SHAFIA NABI				Date/Time 1/11/15 / 13:46				Relinquished By SHAFIA NABI				Date/Time 1-11-15 / 13:46				
Relinquished By SHAFIA NABI				Date/Time 1-11-15 / 13:46				Relinquished By SHAFIA NABI				Date/Time 1-11-15 / 13:46				

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal X

Sample Integrity: (check)
 Intact _____ On Ice: _____
 Data Requirements: (check)
 No Level IV _____ All Level IV _____
 NPDES Level IV _____

Received
 SHAFIA NABI 1-11-15 13:46
 YTC SHAFIA NABI 1-11-15 13:46

1-11-15 13:46
 1-11-15 13:46



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-98715-1

Login Number: 98715

List Number: 1

Creator: Wilson, Debby S

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
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: 440-98715-1

Login Number: 98715

List Number: 2

Creator: Hytrek, Cheryl

List Source: TestAmerica Sacramento

List Creation: 01/13/15 11:57 AM

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



Isotope Dilution Summary

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

TestAmerica Job ID: 440-98715-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF1 (24-185)	PeCDF2 (21-178)	HxCDD1 (32-141)	HxCDD2 (28-130)	HxCDF1 (26-152)
440-98715-1	ArroyoSimi_20150111	50	50	48	50	48	53	53	56
MB 320-62851/1-A	Method Blank	65	58	60	67	56	58	68	68

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxCDF2 (26-123)	HxCDF4 (29-147)	HxCDF3 (28-136)	HpCDD (23-140)	HpCDF1 (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-98715-1	ArroyoSimi_20150111	58	56	56	53	56	53	48
MB 320-62851/1-A	Method Blank	77	70	66	64	70	67	56

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF1 = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
- HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
- HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF1 (21-192)	PeCDF2 (13-328)	HxCDD1 (21-193)	HxCDD2 (25-163)	HxCDF1 (19-202)
LCS 320-62851/2-A	Lab Control Sample	69	71	65	65	66	63	68	68

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxCDF2 (21-159)	HxCDF4 (17-205)	HxCDF3 (22-176)	HpCDD (26-166)	HpCDF1 (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-62851/2-A	Lab Control Sample	72	69	72	62	65	64	56

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF1 = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
- HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
- HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF

TestAmerica Irvine

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Arroyo Simi-Frontier Park

TestAmerica Job ID: 440-98715-1

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

1

2

3

4

5

6

7

8

9

10

11

12

13

14



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-99136-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-99136-1
Project Manager: K. 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 Name	Matrix	Collection	Method
ArroyoSimi_201 50115	440-99136-1	N/A	Water	1/15/2015 8:40:00 AM	SM9221E, SM9221F

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice. The sample was transported directly from the field via courier and was received at TestAmerica-Irvine within the temperature limits of 4°C ±2°C. According to the laboratory sample receipt log for this SDG, the sample containers were received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the samples were delivered to TestAmerica-Irvine by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: February 16, 2015

The sample listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Methods 9221E, and 9221F*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The e. coli and fecal coliform analytical holding times are listed as immediate. As the sample was prepared the day it was collected, no qualifications were required.
- Calibration: Not applicable to these analyses.
- Blanks: Not applicable to these analyses.
- Blank Spikes and Laboratory Control Samples: The presumptive test showed positive results for the bacteria in each method and was deemed acceptable.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to these analyses.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 440991361

Analysis Method *SM9221E*

Sample Name ArroyoSimi_20150115 **Matrix Type:** WG **Result Type:** TRG

Sample Date: 1/15/2015 8:40:00 AM **Validation Level:** 8

Lab Sample Name: 440-99136-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Fecal Coliform Bacteria	N	COLIFORMFEC AL	350	1.8	0	mpn/100			

Analysis Method *SM9221F*

Sample Name ArroyoSimi_20150115 **Matrix Type:** WG **Result Type:** TRG

Sample Date: 1/15/2015 8:40:00 AM **Validation Level:** 8

Lab Sample Name: 440-99136-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	350	1.8	0	mpn/100			

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: 440-99136-1

Client Project/Site: Annual Arroyo Semi-Frontier Park

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

1/29/2015 5:41:20 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

LINKS

Review your project
results through
TotalAccess

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Visit us at:
www.testamericainc.com

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

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

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

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



Debby Wilson
Manager of Project Management
1/29/2015 5:41:20 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	7
Lab Chronicle	8
QC Association Summary	9
Definitions/Glossary	10
Certification Summary	11
Chain of Custody	12
Receipt Checklists	13

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-99136-1	ArroyoSimi_20150115	Water	01/15/15 08:40	01/15/15 14:11

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Job ID: 440-99136-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-99136-1

Comments

No additional comments.

Receipt

The sample was received on 1/15/2015 2:11 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3° C.

Biology

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



Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Client Sample ID: ArroyoSimi_20150115

Lab Sample ID: 440-99136-1

Date Collected: 01/15/15 08:40

Matrix: Water

Date Received: 01/15/15 14:11

Method: SM 9221E - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	350		1.8	1.8	MPN/100mL			01/15/15 14:36	1

Method: SM 9221F - E.Coli (Multiple-Tube Fermentation; EC-MUG)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	350		1.8	1.8	MPN/100mL			01/15/15 14:36	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Method	Method Description	Protocol	Laboratory
SM 9221E	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

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

Laboratory References:

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 Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Client Sample ID: ArroyoSimi_20150115

Lab Sample ID: 440-99136-1

Date Collected: 01/15/15 08:40

Matrix: Water

Date Received: 01/15/15 14:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 9221E		1	100 mL	100 mL	230269	(Start) 01/15/15 14:36 (End) 01/18/15 12:38	AMH	TAL IRV
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	230270	(Start) 01/15/15 14:36 (End) 01/18/15 12:38	AMH	TAL IRV

Laboratory References:

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



QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Biology

Analysis Batch: 230269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99136-1	ArroyoSimi_20150115	Total/NA	Water	SM 9221E	

Analysis Batch: 230270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99136-1	ArroyoSimi_20150115	Total/NA	Water	SM 9221F	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Arroyo Semi-Frontier Park

TestAmerica Job ID: 440-99136-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-15 *
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-99136-1

Login Number: 99136

List Number: 1

Creator: Blocker, Kristina M

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-99284-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-99284-1
Project Manager: K. 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 Name	Matrix	Collection	Method
ArroyoSimi_201 50119	440-99284-1	N/A	Water	1/19/2015 9:45:00 AM	SM9221E, SM9221F

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice. The sample was transported directly from the field via courier and was received at TestAmerica-Irvine within the temperature limits of 4°C ±2°C. According to the laboratory sample receipt log for this SDG, the sample containers were received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the samples were delivered to TestAmerica-Irvine by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: February 16, 2015

The sample listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Methods 9221E, and 9221F*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The e. coli and fecal coliform analytical holding times are listed as immediate. As the sample was prepared the day it was collected, no qualifications were required.
- Calibration: Not applicable to these analyses.
- Blanks: Not applicable to these analyses.
- Blank Spikes and Laboratory Control Samples: Presumptive tests showed positive results for the bacteria and were deemed acceptable.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to these analyses.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 440992841

Analysis Method *SM9221E*

Sample Name ArroyoSimi_20150119 **Matrix Type:** WG **Result Type:** TRG

Sample Date: 1/19/2015 9:45:00 AM **Validation Level:** 8

Lab Sample Name: 440-99284-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Fecal Coliform Bacteria	N	COLIFORMFEC AL	920	1.8	0	mpn/100			

Analysis Method *SM9221F*

Sample Name ArroyoSimi_20150119 **Matrix Type:** WG **Result Type:** TRG

Sample Date: 1/19/2015 9:45:00 AM **Validation Level:** 8

Lab Sample Name: 440-99284-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	110	1.8	0	mpn/100			

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine

17461 Derian Ave

Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-99284-1

Client Project/Site: Boeing SSFL Annual Arroyo Simi-Frontier

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

1/29/2015 5:44:49 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

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



Debby Wilson
Manager of Project Management
1/29/2015 5:44:49 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	7
Lab Chronicle	8
QC Association Summary	9
Definitions/Glossary	10
Certification Summary	11
Chain of Custody	12
Receipt Checklists	13

Sample Summary

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

TestAmerica Job ID: 440-99284-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-99284-1	ArroyoSimi_20150119	Water	01/19/15 09:45	01/19/15 15:30

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Case Narrative

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

TestAmerica Job ID: 440-99284-1

Job ID: 440-99284-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-99284-1

Comments

No additional comments.

Receipt

The sample was received on 1/19/2015 3:30 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

Biology

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



Client Sample Results

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

TestAmerica Job ID: 440-99284-1

Client Sample ID: ArroyoSimi_20150119

Lab Sample ID: 440-99284-1

Date Collected: 01/19/15 09:45

Matrix: Water

Date Received: 01/19/15 15:30

Method: SM 9221E - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	920		1.8	1.8	MPN/100mL			01/19/15 15:59	1

Method: SM 9221F - E.Coli (Multiple-Tube Fermentation; EC-MUG)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	110		1.8	1.8	MPN/100mL			01/19/15 15:59	1

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Method Summary

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

TestAmerica Job ID: 440-99284-1

Method	Method Description	Protocol	Laboratory
SM 9221E	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

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

Laboratory References:

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

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Lab Chronicle

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

TestAmerica Job ID: 440-99284-1

Client Sample ID: ArroyoSimi_20150119

Lab Sample ID: 440-99284-1

Date Collected: 01/19/15 09:45

Matrix: Water

Date Received: 01/19/15 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 9221E		1	100 mL	100 mL	230661	(Start) 01/19/15 15:59 (End) 01/22/15 13:24	ST	TAL IRV
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	230663	(Start) 01/19/15 15:59 (End) 01/22/15 13:26	ST	TAL IRV

Laboratory References:

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



QC Association Summary

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

TestAmerica Job ID: 440-99284-1

Biology

Analysis Batch: 230661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99284-1	ArroyoSimi_20150119	Total/NA	Water	SM 9221E	

Analysis Batch: 230663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99284-1	ArroyoSimi_20150119	Total/NA	Water	SM 9221F	

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Definitions/Glossary

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

TestAmerica Job ID: 440-99284-1

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

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

TestAmerica Job ID: 440-99284-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-15 *
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-99284-1

Login Number: 99284

List Number: 1

Creator: Blocker, Kristina M

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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.	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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-99699-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-99699-1
Project Manager: K. 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 Name	Matrix	Collection	Method
ArroyoSimi_201 50123	440-99699-1	N/A	Water	1/23/2015 9:30:00 AM	SM9221E, SM9221F

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice. The sample was transported directly from the field via courier and was received at TestAmerica-Irvine within the temperature limits of 4°C \pm 2°C. According to the laboratory sample receipt log for this SDG, the sample containers were received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the samples were delivered to TestAmerica-Irvine by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: February 16, 2015

The sample listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Methods 9221E, and 9221F*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The e. coli and fecal coliform analytical holding times are listed as immediate. As the sample was prepared the day it was collected, no qualifications were required.
- Calibration: Not applicable to these analyses.
- Blanks: Not applicable to these analyses.
- Blank Spikes and Laboratory Control Samples: Presumptive tests showed positive results for the bacteria and were deemed acceptable.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to these analyses.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 440996991

Analysis Method *SM9221E*

Sample Name ArroyoSimi_20150123 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/23/2015 9:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-99699-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Fecal Coliform Bacteria	N	COLIFORMFEC AL	1600	1.8	0	mpn/100			

Analysis Method *SM9221F*

Sample Name ArroyoSimi_20150123 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/23/2015 9:30:00 AM **Validation Level:** 8

Lab Sample Name: 440-99699-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	1600	1.8	0	mpn/100			

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: 440-99699-1

Client Project/Site: Annual Arroyo Simi-Frontier Park

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

1/30/2015 6:33:54 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

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

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12



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	6
Lab Chronicle	7
QC Association Summary	8
Definitions/Glossary	9
Certification Summary	10
Chain of Custody	11
Receipt Checklists	12

Sample Summary

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

TestAmerica Job ID: 440-99699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-99699-1	ArroyoSimi_20150123	Water	01/23/15 09:30	01/23/15 13:20

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Case Narrative

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

TestAmerica Job ID: 440-99699-1

Job ID: 440-99699-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-99699-1

Comments

No additional comments.

Receipt

The sample was received on 1/23/2015 1:20 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

Biology

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



Client Sample Results

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

TestAmerica Job ID: 440-99699-1

Client Sample ID: ArroyoSimi_20150123

Lab Sample ID: 440-99699-1

Date Collected: 01/23/15 09:30

Matrix: Water

Date Received: 01/23/15 13:20

Method: SM 9221E - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	1600		1.8	1.8	MPN/100mL			01/23/15 13:34	1

Method: SM 9221F - E.Coli (Multiple-Tube Fermentation; EC-MUG)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	1600		1.8	1.8	MPN/100mL			01/23/15 13:34	1

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Method Summary

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

TestAmerica Job ID: 440-99699-1

Method	Method Description	Protocol	Laboratory
SM 9221E	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

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

Laboratory References:

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

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Lab Chronicle

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

TestAmerica Job ID: 440-99699-1

Client Sample ID: ArroyoSimi_20150123

Lab Sample ID: 440-99699-1

Date Collected: 01/23/15 09:30

Matrix: Water

Date Received: 01/23/15 13:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 9221E		1	100 mL	100 mL	232015	(Start) 01/23/15 13:34 (End) 01/25/15 14:35	ST	TAL IRV
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	232016	(Start) 01/23/15 13:34 (End) 01/25/15 14:36	ST	TAL IRV

Laboratory References:

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



QC Association Summary

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

TestAmerica Job ID: 440-99699-1

Biology

Analysis Batch: 232015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99699-1	ArroyoSimi_20150123	Total/NA	Water	SM 9221E	

Analysis Batch: 232016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99699-1	ArroyoSimi_20150123	Total/NA	Water	SM 9221F	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Definitions/Glossary

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

TestAmerica Job ID: 440-99699-1

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

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

TestAmerica Job ID: 440-99699-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-15 *
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-99699-1

Login Number: 99699

List Number: 1

Creator: Soderblom, Tim

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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.	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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-99908-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-99908-1
Project Manager: K. 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 Name	Matrix	Collection	Method
ArroyoSimi_201 50127	440-99908-1	N/A	Water	1/27/2015 9:35:00 AM	SM9221E, SM9221F

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice. The sample was transported directly from the field via courier and was received at TestAmerica-Irvine within the temperature limits of 4°C ±2°C. According to the laboratory sample receipt log for this SDG, the sample containers were received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the samples were delivered to TestAmerica-Irvine by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: February 16, 2015

The sample listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *Standard Methods for the Examination of Water and Wastewater (2006) Methods 9221E, and 9221F*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The e. coli and fecal coliform analytical holding times are listed as immediate. As the sample was prepared the day it was collected, no qualifications were required.
- Calibration: Not applicable to these analyses.
- Blanks: Not applicable to these analyses.
- Blank Spikes and Laboratory Control Samples: Presumptive tests showed positive results for the bacteria and were deemed acceptable.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on the sample in this SDG. The RPDs between the results was 0%.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to these analyses.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 440999081

Analysis Method *SM9221E*

Sample Name ArroyoSimi_20150127 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/27/2015 9:35:00 AM **Validation Level:** 8

Lab Sample Name: 440-99908-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Fecal Coliform Bacteria	N	COLIFORMFEC AL	>1600	1.8	0	mpn/100			

Analysis Method *SM9221F*

Sample Name ArroyoSimi_20150127 **Matrix Type:** WM **Result Type:** TRG

Sample Date: 1/27/2015 9:35:00 AM **Validation Level:** 8

Lab Sample Name: 440-99908-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	>1600	1.8	0	mpn/100			

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine

17461 Derian Ave

Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-99908-1

Client Project/Site: Annual Arroyo Simi-Frontier Park

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

1/30/2015 5:42:06 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

1

2

3

4

5

6

7

8

9

10

11

12



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	6
Lab Chronicle	7
QC Association Summary	8
Definitions/Glossary	9
Certification Summary	10
Chain of Custody	11
Receipt Checklists	12

Sample Summary

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

TestAmerica Job ID: 440-99908-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-99908-1	ArroyoSimi_20150127	Water	01/27/15 09:35	01/27/15 14:20

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Case Narrative

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

TestAmerica Job ID: 440-99908-1

Job ID: 440-99908-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-99908-1

Comments

No additional comments.

Receipt

The sample was received on 1/27/2015 2:20 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

Biology

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

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Client Sample Results

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

TestAmerica Job ID: 440-99908-1

Client Sample ID: ArroyoSimi_20150127

Lab Sample ID: 440-99908-1

Date Collected: 01/27/15 09:35

Matrix: Water

Date Received: 01/27/15 14:20

Method: SM 9221E - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	>1600		1.8	1.8	MPN/100mL			01/27/15 16:12	1

Method: SM 9221F - E.Coli (Multiple-Tube Fermentation; EC-MUG)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	>1600		1.8	1.8	MPN/100mL			01/27/15 16:12	1

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- 10
- 11
- 12

Method Summary

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

TestAmerica Job ID: 440-99908-1

Method	Method Description	Protocol	Laboratory
SM 9221E	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

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

Laboratory References:

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 Arroyo Simi-Frontier Park

TestAmerica Job ID: 440-99908-1

Client Sample ID: ArroyoSimi_20150127

Lab Sample ID: 440-99908-1

Date Collected: 01/27/15 09:35

Matrix: Water

Date Received: 01/27/15 14:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 9221E		1	100 mL	100 mL	232651	(Start) 01/27/15 16:12 (End) 01/29/15 14:14	ECK	TAL IRV
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	232652	(Start) 01/27/15 16:12 (End) 01/29/15 14:14	ECK	TAL IRV

Laboratory References:

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



QC Association Summary

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

TestAmerica Job ID: 440-99908-1

Biology

Analysis Batch: 232651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99908-1	ArroyoSimi_20150127	Total/NA	Water	SM 9221E	

Analysis Batch: 232652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99908-1	ArroyoSimi_20150127	Total/NA	Water	SM 9221F	

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Definitions/Glossary

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

TestAmerica Job ID: 440-99908-1

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

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

TestAmerica Job ID: 440-99908-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine

Client Name/Address: Haley & Aldrich, Inc. 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSF L NPDES Annual Arroyo Simi-Frontier Park		Field readings: Time of readings: 0930 Meter Serial # YLS04KIT pH 6.64 pH unit Temp 14.36 °C/°F Velocity 0.0 ft/sec					
Test America Contact: Debby Wilson Project Manager: Nancy Gardiner Sampler: Roy Barajas + Dan Smith		Phone Number: 619.285.7132, 858.337.4061(cell) Field Manager: Jeff Bannon: 818.350.7340, 818.414.5608(cell)		Field readings QC Checked by: AR Date/Time: 1-27-15 / 0940					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sample I.D.	Sampling Date/Time	Preservative	Bottle #	Analysis Required	Comments
Arroyo Simi	W	125mL Poly	1	ArroyoSimi-2015 0127	1/27/15 0935	Na2S2O3	6A	Fecal coliform (SM9221) E. coli (SM9221)	
Arroyo Simi	W	125mL Poly	1	ArroyoSimi-2015 0127	1/27/15 0935	Na2S2O3	7A	X	
 440-99908 Chain of Custody									
Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	Turn around Time: (check)	On loc:
<i>[Signature]</i>	1/27/15 1105	<i>[Signature]</i>	1/27/15 1105	<i>[Signature]</i>	1-27-15 1205	<i>[Signature]</i>	01/27/15 1620	24 Hours	5 Days
Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	48 Hours	10 Days
<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	72 Hours	Normal
Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	Relinquished By	Date/Time:	Sample Integrity: (check)	On loc:
<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	<i>[Signature]</i>	1-27-15 1620	Intact	
								Data Requirements: (check)	NPDES Level IV
								No Level IV	All Level IV

4.8 / 4.0 °C 10-6-1

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-99908-1

Login Number: 99908

List Source: TestAmerica Irvine

List Number: 1

Creator: Blocker, Kristina M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-103210-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-103210-1
Project Manager: K. Miller
Matrix: Water
QC Level: IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica Irvine

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Name</i>	<i>Sample</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
ArroyoSimi_20150303	440-103210-1		N/A	Water	3/3/2015 8:24:00 AM	SM2340

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice and within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the sample container was received intact and properly preserved, as applicable. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the sample was delivered to the laboratory by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LSC/LSCD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. EPA METHOD 200.7 and SM2340B—Hardness

Reviewed By: P. Meeks

Date Reviewed: March 20, 2015

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 200.7, Standard Method for the Examination of Water and Wastewater Method 2340B*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- Holding Times: The analytical holding time, six months, was met.
- Calibration: The ICV and CCV recoveries were within the control limits of 90-110%. The CRI recoveries were within the control limits of 70-130%.
- Blanks: Calcium was detected in the method blank but not at sufficient concentration to qualify the site sample. The method blank and CCBs had no other detects sample results.
- Interference Check Samples: Recoveries were within 80-120%.
- Blank Spikes and Laboratory Control Samples: The recoveries were within the method control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. MEC^x assessed method accuracy based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-,” otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4401032101

Analysis Method *SM2340*

Sample Name ArroyoSimi_20150303 **Matrix Type:** WS **Result Type:** TRG

Sample Date: 3/3/2015 8:24:00 AM **Validation Level:** 8

Lab Sample Name: 440-103210-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	T	HARDNESSCA CO3 260	0.33	0.17		mg/L			

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine

17461 Derian Ave

Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-103210-1

Client Project/Site: Boeing SSFL outfalls

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

3/17/2015 2:38:53 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

1

2

3

4

5

6

7

8

9

10

11

12

13



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	6
Lab Chronicle	7
QC Sample Results	8
QC Association Summary	10
Definitions/Glossary	11
Certification Summary	12
Chain of Custody	13
Receipt Checklists	14

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-103210-1	ArroyoSimi_20150303	Water	03/03/15 08:24	03/03/15 12:16

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Job ID: 440-103210-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-103210-1

Comments

No additional comments.

Receipt

The samples were received on 3/3/2015 12:16 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.8° C and 1.9° C.

Metals

Method(s) 200.7 Rev 4.4: In batch 241634 the MRL check was out of range for Calcium. Since the results were higher than the LCS the data was not impacted: ArroyoSimi_20150303 (440-103210-1)

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



Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Client Sample ID: ArroyoSimi_20150303

Lab Sample ID: 440-103210-1

Date Collected: 03/03/15 08:24

Matrix: Water

Date Received: 03/03/15 12:16

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	260		0.33	0.17	mg/L			03/13/15 11:54	1

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Method	Method Description	Protocol	Laboratory
SM 2340B	Total Hardness (as CaCO ₃) by calculation	SM	TAL IRV

Protocol References:

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

Laboratory References:

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: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Client Sample ID: ArroyoSimi_20150303

Lab Sample ID: 440-103210-1

Date Collected: 03/03/15 08:24

Matrix: Water

Date Received: 03/03/15 12:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	SM 2340B		1			239938	03/13/15 11:54	NH	TAL IRV

Laboratory References:

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

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- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-241634/1-A
Matrix: Water
Analysis Batch: 241916

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.020	0.010	mg/L		03/10/15 11:19	03/10/15 20:31	1

Lab Sample ID: MB 440-241634/1-A
Matrix: Water
Analysis Batch: 241999

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0683	J,DX	0.10	0.050	mg/L		03/10/15 11:19	03/11/15 12:25	1

Lab Sample ID: LCS 440-241634/3-A
Matrix: Water
Analysis Batch: 241916

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Magnesium	2.50	2.58		mg/L		103	85 - 115

Lab Sample ID: LCS 440-241634/3-A
Matrix: Water
Analysis Batch: 241999

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	2.50	2.56		mg/L		102	85 - 115

Lab Sample ID: 440-103260-C-1-E MS
Matrix: Water
Analysis Batch: 241916

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Magnesium	18		2.50	19.9	BB	mg/L		95	70 - 130

Lab Sample ID: 440-103260-C-1-E MS
Matrix: Water
Analysis Batch: 241999

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	53	MB	2.50	53.8	BB	mg/L		44	70 - 130

Lab Sample ID: 440-103260-C-1-F MSD
Matrix: Water
Analysis Batch: 241916

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Magnesium	18		2.50	20.1	BB	mg/L		101	70 - 130	1	20

Lab Sample ID: 440-103260-C-1-F MSD
Matrix: Water
Analysis Batch: 241999

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 241634

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	53	MB	2.50	53.1	BB	mg/L		14	70 - 130	1	20

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Metals

Analysis Batch: 239938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-103210-1	ArroyoSimi_20150303	Total Recoverable	Water	SM 2340B	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL outfalls

TestAmerica Job ID: 440-103210-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Arroyo Simi-Frontier Park (Footnote 2 E-26 with effluent)		Field Readings Field readings: (Include units) <u>VH7VADIK</u> Meter serial # _____ Time of readings: <u>8:21</u>	
Test America Contact: Debby Wilson Project Manager: Nancy Gardiner		Phone Number: Field Manager: Jeff Bannan 818.350.7340, 818.414.5608(ceil)		pH <u>7.33</u> pH unit Temp <u>9.76</u> °F Velocity <u>0.01</u> f/sec	
Sampler: BREYAN DENSON JHA BOY BARAJOS		Sample I.D. <u>0303</u> Arroyo Simi_2015		Field readings QC Checked by: <u>[Signature]</u> Date/Time: <u>3-3-15 0830</u>	
Sample Description Arroyo Simi	Container Type 1L Poly	# of Cont. 1	Sampling Date/Time 3/3/2015 8:24	Preservative HNO ₃	Bottle # 1
ANALYSIS REQUIRED					
Hardness as CaCO ₃ X					
Footnote 2 page E-26 of the permit states only pH and hardness must be collected at the same time as effluent samples. Velocity was added for informational purposes.					
					
440-103210 Chain of Custody					
Relinquished By [Signature]		Date/Time: 3/3/15 10:36 AM		Received By [Signature]	
Relinquished By [Signature]		Date/Time: 3/3/15 12:16 PM		Received By [Signature]	
Relinquished By [Signature]		Date/Time: 3/3/15 12:15		Received By [Signature]	

CO
3/3/15
15:50

23°C/18°C
 16°C/11°C
 24°C/19°C
 IR-64



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-103210-1

Login Number: 103210

List Number: 1

Creator: Soderblom, Tim

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-105204-1

Prepared by

MEC^x
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order: 1272.003H.01 001
Sample Delivery Group: 440-105204-1
Project Manager: K. Miller
Matrix: Sediment
QC Level: IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica Irvine

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Name</i>	<i>Sample</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
ArroyoSimi-SE-20150324	440-105204-1		N/A	Sediment	3/24/2015 8:20:00 AM	8081A, 8082, 9060, SM 4500 NH3 D, ASTM D422M

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice and within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the sample containers were received intact and properly preserved, as applicable. The COC was appropriately signed and dated by field and laboratory personnel. Custody seal information was not provided by the laboratory; however, the sample was delivered to the laboratory by courier.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LSC/LSCD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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

A. EPA METHODS 8081A—Pesticides

Reviewed By: L. Calvin

Date Reviewed: April 6, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0)*, *EPA Method 8081A*, and the *National Functional Guidelines for Superfund Organic Methods Data Review (6/08)*.

- Holding Times: Extraction and analytical holding times were met. The sediment sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: The initial calibration had r^2 of ≥ 0.990 on both analytical columns. The ICV had %Ds within the QC limit of $\leq 15\%$. The chlordane CCVs bracketing the sample analysis had several peaks with marginally high responses, and the bracketing CCV had marginally high %Ds for 4,4'-DDE and dieldrin; however, as the sample had no detects, the high responses did not affect the results. As there were no primary column detects to confirm, secondary column CCVs were not assessed. The breakdown totals for endrin and 4,4'-DDT were $\leq 15\%$.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratory-established QC limits. Chlordane and toxaphene were not spiked in the LCS.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. Recoveries and RPDs were within laboratory-established QC limits. Chlordane and toxaphene were not spiked in the MS/MSD.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: This SDG had no identified field duplicate samples.

- **Compound Identification:** Compound identification was verified. The laboratory analyzed for individual pesticides 4,4'-DDD, 4,4'DDE, 4,4'-DDT, and dieldrin, and for chlordane and toxaphene by Method 8081A.
- **Compound Quantification and Reported Detection Limits:** Sample quantitation was verified for the sample and for LCS and MS/MSD results. Any result reported between the MDL and the reporting limit was qualified as estimated, "J," and coded with "DNQ" in order to comply with the NPDES permit. Reported nondetects are valid to the reporting limit.

B. EPA METHOD 8082—PCBs

Reviewed By: L. Calvin

Date Reviewed: April 6, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0)*, *EPA Method 8082*, and the *National Functional Guidelines for Organic Data Review (10/99)*.

- **Holding Times:** Extraction and analytical holding times were met. The sediment sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- **Calibration:** The initial calibrations had %RSDs of $\leq 20\%$ or r^2 of ≥ 0.990 on both analytical columns. The ICV and CCVs bracketing the sample analysis had %Ds within the QC limit of $\leq 15\%$. As there were no primary column detects to confirm, secondary column CCVs were not assessed.
- **Blanks:** The method blank had no target compound detects above the MDL.
- **Blank Spikes and Laboratory Control Samples:** Recoveries were within laboratory-established QC limits.
- **Surrogate Recovery:** Recoveries were within laboratory-established QC limits.
- **Matrix Spike/Matrix Spike Duplicate:** MS/MSD analyses were performed on the sample in this SDG. Recoveries and RPDs were within laboratory-established QC limits.
- **Field QC Samples:** Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - **Field Blanks and Equipment Rinsates:** This SDG had no identified field blank or equipment rinsate samples.
 - **Field Duplicates:** There were no field duplicate samples identified for this SDG.

- **Compound Identification:** Compound identification was verified. The laboratory analyzed for six Aroclors by Method 8082. Review of the sample chromatograms and retention times indicated no problems with target compound identification.
- **Compound Quantification and Reported Detection Limits:** Compound quantification was verified from the raw data. The reporting limits were supported by the lower level of the initial calibration. Any result reported between the MDL and the reporting limit was qualified as estimated, "J," and coded with "DNQ" in order to comply with the NPDES permit. Reported nondetects are valid to the reporting limit.

C. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks

Date Reviewed: April 6, 2015

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. 0)*, *EPA Method 9060, Standard Methods for the Analysis of Water and Wastewater Method 4500 NH3 D*, *ASTM Method D422M*, and the *National Functional Guidelines for Inorganic Data Review (2014)*.

- **Holding Times:** Analytical holding times, 28 days for ammonia and TOC, were met. No holding time is published for particle size.
- **Calibration:** Calibration criteria were met. Initial calibration r^2 values were ≥ 0.995 and all initial and continuing calibration recoveries were within 90-110%. Calibration is not applicable to particle size.
- **Blanks:** Target compounds were not detected in the method blanks and CCBs. Blanks are not applicable to particle size.
- **Laboratory Control Samples:** Recoveries were within laboratory control limits. The LCS is not applicable to particle size.
- **Laboratory Duplicates:** No laboratory duplicate analyses were performed on the sample in this SDG
- **Matrix Spike/Matrix Spike Duplicate:** MS/MSD analyses were performed on the sample in this SDG for ammonia and TOC. Recoveries and RPDs were within laboratory control limits. MS/MSD analyses are not applicable to particle size.
- **Sample Result Verification:** Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. Any result reported between the MDL and the reporting limit was qualified as estimated, "J," and coded with "DNQ" in order to comply with the NPDES permit. Reported nondetects are valid to the reporting limit.

The TOC method requires quadruplicate analysis. The sample and its MS/MSD were analyzed in quadruplicate; however, the calibration standards and QC samples were analyzed only once. As the true values for the initial calibration standards and QC samples were known, no qualifications were deemed necessary.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 4401052041

Analysis Method D422M

Sample Name ArroyoSimi-SE-20150324 Matrix Type: SE Result Type: TRG

Sample Date: 3/24/2015 8:20:00 AM Validation Level: 8

Lab Sample Name: 440-105204-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Coarse Sand	N	GSCSAND	10.71			%			
Fine Sand	N	GSFSAND	7.07			%			
Gravel	N	GRAVEL	54.13			%			
Medium Sand	N	GSMSAND	27.91			%			
Silt/Clay	N	GSSILTCLAY	0.17			%			

Analysis Method SM4500-NH3E

Sample Name ArroyoSimi-SE-20150324 Matrix Type: SE Result Type: TRG

Sample Date: 3/24/2015 8:20:00 AM Validation Level: 8

Lab Sample Name: 440-105204-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Ammonia-Nitrogen	N	7664-41-7N	3.14	4.54	0.909	mg/kg	J,DX	J	DNQ

Analysis Method SW8081A

Sample Name ArroyoSimi-SE-20150324 Matrix Type: SE Result Type: TRG

Sample Date: 3/24/2015 8:20:00 AM Validation Level: 8

Lab Sample Name: 440-105204-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8		4.9	1.5	ug/kg	U	U	
4,4'-DDE	N	72-55-9		4.9	1.5	ug/kg	U	U	
4,4'-DDT	N	50-29-3		4.9	1.5	ug/kg	U	U	
Chlordane	N	57-74-9		49	9.7	ug/kg	U	U	
Dieldrin	N	60-57-1		4.9	1.5	ug/kg	U	U	
Toxaphene	N	8001-35-2		190	49	ug/kg	U	U	

Analysis Method SW8082**Sample Name** ArroyoSimi-SE-20150324 **Matrix Type:** SE **Result Type:** TRG**Sample Date:** 3/24/2015 8:20:00 AM **Validation Level:** 8**Lab Sample Name:** 440-105204-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016 (PCB-1016)	N	12674-11-2		49	17	ug/kg	U	U	
Aroclor-1221 (PCB-1221)	N	11104-28-2		49	17	ug/kg	U	U	
Aroclor-1232 (PCB-1232)	N	11141-16-5		49	17	ug/kg	U	U	
Aroclor-1242 (PCB-1242)	N	53469-21-9		49	17	ug/kg	U	U	
Aroclor-1248 (PCB-1248)	N	12672-29-6		49	17	ug/kg	U	U	
Aroclor-1254 (PCB-1254)	N	11097-69-1		49	17	ug/kg	U	U	
Aroclor-1260 (PCB-1260)	N	11096-82-5		49	17	ug/kg	U	U	

Analysis Method SW9060**Sample Name** ArroyoSimi-SE-20150324 **Matrix Type:** SE **Result Type:** TRG**Sample Date:** 3/24/2015 8:20:00 AM **Validation Level:** 8**Lab Sample Name:** 440-105204-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Organic Carbon (TOC)	N	TOC		5000	2500	mg/kg	U	U	

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: 440-105204-1

Client Project/Site: Boeing SSFL NPDES

Revision: 1

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

4/10/2015 4:10:51 PM

Heather Clark, Project Manager I

heather.clark@testamericainc.com

Designee for

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

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

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

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

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4

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6

7

8

9

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11

12

13

14



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	6
Lab Chronicle	7
QC Sample Results	8
QC Association Summary	12
Definitions/Glossary	14
Certification Summary	15
Subcontract Data	16
Chain of Custody	21
Receipt Checklists	22

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-105204-1	ArroyoSimi-SE-20150324	Solid	03/24/15 08:20	03/24/15 18:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
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- 12
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- 14

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Job ID: 440-105204-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-105204-1

Comments

No additional comments.

Receipt

The sample was received on 3/24/2015 6:45 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0° C.

GC Semi VOA

Method(s) 8081A: The continuing calibration verification (CCV) associated with batch 246639 recovered above the upper control limit for DDE, A-Chlordane, Dieldrin and G-Chlordane and technical chlordane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 440-246639/23), ArroyoSimi-SE-20150324 (440-105204-1).

Method(s) 8082: The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: (440-105204-1 MS), (440-105204-1 MSD), (LCS 440-246641/5-A), (MB 440-246641/1-A), ArroyoSimi-SE-20150324 (440-105204-1).

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

General Chemistry

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

Subcontract non-Sister

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

Organic Prep

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Client Sample ID: ArroyoSimi-SE-20150324

Lab Sample ID: 440-105204-1

Date Collected: 03/24/15 08:20

Matrix: Solid

Date Received: 03/24/15 18:45

Percent Solids: 78.1

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		4.9	1.5	ug/Kg		04/02/15 10:45	04/02/15 16:31	1
4,4'-DDE	ND		4.9	1.5	ug/Kg		04/02/15 10:45	04/02/15 16:31	1
4,4'-DDT	ND		4.9	1.5	ug/Kg		04/02/15 10:45	04/02/15 16:31	1
Chlordane (technical)	ND		49	9.7	ug/Kg		04/02/15 10:45	04/02/15 16:31	1
Dieldrin	ND		4.9	1.5	ug/Kg		04/02/15 10:45	04/02/15 16:31	1
Toxaphene	ND		190	49	ug/Kg		04/02/15 10:45	04/02/15 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	90		45 - 120	04/02/15 10:45	04/02/15 16:31	1
Tetrachloro-m-xylene	73		35 - 115	04/02/15 10:45	04/02/15 16:31	1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1221	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1232	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1242	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1248	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1254	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1
Aroclor 1260	ND		49	17	ug/Kg		04/02/15 10:45	04/02/15 16:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	76		45 - 120	04/02/15 10:45	04/02/15 16:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		5000	2500	mg/Kg			04/02/15 13:15	1
Ammonia (as N)	3.14	J,DX	4.54	0.909	mg/Kg		03/30/15 05:30	03/30/15 06:49	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL IRV
9060	Organic Carbon, Total (TOC)	SW846	TAL IRV
Moisture	Percent Moisture	EPA	TAL IRV
SM 4500 NH3 D	Ammonia	SM	TAL IRV
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:

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

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: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Client Sample ID: ArroyoSimi-SE-20150324

Lab Sample ID: 440-105204-1

Date Collected: 03/24/15 08:20

Matrix: Solid

Date Received: 03/24/15 18:45

Percent Solids: 78.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.43 g	2 mL	246641	04/02/15 10:45	ES	TAL IRV
Total/NA	Analysis	8081A		1	15.43 g	2 mL	246639	04/02/15 16:31	KS	TAL IRV
Total/NA	Prep	3546			15.43 g	2 mL	246641	04/02/15 10:45	ES	TAL IRV
Total/NA	Analysis	8082		1	15.43 g	2 mL	246428	04/02/15 16:46	CN	TAL IRV
Total/NA	Analysis	9060		1	0.1012 g	0.1012 g	246694	04/02/15 13:15	YZ	TAL IRV
Total/NA	Analysis	Moisture		1			245104	03/25/15 21:32	NTN	TAL IRV
Total/NA	Prep	SM 4500 NH3 B			5.5010 g	50 mL	245729	03/30/15 05:30	YZ	TAL IRV
Total/NA	Analysis	SM 4500 NH3 D		1	5.5010 g	50 mL	245743	03/30/15 06:49	YZ	TAL IRV

Laboratory References:

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

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



QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-246641/1-A

Matrix: Solid

Analysis Batch: 246639

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 246641

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		5.0	1.5	ug/Kg		04/02/15 10:45	04/02/15 15:36	1
4,4'-DDE	ND		5.0	1.5	ug/Kg		04/02/15 10:45	04/02/15 15:36	1
4,4'-DDT	ND		5.0	1.5	ug/Kg		04/02/15 10:45	04/02/15 15:36	1
Chlordane (technical)	ND		50	10	ug/Kg		04/02/15 10:45	04/02/15 15:36	1
Dieldrin	ND		5.0	1.5	ug/Kg		04/02/15 10:45	04/02/15 15:36	1
Toxaphene	ND		200	50	ug/Kg		04/02/15 10:45	04/02/15 15:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	94		45 - 120	04/02/15 10:45	04/02/15 15:36	1
Tetrachloro-m-xylene	62		35 - 115	04/02/15 10:45	04/02/15 15:36	1

Lab Sample ID: LCS 440-246641/2-A

Matrix: Solid

Analysis Batch: 246639

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 246641

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	13.3	13.4		ug/Kg		101	60 - 120
4,4'-DDE	13.3	12.3		ug/Kg		92	60 - 120
4,4'-DDT	13.3	13.7		ug/Kg		103	65 - 120
alpha-Chlordane	13.3	12.0		ug/Kg		90	50 - 115
gamma-Chlordane	13.3	11.9		ug/Kg		89	50 - 115
Dieldrin	13.3	12.4		ug/Kg		93	65 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	96		45 - 120
Tetrachloro-m-xylene	74		35 - 115

Lab Sample ID: 440-105204-1 MS

Matrix: Solid

Analysis Batch: 246639

Client Sample ID: ArroyoSimi-SE-20150324

Prep Type: Total/NA

Prep Batch: 246641

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		13.1	12.2		ug/Kg		93	40 - 130
4,4'-DDE	ND		13.1	12.3		ug/Kg		94	35 - 130
4,4'-DDT	ND		13.1	12.1		ug/Kg		93	35 - 130
alpha-Chlordane	ND		13.1	12.0		ug/Kg		92	50 - 115
gamma-Chlordane	ND		13.1	12.4	PI	ug/Kg		95	50 - 115
Dieldrin	ND		13.1	11.8		ug/Kg		90	40 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	89		45 - 120
Tetrachloro-m-xylene	70		35 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

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

Lab Sample ID: 440-105204-1 MSD

Matrix: Solid

Analysis Batch: 246639

Client Sample ID: ArroyoSimi-SE-20150324

Prep Type: Total/NA

Prep Batch: 246641

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD
	Result	Qualifier		Result	Qualifier				Limits	RPD	
4,4'-DDD	ND		13.0	13.0		ug/Kg		99	40 - 130	6	30
4,4'-DDE	ND		13.0	12.6		ug/Kg		97	35 - 130	2	30
4,4'-DDT	ND		13.0	13.1		ug/Kg		100	35 - 130	7	30
alpha-Chlordane	ND		13.0	12.0		ug/Kg		92	50 - 115	0	30
gamma-Chlordane	ND		13.0	12.3	PI	ug/Kg		94	50 - 115	1	30
Dieldrin	ND		13.0	12.2		ug/Kg		94	40 - 125	4	30
MSD MSD											
Surrogate	%Recovery		Qualifier	Limits							
DCB Decachlorobiphenyl (Surr)	90			45 - 120							
Tetrachloro-m-xylene	72			35 - 115							

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 440-246641/1-A

Matrix: Solid

Analysis Batch: 246428

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 246641

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor 1016	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1221	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1232	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1242	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1248	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1254	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
Aroclor 1260	ND		50	17	ug/Kg		04/02/15 10:45	04/02/15 15:45	1
MB MB									
Surrogate	%Recovery		Qualifier	Limits		Prepared	Analyzed	Dil Fac	
DCB Decachlorobiphenyl (Surr)	83			45 - 120		04/02/15 10:45	04/02/15 15:45	1	

Lab Sample ID: LCS 440-246641/5-A

Matrix: Solid

Analysis Batch: 246428

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 246641

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Aroclor 1016	267	244		ug/Kg		92	65 - 115	
Aroclor 1260	267	211		ug/Kg		79	65 - 115	
LCS LCS								
Surrogate	%Recovery		Qualifier	Limits				
DCB Decachlorobiphenyl (Surr)	84			45 - 120				

Lab Sample ID: 440-105204-1 MS

Matrix: Solid

Analysis Batch: 246428

Client Sample ID: ArroyoSimi-SE-20150324

Prep Type: Total/NA

Prep Batch: 246641

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Aroclor 1016	ND		264	226		ug/Kg		85	50 - 120	
Aroclor 1260	ND		264	188		ug/Kg		71	50 - 125	

TestAmerica Irvine

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 440-105204-1 MS
Matrix: Solid
Analysis Batch: 246428

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA
Prep Batch: 246641

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	73		45 - 120

Lab Sample ID: 440-105204-1 MSD
Matrix: Solid
Analysis Batch: 246428

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA
Prep Batch: 246641

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
Aroclor 1016	ND		266	230		ug/Kg		86	50 - 120	2	30	
Aroclor 1260	ND		266	189		ug/Kg		71	50 - 125	0	30	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl (Surr)	73		45 - 120

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-246694/6
Matrix: Solid
Analysis Batch: 246694

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Organic Carbon	ND		5000	2500	mg/Kg			04/02/15 13:01	1

Lab Sample ID: LCS 440-246694/5
Matrix: Solid
Analysis Batch: 246694

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
Total Organic Carbon	10000	10100		mg/Kg		101	90 - 110	

Lab Sample ID: 440-105204-1 MS
Matrix: Solid
Analysis Batch: 246694

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec.	
				Result	Qualifier				Limits	RPD
Total Organic Carbon	ND		19600	20600		mg/Kg		105	70 - 130	

Lab Sample ID: 440-105204-1 MSD
Matrix: Solid
Analysis Batch: 246694

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
Total Organic Carbon	ND		19800	21100		mg/Kg		107	70 - 130	3	30	

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Method: SM 4500 NH3 D - Ammonia

Lab Sample ID: MB 440-245729/2-A
Matrix: Solid
Analysis Batch: 245743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 245729

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		9.99	2.00	mg/Kg		03/30/15 05:30	03/30/15 06:48	1

Lab Sample ID: LCS 440-245729/1-A
Matrix: Solid
Analysis Batch: 245743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 245729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	50.0	49.31		mg/Kg		99	85 - 115

Lab Sample ID: 440-105204-1 MS
Matrix: Solid
Analysis Batch: 245743

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA
Prep Batch: 245729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	3.14	J,DX	22.7	25.11		mg/Kg		97	75 - 125

Lab Sample ID: 440-105204-1 MSD
Matrix: Solid
Analysis Batch: 245743

Client Sample ID: ArroyoSimi-SE-20150324
Prep Type: Total/NA
Prep Batch: 245729

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ammonia (as N)	3.14	J,DX	22.7	26.08		mg/Kg		101	75 - 125	4	15

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

GC Semi VOA

Analysis Batch: 246428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	8082	246641
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	8082	246641
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	8082	246641
LCS 440-246641/5-A	Lab Control Sample	Total/NA	Solid	8082	246641
MB 440-246641/1-A	Method Blank	Total/NA	Solid	8082	246641

Analysis Batch: 246639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	8081A	246641
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	8081A	246641
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	8081A	246641
LCS 440-246641/2-A	Lab Control Sample	Total/NA	Solid	8081A	246641
MB 440-246641/1-A	Method Blank	Total/NA	Solid	8081A	246641

Prep Batch: 246641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	3546	
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	3546	
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	3546	
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	3546	
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	3546	
LCS 440-246641/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 440-246641/5-A	Lab Control Sample	Total/NA	Solid	3546	
MB 440-246641/1-A	Method Blank	Total/NA	Solid	3546	

General Chemistry

Analysis Batch: 245104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	Moisture	
440-105206-A-15 DU	Duplicate	Total/NA	Solid	Moisture	
440-105206-A-15 MS	Matrix Spike	Total/NA	Solid	Moisture	
440-105206-A-15 MSD	Matrix Spike Duplicate	Total/NA	Solid	Moisture	

Prep Batch: 245729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 B	
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 B	
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 B	
LCS 440-245729/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 B	
MB 440-245729/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 B	

Analysis Batch: 245743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 D	245729
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 D	245729
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	SM 4500 NH3 D	245729
LCS 440-245729/1-A	Lab Control Sample	Total/NA	Solid	SM 4500 NH3 D	245729
MB 440-245729/2-A	Method Blank	Total/NA	Solid	SM 4500 NH3 D	245729

TestAmerica Irvine

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

General Chemistry (Continued)

Analysis Batch: 246694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-105204-1	ArroyoSimi-SE-20150324	Total/NA	Solid	9060	
440-105204-1 MS	ArroyoSimi-SE-20150324	Total/NA	Solid	9060	
440-105204-1 MSD	ArroyoSimi-SE-20150324	Total/NA	Solid	9060	
LCS 440-246694/5	Lab Control Sample	Total/NA	Solid	9060	
MB 440-246694/6	Method Blank	Total/NA	Solid	9060	

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
PI	Primary and confirm results varied by > than 40% RPD

General Chemistry

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

* Certification renewal pending - certification considered valid.

TestAmerica Irvine



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

March 31, 2015

Debby S. Wilson
TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817

Re: PTS File No: 45180
Physical Properties Data
Boeing SSFL NPDES; 440-105204-1

Dear Ms. Wilson:

Please find enclosed report for Physical Properties analyses conducted upon the sample received from your Boeing SSFL NPDES; 440-105204-1 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. 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 Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Morgan Richards at (562) 347-2509.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name:
Project Number:

Boeing SSFL NPDES
440-105204-1

PTS File No: 45180
Client: TestAmerica Irvine

TEST PROGRAM - 20150326

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis				Comments
		Plugs:	Grab				
Date Received: 20150326							
ArroyoSimi_SE_20150324 (440-105204-1)	N/A	N/A	X				
TOTALS:	1 Jar		1				

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 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)

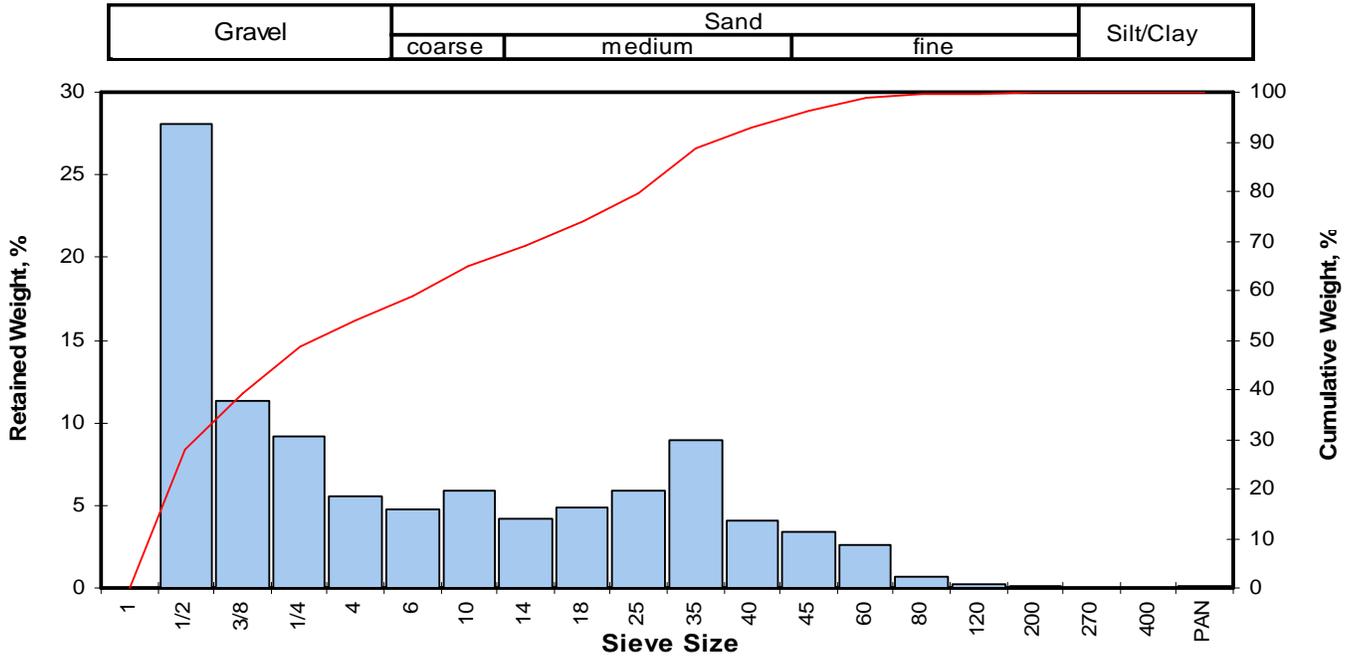
PROJECT NAME: Boeing SSFL NPDES
 PROJECT NO: 440-105204-1

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	
ArroyoSimi_SE_20150324 (440-105204-1)	N/A	Gravel	5.901	54.13	10.71	27.91	7.07	0.17



(1) Based on Mean from Trask

Client: TestAmerica Irvine **PTS File No:** 45180
Project: Boeing SSFL NPDES **Sample ID:** ArroyoSimi_SE_20150324 (440-105204-1)
Project No: 440-105204-1 **Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00				
0.4922	12.501	-3.64	1/2	82.07	28.06	28.06	5	-4.47	0.8700 22.097	
0.3740	9.500	-3.25	3/8	33.20	11.35	39.41	10	-4.29	0.7689 19.530	
0.2500	6.351	-2.67	1/4	26.87	9.19	48.59	16	-4.07	0.6630 16.839	
0.1873	4.757	-2.25	4	16.18	5.53	54.13	25	-3.75	0.5308 13.482	
0.1324	3.364	-1.75	6	14.03	4.80	58.92	40	-3.21	0.3645 9.257	
0.0787	2.000	-1.00	10	17.31	5.92	64.84	50	-2.56	0.2323 5.901	
0.0557	1.414	-0.50	14	12.27	4.19	69.04	60	-1.61	0.1205 3.060	
0.0394	1.000	0.00	18	14.22	4.86	73.90	75	0.09	0.0369 0.937	
0.0278	0.707	0.50	25	17.07	5.84	79.73	84	0.74	0.0236 0.600	
0.0197	0.500	1.00	35	26.27	8.98	88.71	90	1.08	0.0186 0.473	
0.0166	0.420	1.25	40	11.82	4.04	92.76	95	1.42	0.0148 0.375	
0.0139	0.354	1.50	45	9.88	3.38	96.13				
0.0098	0.250	2.00	60	7.65	2.62	98.75				
0.0070	0.177	2.50	80	2.03	0.69	99.44				
0.0049	0.125	3.00	120	0.79	0.27	99.71				
0.0029	0.074	3.75	200	0.33	0.11	99.83				
0.0021	0.053	4.25	270	0.15	0.05	99.88				
0.0015	0.037	4.75	400	0.13	0.04	99.92				
			PAN	0.23	0.08	100.00				
TOTALS							292.50	100.00	100.00	

Measure	Trask	Inman	Folk-Ward
Median, phi	-2.56	-2.56	-2.56
Median, in.	0.2323	0.2323	0.2323
Median, mm	5.901	5.901	5.901
Mean, phi	-2.85	-1.67	-1.97
Mean, in.	0.2838	0.1251	0.1538
Mean, mm	7.209	3.178	3.906
Sorting	3.794	2.406	2.094
Skewness	0.602	0.371	0.362
Kurtosis	0.329	0.223	0.627

Grain Size Description		Gravel	
(ASTM-USCS Scale)		(based on Mean from Trask)	
Description	Retained on Sieve #	Weight	Percent
Gravel	4	54.13	
Coarse Sand	10	10.71	
Medium Sand	40	27.91	
Fine Sand	200	7.07	
Silt/Clay	<200	0.17	
Total		100	

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich, Inc. 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Annual Sediment Arroyo Simi-Frontier Park		Phone Number: 619.285.7132, 858.337.4061 (cell) Field Contact, Jeff Bannon: 818.350.7340, 818.414.5608 (cell)	
Test America Contact: Debby Wilson Project Manager: Nancy Gardiner Sampler: D. Smith		# of Cont. 4		Bottle # 1A, 1B, 1C, 1D	
Sample Description Arroyo Simi	Matrix S	Container Type 1L wide mouth Plastic	Sample ID ArroyoSimi-SE-20150324	Sampling Date/Time 03/24/15 / 0820	Pres 4C in the Dark
Arroyo Simi	S	9 oz Jar	ArroyoSimi-SE-20150324	03/24/15 / 0820	4C
Arroyo Simi	S	9 oz Jar	ArroyoSimi-SE-20150324	03/24/15 / 0820	4C
Arroyo Simi	S	9 oz Jar	ArroyoSimi-SE-20150324	03/24/15 / 0820	4C
Arroyo Simi	S	9 oz Jar	ArroyoSimi-SE-20150324	03/24/15 / 0820	4C
 440-105204 Chain of Custody					
Relinquished By [Signature]		Date/Time 3/24/15 0855		Received By [Signature]	
Relinquished By [Signature]		Date/Time 3/24/15 1210		Received By [Signature]	
Relinquished By [Signature]		Date/Time 3/24/15 1845		Received By [Signature]	

ANALYSIS REQUIRED

Chronic 10-day eohaustorius estuarius Toxicity	X
48-hour Bivalve Embryo toxicity (Mytilus edulis or Crassostrea gigas)	X
Total Ammonia	
% Moisture	
Particle Size Distribution	
Total Organic Carbon	
PCBs (8082)	
Chlordane, Dieldrin, Toxaphene (8081), 4,4-DDD, 4,4-DDE, 4,4-DDT	

Field readings (include units):
 Temp = 15.64 °C
 pH = 7.21 pH units
 DO = 5.13 mg/L
 Conductivity = 2.44 umhos/cm
 Water Velocity (ft/sec) = 0.1
 Time of readings = 0816

Comments
 Keep sample in cooler in the dark until delivered to ABC Labs

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal X

Sample Integrity: (check)
 Intact _____ On Ice: 0.7/0.0 (70)

Data Requirements: (check)
 No Level IV _____ All Level IV _____
 NPDES Level IV On Ice: _____



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-105204-1

Login Number: 105204

List Number: 1

Creator: Blocker, Kristina M

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.	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	



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: 440-105204-2

Client Project/Site: Boeing SSFL NPDES

For:

Haley & Aldrich, Inc.

5333 Mission Center Road

Suite 300

San Diego, California 92108

Attn: Nancy Gardiner



Authorized for release by:

4/17/2015 1:13:43 PM

Debby Wilson, Manager of Project Management

(949)261-1022

debby.wilson@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

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

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

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

1

2

3

4

5

6

7

- 1
- 2
- 3
- 4
- 5
- 6
- 7

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.



Debby Wilson
Manager of Project Management
4/17/2015 1:13:43 PM



Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Subcontract Data	6
Chain of Custody	38
Receipt Checklists	39

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-105204-1	ArroyoSimi-SE-20150324	Solid	03/24/15 08:20	03/24/15 18:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES

TestAmerica Job ID: 440-105204-2

Job ID: 440-105204-2

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-105204-2

Comments

No additional comments.

Receipt

The sample was received on 3/24/2015 6:45 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0° C.

Subcontract non-Sister

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

Subcontract Work

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





April 17, 2015

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: 3/24/2015
ABC LAB. NO.: TAM0315.232

CHRONIC MYTILUS SEDIMENT WATER INTERFACE BIOASSAY

NOEC = 100.00 %
TU_c = 1.00

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

Yours very truly,

Scott Johnson

Laboratory Director

TST Summary Sheet

Lab Name Aquatic Bioassay & Consulting Labs. **Client Name** Test America
Test ID Boeing SSFL NPDES Arroyo Simi Fro **Test Species** *Mytilus sp. (mussel)*
Test Date 3/27/2015 **Test Type** Chronic
Test Duration 48 hrs. **Endpoint** Larval Development
Critical Conc. 100%

Statistic	Control	Critical Concentration
Percent Mean of Raw Data	0.94	0.94
Mean used in Calculation (transformed)	1.33	1.33
Variance used in Calculation (transformed)	0.003	0.004
Standard Deviation of Transformed Data	0.053	0.063
CV of Transformed Data	0.040	0.048
n	5	5

Mean % Effect at Critical Conc.

-0.09

Calculated t-value	Degrees of Freedom	Table t-value	Percent Difference
10.0723	6	1.9432	

Results

Pass Sample is Non-toxic

Raw Data

Control Data		Critical Concentration Data	
No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)	No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)
224	219	224	211
224	211	224	216
224	208	224	209
224	207	224	201
224	209	224	218

CETIS Summary Report

Report Date: 16 Apr-15 11:25 (p 1 of 1)
 Test Code: TAM0315.232myt | 07-6804-6637

Mussel Shell Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 18-1591-0726	Test Type: Development-Survival	Analyst: Joe Freas
Start Date: 27 Mar-15 13:01	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Water
Ending Date: 29 Mar-15 13:01	Species: Mytilis galloprovincialis	Brine:
Duration: 48h	Source: Carlsbad Aquafarms CA	Age:
Sample ID: 05-7031-6221	Code: TAM0315.232m	Client: Test America
Sample Date: 24 Mar-15 08:20	Material: Sample Water	Project: Annual Sediment Arroyo Simi-Frontier
Receive Date: 25 Mar-15 13:20	Source: Bioassay Report	
Sample Age: 77h	Station: Arroyo Simi	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-0166-9927	Combined Proportion Norm	100	>100	NA	3.59%	1	Equal Variance t Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
03-4982-4938	Combined Proportion Norm	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
08-0166-9927	Combined Proportion Norm	PMSD	0.03591	NL - 0.25	No	Passes Acceptability Criteria

Combined Proportion Normal Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Contro	5	0.9411	0.9144	0.9678	0.9241	0.9777	0.009616	0.0215	2.29%	0.0%
100		5	0.942	0.905	0.9789	0.8973	0.9732	0.01332	0.02978	3.16%	-0.09%

Combined Proportion Normal Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	0.9777	0.942	0.9286	0.9241	0.933
100		0.942	0.9643	0.933	0.8973	0.9732

Combined Proportion Normal Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	219/224	211/224	208/224	207/224	209/224
100		211/224	216/224	209/224	201/224	218/224

CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 1 of 1)
 Test Code: TAM0315.232myt | 07-6804-6637

Mussel Shell Development Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 03-4982-4938	Endpoint: Combined Proportion Normal	CETIS Version: CETISv1.8.7	Analyst: Joe Freas		
Analyzed: 16 Apr-15 11:23	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes	Diluent: Laboratory Water		
Batch ID: 18-1591-0726	Test Type: Development-Survival	Client: Test America	Brine:		
Start Date: 27 Mar-15 13:01	Protocol: EPA/600/R-95/136 (1995)	Project: Annual Sediment Arroyo Simi-Frontier	Age:		
Ending Date: 29 Mar-15 13:01	Species: Mytilis galloprovincialis				
Duration: 48h	Source: Carlsbad Aquafarms CA				
Sample ID: 05-7031-6221	Code: TAM0315.232m				
Sample Date: 24 Mar-15 08:20	Material: Sample Water				
Receive Date: 25 Mar-15 13:20	Source: Bioassay Report				
Sample Age: 77h	Station: Arroyo Simi				

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

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Proportion Normal Summary			Calculated Variate(A/B)									
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Negative Control	5	0.9411	0.9241	0.9777	0.009616	0.0215	2.29%	0.0%	1054	1120	
100		5	0.942	0.8973	0.9732	0.01332	0.02978	3.16%	-0.09%	1055	1120	

Combined Proportion Normal Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9777	0.942	0.9286	0.9241	0.933
100		0.942	0.9643	0.933	0.8973	0.9732

Combined Proportion Normal Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	219/224	211/224	208/224	207/224	209/224
100		211/224	216/224	209/224	201/224	218/224





April 17, 2015

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: 3/24/2015
ABC LAB. NO.: TAM0315.232

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

TST Summary Sheet

Lab Name	Aquatic Bioassay & Consulting Labs.	Client Name	Test America
Test ID	Boeing SSFL NPDES Arroyo Simi Fro	Test Species	<i>E. Estuarius</i>
Test Date	3/27/2015	Test Type	Chronic
Test Duration	10 Days	Endpoint	Survival
Critical Conc.	100%		

Statistic	Control	Critical Concentration
Percent Mean of Raw Data	1.00	1.00
Mean used in Calculation (transformed)	1.46	1.46
Variance used in Calculation (transformed)	0.000	0.000
Standard Deviation of Transformed Data	0.000	0.000
CV of Transformed Data	0.000	0.000
n	5	5

Mean % Effect at Critical Conc.

0.00

Calculated t-value	Degrees of Freedom	Table t-value	Percent Difference
			0.00000

Results

Pass Sample is Non-toxic

Raw Data

Control Data		Critical Concentration Data	
No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)	No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)
20	20	20	20
20	20	20	20
20	20	20	20
20	20	20	20
20	20	20	20

CETIS Summary Report

Report Date: 16 Apr-15 11:25 (p 1 of 1)

Test Code: TAM0315.232eoh | 01-9698-8878

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-8898-4613	Test Type: Survival-Reburial	Analyst: Joe Freas
Start Date: 03 Apr-15 13:01	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 13 Apr-15 13:01	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 10d 0h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 02-7064-0869	Code: TAM0315.232e	Client: Test America
Sample Date: 24 Mar-15 08:20	Material: Sediment	Project: Annual Sediment Arroyo Simi-Frontier
Receive Date: 24 Mar-15 13:20	Source: Bioassay Report	
Sample Age: 10d 5h	Station: Arroyo Simi (Sediment)	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
15-1306-7446	Survival Rate	100	>100	NA	NA	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
01-1623-7472	Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
01-1623-7472	Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria
15-1306-7446	Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Contro	5	1	1	1	1	1	0	0	0.0%	0.0%
100		5	1	1	1	1	1	0	0	0.0%	0.0%

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	1	1	1	1	1
100		1	1	1	1	1

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	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: 16 Apr-15 11:25 (p 1 of 1)

Test Code: TAM0315.232eoh | 01-9698-8878

Eohaustorius 10-d Survival and Reburial Sediment Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID:	15-1306-7446	Endpoint:	Survival Rate	CETIS Version:	CETISv1.8.7		
Analyzed:	16 Apr-15 11:23	Analysis:	Nonparametric-Two Sample	Official Results:	Yes		
Batch ID:	20-8898-4613	Test Type:	Survival-Reburial	Analyst:	Joe Freas		
Start Date:	03 Apr-15 13:01	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater		
Ending Date:	13 Apr-15 13:01	Species:	Eohaustorius estuarius	Brine:	Not Applicable		
Duration:	10d 0h	Source:	Northwestern Aquatic Science, OR	Age:			
Sample ID:	02-7064-0869	Code:	TAM0315.232e	Client:	Test America		
Sample Date:	24 Mar-15 08:20	Material:	Sediment	Project:	Annual Sediment Arroyo Simi-Frontier		
Receive Date:	24 Mar-15 13:20	Source:	Bioassay Report				
Sample Age:	10d 5h	Station:	Arroyo Simi (Sediment)				

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result
Angular (Corrected)	NA	C > T	NA	NA	Passes survival rate

Wilcoxon Rank Sum Two-Sample Test									
Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	27.5	NA	1	8	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65540	<0.0001	Significant Effect
Error	0	0	8			
Total	0		9			

Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	1	0	0.0%	0.0%
100		5	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.0%	0.0%
100		5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.0%	0.0%

Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
100		1	1	1	1	1

Angular (Corrected) Transformed Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.459	1.459	1.459	1.459	1.459
100		1.459	1.459	1.459	1.459	1.459

Survival Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	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: 16 Apr-15 11:25 (p 1 of 2)
 Test Code: TAM0315.232eoh | 01-9698-8878

Eohaustorius 10-d Survival and Reburial Sediment Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID:	01-1623-7472	Endpoint:	Survival Rate	CETIS Version:	CETISv1.8.7		
Analyzed:	16 Apr-15 11:23	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes		
Batch ID:	20-8898-4613	Test Type:	Survival-Reburial	Analyst:	Joe Freas		
Start Date:	03 Apr-15 13:01	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater		
Ending Date:	13 Apr-15 13:01	Species:	Eohaustorius estuarius	Brine:	Not Applicable		
Duration:	10d 0h	Source:	Northwestern Aquatic Science, OR	Age:			
Sample ID:	02-7064-0869	Code:	TAM0315.232e	Client:	Test America		
Sample Date:	24 Mar-15 08:20	Material:	Sediment	Project:	Annual Sediment Arroyo Simi-Frontier		
Receive Date:	24 Mar-15 13:20	Source:	Bioassay Report				
Sample Age:	10d 5h	Station:	Arroyo Simi (Sediment)				

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

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Survival Rate Summary		Calculated Variate(A/B)									
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	1	1	1	0	0	0.0%	0.0%	100	100
100		5	1	1	1	0	0	0.0%	0.0%	100	100

Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
100		1	1	1	1	1

Survival Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	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: 16 Apr-15 11:25 (p 2 of 2)
Test Code: TAM0315.232eoh | 01-9698-8878

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 01-1623-7472 Endpoint: Survival Rate
Analyzed: 16 Apr-15 11:23 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7
Official Results: Yes



CETIS Measurement Report

Report Date: 16 Apr-15 11:25 (p 1 of 2)
 Test Code: TAM0315.232eoh | 01-9698-8878

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-8898-4613	Test Type: Survival-Reburial	Analyst: Joe Freas
Start Date: 03 Apr-15 13:01	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 13 Apr-15 13:01	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 10d 0h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 02-7064-0869	Code: TAM0315.232e	Client: Test America
Sample Date: 24 Mar-15 08:20	Material: Sediment	Project: Annual Sediment Arroyo Simi-Frontier
Receive Date: 24 Mar-15 13:20	Source: Bioassay Report	
Sample Age: 10d 5h	Station: Arroyo Simi (Sediment)	

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	11	8.927	7.904	9.951	6.5	10	0.4595	1.524	17.07%	0
100		11	9.409	9.27	9.548	8.9	9.6	0.06246	0.2071	2.2%	0
Overall		22	9.168			6.5	10				0 (0%)

Total Ammonia (N)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	1	0			0	0	0	0		0
100		1	0			0	0	0	0		0
Overall		2	0			0	0				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
100		2	7.85	7.215	8.485	7.8	7.9	0.05	0.07071	0.9%	0
Overall		4	7.875			7.8	7.9				0 (0%)

Salinity-ppt

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	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				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	11	14.84	14.77	14.9	14.7	15	0.02788	0.09246	0.62%	0
100		11	14.78	14.59	14.97	14	15	0.08401	0.2786	1.89%	0
Overall		22	14.81			14	15				0 (0%)

CHRONIC MYTILUS DEVELOPMENT BIOASSAY

DATE: 3/27/2015

STANDARD TOXICANT: Unionized Ammonia

NOEC = 0.07500 mg/l

EC25 = 0.09312 mg/l

EC50 = 0.10990 mg/l

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 16 Apr-15 11:25 (p 1 of 1)
 Test Code: MYT032715m | 11-3853-2256

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

Batch ID: 02-0972-4444	Test Type: Development-Survival	Analyst: Joe Freas
Start Date: 27 Mar-15 13:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Seawater
Ending Date: 29 Mar-15 13:00	Species: Mytilis galloprovincialis	Brine: Not Applicable
Duration: 48h	Source: Carlsbad Aquafarms CA	Age:

Sample ID: 03-7987-4998	Code: MYT032715	Client: Internal Lab
Sample Date: 27 Mar-15	Material: Ammonia (Unionized)	Project: REF TOX
Receive Date:	Source: Reference Toxicant	
Sample Age: 13h	Station: REF TOX	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-3894-6590	Combined Proportion Norm	0.075	0.098	0.08573	3.17%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
13-5054-4782	Combined Proportion Norm	EC5	0.07747	0.0753	0.07922		Linear Interpolation (ICPIN)
		EC10	0.08138	0.07933	0.08289		
		EC15	0.08529	0.08333	0.08686		
		EC20	0.0892	0.08709	0.09109		
		EC25	0.09312	0.09075	0.09555		
		EC40	0.1036	0.1014	0.106		
		EC50	0.1099	0.1072	0.1139		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
02-3894-6590	Combined Proportion Norm	PMSD	0.03171	NL - 0.25	No	Passes Acceptability Criteria

Combined Proportion Normal Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Contro	5	0.967	0.9536	0.9803	0.9554	0.9821	0.004808	0.01075	1.11%	0.0%
0.029		5	0.9679	0.9587	0.977	0.9598	0.9777	0.003281	0.007336	0.76%	-0.09%
0.05		5	0.9714	0.9536	0.9892	0.9554	0.9911	0.006407	0.01433	1.48%	-0.46%
0.075		5	0.9509	0.9224	0.9794	0.9286	0.9777	0.01028	0.02298	2.42%	1.66%
0.098		5	0.6661	0.628	0.7042	0.6295	0.6964	0.01372	0.03067	4.61%	31.12%
0.119		5	0.3455	0.2466	0.4444	0.2634	0.4375	0.03562	0.07965	23.05%	64.27%

Combined Proportion Normal Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	0.9732	0.9821	0.9643	0.9598	0.9554
0.029		0.9643	0.9777	0.9732	0.9643	0.9598
0.05		0.9554	0.9598	0.9777	0.9911	0.9732
0.075		0.942	0.9777	0.9732	0.9286	0.933
0.098		0.6964	0.692	0.6741	0.6295	0.6384
0.119		0.4375	0.2634	0.2946	0.308	0.4241

Combined Proportion Normal Binomials

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	218/224	220/224	216/224	215/224	214/224
0.029		216/224	219/224	218/224	216/224	215/224
0.05		214/224	215/224	219/224	222/224	218/224
0.075		211/224	219/224	218/224	208/224	209/224
0.098		156/224	155/224	151/224	141/224	143/224
0.119		98/224	59/224	66/224	69/224	95/224

CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 1 of 2)
 Test Code: MYT032715m | 11-3853-2256

Mussel Shell Development Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 02-3894-6590	Endpoint: Combined Proportion Normal	CETIS Version: CETISv1.8.7		Analyst: Joe Freas			
Analyzed: 16 Apr-15 11:22	Analysis: Parametric-Control vs Treatments	Official Results: Yes		Diluent: Laboratory Seawater			
Batch ID: 02-0972-4444	Test Type: Development-Survival			Brine: Not Applicable			
Start Date: 27 Mar-15 13:00	Protocol: EPA/600/R-95/136 (1995)			Age:			
Ending Date: 29 Mar-15 13:00	Species: Mytilis galloprovincialis						
Duration: 48h	Source: Carlsbad Aquafarms CA						
Sample ID: 03-7987-4998	Code: MYT032715	Client: Internal Lab		Project: REF TOX			
Sample Date: 27 Mar-15	Material: Ammonia (Unionized)						
Receive Date:	Source: Reference Toxicant						
Sample Age: 13h	Station: REF TOX						

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	3.17%	0.075	0.098	0.08573	

Dunnnett Multiple Comparison Test									
Control	vs	C-mg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.029	-0.04333	2.362	0.075	8	0.8458	CDF	Non-Significant Effect
		0.05	-0.5044	2.362	0.075	8	0.9407	CDF	Non-Significant Effect
		0.075	1.184	2.362	0.075	8	0.3410	CDF	Non-Significant Effect
		0.098*	13.8	2.362	0.075	8	<0.0001	CDF	Significant Effect
		0.119*	24.21	2.362	0.075	8	<0.0001	CDF	Significant Effect

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
PMSD	0.03171	NL - 0.25	No	Passes Acceptability Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.632211	0.5264421	5	211.6	<0.0001	Significant Effect
Error	0.059703	0.002487625	24			
Total	2.691914		29			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Bartlett Equality of Variance	8.366	15.09	0.1372	Equal Variances	
Variances	Mod Levene Equality of Variance	1.884	4.248	0.1472	Equal Variances	
Variances	Levene Equality of Variance	5.771	3.895	0.0012	Unequal Variances	
Distribution	Shapiro-Wilk W Normality	0.9664	0.9031	0.4465	Normal Distribution	
Distribution	Kolmogorov-Smirnov D	0.116	0.1853	0.3707	Normal Distribution	
Distribution	D'Agostino Skewness	0.9952	2.576	0.3196	Normal Distribution	
Distribution	D'Agostino Kurtosis	0.5007	2.576	0.6166	Normal Distribution	
Distribution	D'Agostino-Pearson K2 Omnibus	1.241	9.21	0.5376	Normal Distribution	
Distribution	Anderson-Darling A2 Normality	0.4484	3.878	0.2829	Normal Distribution	

Combined Proportion Normal Summary											
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	0.967	0.9536	0.9803	0.9643	0.9554	0.9821	0.004808	1.11%	0.0%
0.029		5	0.9679	0.9588	0.977	0.9643	0.9598	0.9777	0.00328	0.76%	-0.09%
0.05		5	0.9714	0.9536	0.9892	0.9732	0.9554	0.9911	0.006407	1.48%	-0.46%
0.075		5	0.9509	0.9224	0.9794	0.942	0.9286	0.9777	0.01028	2.42%	1.66%
0.098		5	0.6661	0.628	0.7042	0.6741	0.6295	0.6964	0.01372	4.61%	31.12%
0.119		5	0.3455	0.2466	0.4444	0.308	0.2634	0.4375	0.03562	23.05%	64.27%

CETIS Measurement Report

Report Date: 16 Apr-15 11:25 (p 1 of 2)
 Test Code: MYT032715m | 11-3853-2256

Mussel Shell Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 02-0972-4444	Test Type: Development-Survival	Analyst: Joe Freas
Start Date: 27 Mar-15 13:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Seawater
Ending Date: 29 Mar-15 13:00	Species: Mytilis galloprovincialis	Brine: Not Applicable
Duration: 48h	Source: Carlsbad Aquafarms CA	Age:
Sample ID: 03-7987-4998	Code: MYT032715	Client: Internal Lab
Sample Date: 27 Mar-15	Material: Ammonia (Unionized)	Project: REF TOX
Receive Date:	Source: Reference Toxicant	
Sample Age: 13h	Station: REF TOX	

Dissolved Oxygen-mg/L

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	6.7	5.429	7.971	6.6	6.8	0.09999	0.1414	2.11%	0
0.029		2	6.55	5.915	7.185	6.5	6.6	0.04999	0.0707	1.08%	0
0.05		2	6.55	5.915	7.185	6.5	6.6	0.04999	0.0707	1.08%	0
0.075		2	6.55	5.915	7.185	6.5	6.6	0.04999	0.0707	1.08%	0
0.098		2	6.55	5.915	7.185	6.5	6.6	0.04999	0.0707	1.08%	0
0.119		2	6.55	5.915	7.185	6.5	6.6	0.04999	0.0707	1.08%	0
Overall		12	6.575			6.5	6.8				0 (0%)

pH-Units

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.029		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.05		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.075		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.098		2	7.95	7.315	8.585	7.9	8	0.04999	0.0707	0.89%	0
0.119		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
Overall		12	7.908			7.9	8				0 (0%)

Salinity-ppt

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	34	34	34	34	34	0	0	0.0%	0
0.029		2	34	34	34	34	34	0	0	0.0%	0
0.05		2	34	34	34	34	34	0	0	0.0%	0
0.075		2	34	34	34	34	34	0	0	0.0%	0
0.098		2	34	34	34	34	34	0	0	0.0%	0
0.119		2	34	34	34	34	34	0	0	0.0%	0
Overall		12	34			34	34				0 (0%)

Temperature-°C

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.029		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.05		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.075		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.098		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
0.119		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
Overall		12	14.85			14.8	14.9				0 (0%)

CETIS Measurement Report

Report Date: 16 Apr-15 11:25 (p 2 of 2)

Test Code: MYT032715m | 11-3853-2256

Mussel Shell Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

C-mg/L	Control Type	1	2
0	Negative Contr	6.6	6.8
0.029		6.6	6.5
0.05		6.6	6.5
0.075		6.6	6.5
0.098		6.6	6.5
0.119		6.6	6.5

pH-Units

C-mg/L	Control Type	1	2
0	Negative Contr	7.9	7.9
0.029		7.9	7.9
0.05		7.9	7.9
0.075		7.9	7.9
0.098		7.9	8
0.119		7.9	7.9

Salinity-ppt

C-mg/L	Control Type	1	2
0	Negative Contr	34	34
0.029		34	34
0.05		34	34
0.075		34	34
0.098		34	34
0.119		34	34

Temperature-°C

C-mg/L	Control Type	1	2
0	Negative Contr	14.8	14.9
0.029		14.8	14.9
0.05		14.8	14.9
0.075		14.8	14.9
0.098		14.8	14.9
0.119		14.8	14.9



- 1
- 2
- 3
- 4
- 5
- 6
- 7

96 Hour *Eohaustorius estuarius* Survival Bioassay - Standard Toxicant

DATE: 4/3/2015

STANDARD TOXICANT: Ammonium Chloride

ENDPOINT: SURVIVAL

AMMONIA CHLORIDE

NOEC = 0.4270mg/L

EC25 = 0.6702mg/L

EC50 = 1.4070mg/L

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 16 Apr-15 11:25 (p 1 of 1)
 Test Code: EOH040315e | 08-1167-0633

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

Batch ID: 20-4983-1001	Test Type: Survival	Analyst: Joe Freas
Start Date: 03 Apr-15 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 07 Apr-15 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 96h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 11-5280-0364	Code: EOH040315	Client: Internal Lab
Sample Date: 03 Apr-15	Material: Ammonia (Unionized)	Project: REF TOX
Receive Date:	Source: Reference Toxicant	
Sample Age: 13h	Station: REF TOX	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
15-9704-7227	Survival Rate	0.427	0.789	0.5804	20.1%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
12-3933-9277	Survival Rate	EC5	0.3075	0.2528	0.5237		Linear Interpolation (ICPIN)
		EC10	0.401	0.2917	0.5826		
		EC15	0.4915	0.3323	0.6692		
		EC20	0.5809	0.399	0.8212		
		EC25	0.6702	0.5103	0.9808		
		EC40	1.07	0.6729	1.357		
EC50	1.407	1.163	1.719				

Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Contro	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
0.214		4	1	1	1	1	1	0	0	0.0%	-2.56%
0.427		4	0.875	0.7227	1	0.8	1	0.04787	0.09574	10.94%	10.26%
0.789		4	0.675	0.5227	0.8273	0.6	0.8	0.04787	0.09574	14.18%	30.77%
1.556		4	0.45	0.3581	0.5419	0.4	0.5	0.02887	0.05774	12.83%	53.85%
4.124		4	0.15	0	0.6274	0	0.6	0.15	0.3	200.0%	84.62%

Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Contro	1	0.9	1	1
0.214		1	1	1	1
0.427		1	0.8	0.9	0.8
0.789		0.7	0.8	0.6	0.6
1.556		0.4	0.5	0.4	0.5
4.124		0.6	0	0	0

Survival Rate Binomials

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Contro	10/10	9/10	10/10	10/10
0.214		10/10	10/10	10/10	10/10
0.427		10/10	8/10	9/10	8/10
0.789		7/10	8/10	6/10	6/10
1.556		4/10	5/10	4/10	5/10
4.124		6/10	0/10	0/10	0/10

CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 1 of 2)

Test Code: EOH040315e | 08-1167-0633

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

Analysis ID: 15-9704-7227	Endpoint: Survival Rate	CETIS Version: CETISv1.8.7
Analyzed: 16 Apr-15 11:23	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 20-4983-1001	Test Type: Survival	Analyst: Joe Freas
Start Date: 03 Apr-15 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 07 Apr-15 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 96h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 11-5280-0364	Code: EOH040315	Client: Internal Lab
Sample Date: 03 Apr-15	Material: Ammonia (Unionized)	Project: REF TOX
Receive Date:	Source: Reference Toxicant	
Sample Age: 13h	Station: REF TOX	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	20.1%	0.427	0.789	0.5804	

Control	vs	C-mg/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.214	20	10	1	6	0.9516	Asymp	Non-Significant Effect
		0.427	13	10	2	6	0.2311	Asymp	Non-Significant Effect
		0.789*	10	10	0	6	0.0417	Asymp	Significant Effect
		1.556*	10	10	0	6	0.0417	Asymp	Significant Effect
		4.124*	10	10	0	6	0.0417	Asymp	Significant Effect

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.444775	0.688955	5	23.7	<0.0001	Significant Effect
Error	0.5232763	0.02907091	18			
Total	3.968051		23			

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.6501	4.248	0.6652	Equal Variances
Variances	Levene Equality of Variance	5.127	4.248	0.0043	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8115	0.884	0.0005	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.2443	0.2056	0.0007	Non-normal Distribution
Distribution	D'Agostino Skewness	3.61	2.576	0.0003	Non-normal Distribution
Distribution	D'Agostino Kurtosis	3.36	2.576	0.0008	Non-normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	24.32	9.21	<0.0001	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.287	3.878	0.0020	Non-normal Distribution

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
0.214		4	1	1	1	1	1	1	0	0.0%	-2.56%
0.427		4	0.875	0.7227	1	0.85	0.8	1	0.04787	10.94%	10.26%
0.789		4	0.675	0.5227	0.8273	0.65	0.6	0.8	0.04787	14.18%	30.77%
1.556		4	0.45	0.3581	0.5419	0.45	0.4	0.5	0.02887	12.83%	53.85%
4.124		4	0.15	0	0.6274	0	0	0.6	0.15	200.0%	84.62%

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
0.214		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%
0.427		4	1.219	0.9879	1.45	1.178	1.107	1.412	0.07256	11.91%	11.12%
0.789		4	0.9676	0.7999	1.135	0.9386	0.8861	1.107	0.05269	10.89%	29.44%
1.556		4	0.7351	0.6426	0.8276	0.7351	0.6847	0.7854	0.02906	7.91%	46.4%
4.124		4	0.3406	-0.238	0.9193	0.1588	0.1588	0.8861	0.1818	106.8%	75.16%

CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 2 of 2)
 Test Code: EOH040315e | 08-1167-0633

Reference Toxicant 96-h Acute Survival Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-9704-7227 Endpoint: Survival Rate CETIS Version: CETISv1.8.7
 Analyzed: 16 Apr-15 11:23 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
0.214		1	1	1	1
0.427		1	0.8	0.9	0.8
0.789		0.7	0.8	0.6	0.6
1.556		0.4	0.5	0.4	0.5
4.124		0.6	0	0	0

Angular (Corrected) Transformed Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.249	1.412	1.412
0.214		1.412	1.412	1.412	1.412
0.427		1.412	1.107	1.249	1.107
0.789		0.9912	1.107	0.8861	0.8861
1.556		0.6847	0.7854	0.6847	0.7854
4.124		0.8861	0.1588	0.1588	0.1588

Survival Rate Binomials

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
0.214		10/10	10/10	10/10	10/10
0.427		10/10	8/10	9/10	8/10
0.789		7/10	8/10	6/10	6/10
1.556		4/10	5/10	4/10	5/10
4.124		6/10	0/10	0/10	0/10



CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 1 of 2)
 Test Code: EOH040315e | 08-1167-0633

Reference Toxicant 96-h Acute Survival Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 12-3933-9277	Endpoint: Survival Rate	CETIS Version: CETISv1.8.7			
Analyzed: 16 Apr-15 11:23	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes			
Batch ID: 20-4983-1001	Test Type: Survival	Analyst: Joe Freas			
Start Date: 03 Apr-15 13:00	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater			
Ending Date: 07 Apr-15 13:00	Species: Eohaustorius estuarius	Brine: Not Applicable			
Duration: 96h	Source: Northwestern Aquatic Science, OR	Age:			
Sample ID: 11-5280-0364	Code: EOH040315	Client: Internal Lab			
Sample Date: 03 Apr-15	Material: Ammonia (Unionized)	Project: REF TOX			
Receive 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	0.3075	0.2528	0.5237
EC10	0.401	0.2917	0.5826
EC15	0.4915	0.3323	0.6692
EC20	0.5809	0.399	0.8212
EC25	0.6702	0.5103	0.9808
EC40	1.07	0.6729	1.357
EC50	1.407	1.163	1.719

Survival Rate Summary			Calculated Variate(A/B)									
C-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40	
0.214		4	1	1	1	0	0	0.0%	-2.56%	40	40	
0.427		4	0.875	0.8	1	0.04787	0.09574	10.94%	10.26%	35	40	
0.789		4	0.675	0.6	0.8	0.04787	0.09574	14.18%	30.77%	27	40	
1.556		4	0.45	0.4	0.5	0.02887	0.05774	12.83%	53.85%	18	40	
4.124		4	0.15	0	0.6	0.15	0.3	200.0%	84.62%	6	40	

Survival Rate Detail					
C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
0.214		1	1	1	1
0.427		1	0.8	0.9	0.8
0.789		0.7	0.8	0.6	0.6
1.556		0.4	0.5	0.4	0.5
4.124		0.6	0	0	0

Survival Rate Binomials					
C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Contro	10/10	9/10	10/10	10/10
0.214		10/10	10/10	10/10	10/10
0.427		10/10	8/10	9/10	8/10
0.789		7/10	8/10	6/10	6/10
1.556		4/10	5/10	4/10	5/10
4.124		6/10	0/10	0/10	0/10

CETIS Analytical Report

Report Date: 16 Apr-15 11:25 (p 2 of 2)
Test Code: EOH040315e | 08-1167-0633

Reference Toxicant 96-h Acute Survival Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-3933-9277 Endpoint: Survival Rate
Analyzed: 16 Apr-15 11:23 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7
Official Results: Yes

- 1
- 2
- 3
- 4
- 5
- 6
- 7

CETIS Measurement Report

Report Date: 16 Apr-15 11:25 (p 2 of 2)
Test Code: EOH040315e | 08-1167-0633

Reference Toxicant 96-h Acute Survival Test

Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

C-mg/L	Control Type	1	2
0	Negative Contr	6.6	6.8
0.214		6.5	6.2
0.427		6.6	6.5
0.789		6.5	6.6
1.556		6.6	6.5
4.124		6.6	7

pH-Units

C-mg/L	Control Type	1	2
0	Negative Contr	7.9	7.9
0.214		7.9	7.9
0.427		7.9	7.9
0.789		7.9	7.9
1.556		7.9	7.9
4.124		7.7	7.8

Salinity-ppt

C-mg/L	Control Type	1	2
0	Negative Contr	20	20
0.214		34	34
0.427		20	20
0.789		20	20
1.556		20	20
4.124		20	20

Temperature-°C

C-mg/L	Control Type	1	2
0	Negative Contr	14.8	14.9
0.214		14.8	14.9
0.427		14.8	14.9
0.789		14.8	14.9
1.556		14.8	14.8
4.124		14.8	14.9



CHAIN OF CUSTODY FORM

ANALYSIS REQUIRED

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

Project:
Boeing-SSFL NPDES
Annual Sediment Arroyo Simi-Frontier Park

Test America Contact: Debby Wilson

Project Manager: Nancy Gardiner

Phone Number:
619.285.7132, 858.337.4061 (cell)
Field Contact, Jeff Bannon:
818.350.7340, 818.414.5608 (cell)

Sampler: **D. Smith**

<input checked="" type="checkbox"/>	Chronic 10-day eohaustorius estuarius Toxicity
<input checked="" type="checkbox"/>	48-hour Bivalve Embryo toxicity (Mytilus edulis or Crassostrea gigas)
<input type="checkbox"/>	Total Ammonia
<input type="checkbox"/>	% Moisture
<input type="checkbox"/>	Particle Size Distribution
<input type="checkbox"/>	Total Organic Carbon
<input type="checkbox"/>	PCBs (8082)
<input type="checkbox"/>	Chlordane, Dieldrin, Toxaphene (8081), 4,4-DDD, 4,4-DDE, 4,4-DDT

Field readings (include units):
 Temp = 15.44 °C
 pH = 7.21 pH units
 DO = 5.13 mg/L
 Conductivity = 2.44 umhos/cm
 Water Velocity (ft/sec) = 0.1
 Time of readings = 0814

Comments
 Keep sample in cooler in the dark until delivered to ABC Labs

Sample Description	Matrix	Container Type	# of Cont.	Sample ID	Sampling Date/Time	Pres	Bottle #	Chronic 10-day eohaustorius estuarius Toxicity	48-hour Bivalve Embryo toxicity (Mytilus edulis or Crassostrea gigas)	Total Ammonia	% Moisture	Particle Size Distribution	Total Organic Carbon	PCBs (8082)	Chlordane, Dieldrin, Toxaphene (8081), 4,4-DDD, 4,4-DDE, 4,4-DDT	Field readings (include units):
Arroyo Simi	S	1L wide mouth Plastic	4	ArroyoSimi-SE-20150324	03/24/15 / 0820	4C in the Dark	1A, 1B, 1C, 1D	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temp = 15.44 °C
Arroyo Simi	S	9 oz Jar	1	ArroyoSimi-SE-20150324	03/24/15 / 0820	40C	2A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH = 7.21
Arroyo Simi	S	9 oz Jar	1	ArroyoSimi-SE-20150324	03/24/15 / 0820	40C	3A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DO = 5.13
Arroyo Simi	S	9 oz Jar	1	ArroyoSimi-SE-20150324	03/24/15 / 0820	40C	4A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conductivity = 2.44
Arroyo Simi	S	9 oz Jar	1	ArroyoSimi-SE-20150324	03/24/15 / 0820	40C	5A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water Velocity (ft/sec) = 0.1
Arroyo Simi	S	9 oz Jar	1	ArroyoSimi-SE-20150324	03/24/15 / 0820	40C	5A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Time of readings = 0814
Relinquished By					Date/Time:		Received By									Turn around Time: (check)
					3/24/15 0855											48 Hours _____ 5 Days _____
Relinquished By					Date/Time:		Received By									72 Hours _____ 10 Days _____
					3/24/15 1210											Normal <input checked="" type="checkbox"/>
Relinquished By					Date/Time:		Received By									Sample Integrity: (check)
					3/24/15 13:26											Intact _____ On Ice: _____
																Data Requirements: (check)
																No Level IV _____ All Level IV _____
																NPDES Level IV _____ On Ice: _____

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich, Inc. 9040 Friars Road Suite 220 San Diego, CA 92108-5860		Project: Boeing-SSFL NPDES Annual Sediment Arroyo Simi-Frontier Park		Phone Number: 619.285.7132, 858.337.4061 (cell) Field Contact, Jeff Bannon: 818.350.7340, 818.414.5608 (cell)	
Test America Contact: Debby Wilson Project Manager: Nancy Gardiner Sampler: D. Smith		Sample ID ArroyoSimi-SE-20150324 ArroyoSimi-SE-20150324 ArroyoSimi-SE-20150324 ArroyoSimi-SE-20150324 ArroyoSimi-SE-20150324		Sampling Date/Time 03/24/15/0820 03/24/15/0820 03/24/15/0820 03/24/15/0820 03/24/15/0820	
Container Type 1L wide mouth Plastic 9 oz Jar 9 oz Jar 9 oz Jar 9 oz Jar		# of Cont. 4 1 1 1 1		Pres 4C in the Dark 40C 40C 40C 40C	
Matrix S S S S S		Bottle # 1A, 1B, 1C, 1D 2A 3A 4A 5A		Chronic 10-day eohaustorius estuarius Toxicity X X X X X	
Sample Description Arroyo Simi Arroyo Simi Arroyo Simi Arroyo Simi Arroyo Simi		Relinquished By [Signature] Relinquished By [Signature] Relinquished By [Signature]		Date/Time 3/24/15/0855 3/24/15/1210 3/24/15/1845	
Matrix S S S S S		Total Ammonia X X X X X		48-hour Bivalve Embryo Toxicity (Mytilus edulis or Crassostrea gigas) X X X X X	
Matrix S S S S S		% Moisture X X X X X		Particle Size Distribution X X X X X	
Matrix S S S S S		Total Organic Carbon X X X X X		PCBs (8082) X X X X X	
Matrix S S S S S		Chlordane, Dieldrin, Toxaphene (8081), 4,4-DDD, 4,4-DDE, 4,4-DDT X X X X X		Field readings (include units): Temp = 15.64 °C pH = 7.21 pH units DO = 5.13 mg/L Conductivity = 2.44 umhos/cm Water Velocity (ft/sec) = 0.1 Time of readings = 0816	
Matrix S S S S S		Comments Keep sample in cooler in the dark until delivered to ABC Labs		Turn around Time: (check) 5 Days 10 Days Normal X	
Matrix S S S S S		Sample Integrity: (check) Intact On Ice: 0.7/0.0 (70)		Data Requirements: (check) No Level IV All Level IV NPDES Level IV On Ice:	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-105204-2

Login Number: 105204

List Number: 1

Creator: Blocker, Kristina M

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.	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 F

**First Quarter 2015 Reasonable Potential Analysis (RPA)
Summary Tables**

**FIRST QUARTER 2015
REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

Notes:

1. The following Reasonable Potential Analysis (RPA) provides the analytical results as performed by the procedures outlined in *Reasonable Potential Analysis Methodology Technical Memo* (MWH and Flow Science, 2006).
2. The monitoring data set utilized to conduct the RPA consists of all applicable and relevant data from the present reporting quarter.
3. As directed by the CTR and the Regional Water Control Board 2,3,7,8-TCDD (Dioxin) values are to be expressed in NPDES permitting and this RPA as TCDD Total Equivalence units (TEQs). A TCDD TEQ is determined by multiplying each of the seventeen dioxin and furan congeners by their respective toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF), and summing the results of those products. For the purposes of this RPA, the resulting TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 37, of the NPDES Permit Effective June 3, 2010.
4. In calculating the average, standard deviation, coefficient of variation, and projected maximum effluent concentration (99/99), one-half of the MDL was used for concentration results reported as ND. Data reported with qualifiers were not included in this RPA as Boeing believes qualified data are not "appropriate, valid, relevant, (nor) representative"¹ of storm water constituents and are therefore not utilized in its RPA.
5. All of the following abbreviations and/or notes may not occur on every table.

Definition of Acronyms, Abbreviations, and Terminology Used

>=	Greater than or equal to
*	Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. The equations are provided in the CTR, (US EPA, 2000). Values displayed correspond to a total hardness of 100 mg/l.
µg/L	Concentration units, micrograms per liter
All Data Qualified	All available monitoring data are qualified and no statistical analysis is performed.
Annually	The 2010 NPDES Permit requires annual monitoring.
Available Data < DL	All available monitoring data that are not qualified are below detection limits.
B	Background
C	Concentration
CCC	Criterion Continuous Concentration
CMC	Criterion Maximum Concentration
CTR	California Toxics Rule
CV	Coefficient of Variation
DL	Detection Limit
EPA TSD	EPA's Technical Support Document for Water Quality Based Toxics Control, (see references).
Fibers/L	Units for asbestos concentration, fibers per liter

¹ SIP, p. 5.

**FIRST QUARTER 2015
REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

Definition of Acronyms, Abbreviations, and Terminology Used (Continued)

HH O	Human Health criteria for consumption of Organisms only
HH W&O	Human Health criteria for consumption of Water and Organisms
MEC	Maximum Observed Effluent Concentration
Min	Minimum
MPN/100ml	Most probable number per 100 milliliters
NA	Not Applicable
Narrative	Water quality criteria are expressed as a narrative objective rather than a numeric objective, and therefore are not part of the statistical RPA calculations.
None	No available CTR or Basin Plan criteria.
pH Dependent	CTR Criteria are based on pH.
Once Per Discharge	The 2010 NPDES Permit requires monitoring once per discharge event.
Qualified Data	Data qualifier definitions are: (a) J- The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL), (b) U/UJ- The analyte was not detected in the sample at the detection limit /estimated detection limit (EDL), (c) B - Analyte found in sample and associated blank, and (d) DNQ- Detected Not Quantified.
Reserved	EPA has reserved the CTR criteria.
RPA	Reasonable Potential Analysis
SIP	The State Water Resources Control Board "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California," (see references).
Tot	Total

Priority Pollutant RPA Column Explanation

CTR	Provides CTR constituent reference number.
Constituent	Provides CTR constituent common name.
Units	Provides the data set's concentration units as referenced by 2010 NPDES Permit.
MEC	Provides the outfall monitoring group's maximum value from the applicable data set.
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
<i>Step 1 identifies all applicable water quality criteria.</i>	
CTR Criteria	Concentration criteria as listed in the CTR.
CMC = Acute	The Freshwater CMC is listed as the acute concentration criterion.
CCC = Chronic	The Freshwater CCC is listed as the chronic concentration criterion.
HH W&O (Not App)	The HH W&O is deemed not applicable based on past Regional Board RPAs.
HH O = HH	The HH O is listed as the CTR human health concentration criterion.
Basin Plan Criteria	Applicable Basin Plan Criteria are listed for the Los Angeles River and/or Calleguas Creek watersheds.
C = Lowest Criteria	The comparison concentration (C) is equal to the lowest criterion for a constituent based on the CMC, CCC, HH O, and Basin Plan Criteria listed.
<i>Step 2 defines the applicable data set.</i>	
Is Effluent Data Available	If all data is qualified, then NO. If not, then YES.

**FIRST QUARTER 2015
REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

Priority Pollutant RPA Column Explanation (Continued)

<i>Step 3 determines the maximum observed effluent concentration.</i>	
Was Constituent Detected in Effluent Data	If the constituent was detected, then YES. If all monitoring data are non-detected or qualified then NO.
Are all DL >C	If constituent was detected in effluent data then not applicable (NA). If constituent was not detected and all analysis detection limits are greater than the comparison concentration, then YES, if not then NO.
If DL > C, MEC = Min (DL)	If the previous cell answer was yes, then the MEC is equal to the minimum detection limit. If not, then NA.
<i>Step 4 compares the MEC to the lowest applicable water quality criteria.</i>	
MEC >= C	If the MEC is greater than or equal to the comparison concentration then YES, if not then NO.

Note: Steps 5 and 6 of the Priority Pollutant RPA do not apply to Boeing SSFL because the Regional Board gives no consideration for receiving water background constituent concentrations. Furthermore, Boeing SSFL defers the application of best professional judgment in Step 7 and final determination of reasonable potential in Step 8 to the Regional Board Staff.

Non-priority Pollutant RPA Column Explanation

Constituent	Provides the Non Priority Pollutant constituent common name
Monitoring	Provides the 2010 NPDES Permit directed monitoring frequency
Units	Provides the data set's concentration units as referenced by 2009 NPDES Permit
Number of Samples	Provides the number of available samples that are not qualified
MEC	Provides the outfall monitoring group's maximum value from the applicable data set
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Multiplier	Utilizes the EPA's TSD calculation to determine multiplier for which the maximum effluent concentration is calculated. (MWH and Flow Science, 2006, or EPA TSD, 1991)
Projected Maximum Effluent Concentration	Utilizes the product of the multiplier and the MEC as an estimate for the projected maximum effluent concentration.
Dilution Ratio	The Regional Board allocates no dilution ratio to Boeing SSFL.
Background Concentration	The Regional Board allocates no background concentration to Boeing SSFL.
Projected Maximum Receiving Water Concentration	The Regional Board estimates the projected maximum receiving water concentration as equal to the projected maximum effluent concentration.
Step 1, Determine Water Quality Objectives	The water quality objective is based on appropriate Basin Plan criteria as noted in the Reasonable Potential Analysis Methodology Technical Memo.
BU – Beneficial Use Protection, NC – Human Non-carcinogen, AP- Aquatic Life Protection, TMDL – Total Maximum Daily Load	This is the Regional Board's Basis for determining if reasonable potential should be evaluated for a non-priority pollutant.

Note: Boeing SSFL has completed appropriate statistical calculations, but defers the application of best professional judgment and the final determination of reasonable potential to the Regional Board Staff.

**FIRST QUARTER 2015
REASONABLE POTENTIAL ANALYSIS SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

References:

1. Los Angeles Regional Water Quality Control Board, "Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan)." June 13, 1994.
2. MWH and Flow Science, "Reasonable Potential Analysis Methodology Technical Memo- Version 1, Final, Santa Susan Field Laboratory, Ventura County, California." April 28, 2006.
3. State Water Resources Control Board, "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (SIP)" Resolution No. 2005-0019, February 24, 2005.
4. US EPA, *40CFR part 131, Water Quality Standards; Establishment of numeric Criteria for Priority Toxic Pollutants for the State of California*,(CTR) Federal Registry, 2011, pp. 496 - 507
5. US EPA, "Technical Support Document for Water Quality-based Toxics Control." EPA/505/2-90-001, PB-91-127415, March 1991.

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)**

**FIRST QUARTER 2015 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3		Step 4 MEC >= C	
					CTR CRITERIA							Was Constituent Detected in Effluent Data	Are all Detection Limits > C		If DL > C, MEC = Min (DL)
					Freshwater		Human Health								
					CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
001	Antimony	ug/L	Available Data <DL	0.6	NONE	NONE	14	4,300	6	6	Yes	No	No	NA	No
002	Arsenic	ug/L	Available Data <DL	0.6	340	150	NONE	NONE	50	50	Yes	No	No	NA	No
003	Beryllium	ug/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	4	4	Yes	No	No	NA	No
004	Cadmium	ug/L	Available Data <DL	0.6	4.3	2.2	Narrative	Narrative	5	2.2	Yes	No	No	NA	No
005a	Chromium	ug/L	Available Data <DL	0.6	550	180	Narrative	Narrative	50	50	Yes	No	No	NA	No
005b	Chromium VI	ug/L	All Data Qualified	0.6	16	11	Narrative	Narrative	NONE	11	No	Yes	NA	NA	No
006	Copper	ug/L	4.5	0.6	13	9	1,300	NONE	NONE	9	Yes	Yes	NA	NA	No
007	Lead	ug/L	5.8	0.6	65	2.5	Narrative	Narrative	NONE	2.5	Yes	Yes	NA	NA	Yes
008	Mercury	ug/L	Available Data <DL	0.6	Reserved	Reserved	0.05	0.051	2	0.051	Yes	No	Yes	0.051	No
009	Nickel	ug/L	Available Data <DL	0.6	470	52	610	4,600	100	52	Yes	No	No	NA	No
010	Selenium	ug/L	Available Data <DL	0.6	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
011	Silver	ug/L	Available Data <DL	0.6	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	Yes	3.4	No
012	Thallium	ug/L	Available Data <DL	0.6	NONE	NONE	1.7	6.3	2	2	Yes	No	No	NA	No
013	Zinc	ug/L	All Data Qualified	0.6	120	120	NONE	NONE	NONE	120	No	Yes	NA	NA	No
014	Total Cyanide	ug/L	Available Data <DL	0.6	22	5.2	700	220,000	200	5.2	Yes	No	No	NA	No
015	Asbestos	Fibers/L	Available Data <DL	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7000000	Yes	No	No	NA	No
016	TCDD TEQ_NoDNQ	ug/L	5.50E-10	0.6	NONE	NONE	1.30E-08	1.40E-08	3.00E-08	0.000000014	Yes	Yes	NA	NA	No
017	Acrolein	ug/L	Available Data <DL	0.6	NONE	NONE	320	780	NONE	780	Yes	No	No	NA	No
018	Acrylonitrile	ug/L	Available Data <DL	0.6	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	0.66	No
019	Benzene	ug/L	Available Data <DL	0.6	NONE	NONE	1.2	71	1	1	Yes	No	No	NA	No
020	Bromoform	ug/L	Available Data <DL	0.6	NONE	NONE	4.3	360	NONE	360	Yes	No	No	NA	No
021	Carbon Tetrachloride	ug/L	Available Data <DL	0.6	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	No	NA	No
022	Chlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	680	21,000	70	70	Yes	No	No	NA	No
023	Dibromochloromethane	ug/L	Available Data <DL	0.6	NONE	NONE	0.401	34	NONE	34	Yes	No	No	NA	No
024	Chloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
025	2-Chloroethylvinylether	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
026	Chloroform	ug/L	Available Data <DL	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	No	NA	No
027	Bromodichloromethane	ug/L	Available Data <DL	0.6	NONE	NONE	0.56	46	NONE	46	Yes	No	No	NA	No
028	1,1-Dichloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
029	1,2-Dichloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	0.38	99	0.5	0.5	Yes	No	No	NA	No
030	1,1-Dichloroethene	ug/L	Available Data <DL	0.6	NONE	NONE	0.057	3.2	6	3.2	Yes	No	No	NA	No
031	1,2-Dichloropropane	ug/L	Available Data <DL	0.6	NONE	NONE	0.52	39	5	5	Yes	No	No	NA	No
032	cis-1,3-Dichloropropene	ug/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
032a	trans-1,3-Dichloropropene	ug/L	Available Data <DL	0.6	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
033	Ethylbenzene	ug/L	Available Data <DL	0.6	NONE	NONE	3,100	29,000	700	700	Yes	No	No	NA	No
034	Bromomethane	ug/L	Available Data <DL	0.6	NONE	NONE	48	4,000	NONE	4000	Yes	No	No	NA	No
035	Chloromethane	ug/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	No	NA	No
036	Methylene chloride	ug/L	Available Data <DL	0.6	NONE	NONE	4.7	1,600	NONE	1600	Yes	No	No	NA	No
037	1,1,2,2-Tetrachloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	0.17	11	1	1	Yes	No	No	NA	No
038	Tetrachloroethene	ug/L	Available Data <DL	0.6	NONE	NONE	0.8	8.85	5	5	Yes	No	No	NA	No
039	Toluene	ug/L	Available Data <DL	0.6	NONE	NONE	6,800	200,000	150	150	Yes	No	No	NA	No

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)**

**FIRST QUARTER 2015 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3 Was Constituent Detected in Effluent Data	Step 3 Are all Detection Limits > C	Step 3 If DL > C, MEC = Min (DL)	Step 4 MEC >= C
					CTR CRITERIA										
					Freshwater		Human Health								
					CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
040	trans-1,2-Dichloroethene	ug/L	Available Data <DL	0.6	NONE	NONE	700	140,000	10	10	Yes	No	No	NA	No
041	1,1,1-Trichloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
042	1,1,2-trichloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	0.6	42	5	5	Yes	No	No	NA	No
043	Trichloroethene	ug/L	Available Data <DL	0.6	NONE	NONE	2.7	81	5	5	Yes	No	No	NA	No
044	Vinyl chloride	ug/L	Available Data <DL	0.6	NONE	NONE	2	525	0.5	0.5	Yes	No	No	NA	No
045	2-chlorophenol	ug/L	Available Data <DL	0.6	NONE	NONE	120	400	NONE	400	Yes	No	No	NA	No
046	2,4-Dichlorophenol	ug/L	Available Data <DL	0.6	NONE	NONE	93	790	NONE	790	Yes	No	No	NA	No
047	2,4-dimethylphenol	ug/L	Available Data <DL	0.6	NONE	NONE	540	2,300	NONE	2300	Yes	No	No	NA	No
048	2-Methyl-4,6-dinitrophenol	ug/L	Available Data <DL	0.6	NONE	NONE	13.4	765	NONE	765	Yes	No	No	NA	No
049	2,4-dinitrophenol	ug/L	Available Data <DL	0.6	NONE	NONE	70	14,000	NONE	14000	Yes	No	No	NA	No
050	2-nitrophenol	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
051	4-nitrophenol	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
052	4-Chloro-3-methylphenol	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
053	Pentachlorophenol	ug/L	Available Data <DL	0.6	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	No	NA	No
054	Phenol	ug/L	Available Data <DL	0.6	NONE	NONE	21,000	4,600,000	NONE	4600000	Yes	No	No	NA	No
055	2,4,6-Trichlorophenol	ug/L	Available Data <DL	0.6	NONE	NONE	2.1	6.5	NONE	6.5	Yes	No	No	NA	No
056	Acenaphthene	ug/L	Available Data <DL	0.6	NONE	NONE	1,200	2,700	NONE	2700	Yes	No	No	NA	No
057	Acenaphthylene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
058	Anthracene	ug/L	Available Data <DL	0.6	NONE	NONE	9,600	110,000	NONE	110000	Yes	No	No	NA	No
059	Benzidine	ug/L	Available Data <DL	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	Yes	No	Yes	0.00054	No
060	Benzo(a)Anthracene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
061	Benzo(a)Pyrene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	Yes	No	Yes	0.049	No
062	Benzo(b)Fluoranthene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
063	Benzo(g,h,i)Perylene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
064	Benzo(k)Fluoranthene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
065	Bis(2-Chloroethoxy) methane	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
066	bis (2-Chloroethyl) ether	ug/L	Available Data <DL	0.6	NONE	NONE	0.031	1.4	NONE	1.4	Yes	No	No	NA	No
067	Bis(2-Chloroisopropyl) Ether	ug/L	Available Data <DL	0.6	NONE	NONE	1,400	170,000	NONE	170000	Yes	No	No	NA	No
068	bis (2-ethylhexyl) Phthalate	ug/L	Available Data <DL	0.6	NONE	NONE	1.8	5.9	4	4	Yes	No	No	NA	No
069	4-Bromophenylphenylether	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
070	Butylbenzylphthalate	ug/L	Available Data <DL	0.6	NONE	NONE	3,000	5,200	NONE	5200	Yes	No	No	NA	No
071	2-Chloronaphthalene	ug/L	Available Data <DL	0.6	NONE	NONE	1,700	4,300	NONE	4300	Yes	No	No	NA	No
072	4-Chlorophenylphenylether	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
073	Chrysene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
074	Dibenzo(a,h)Anthracene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
075	1,2-Dichlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	2,700	17,000	600	600	Yes	No	No	NA	No
076	1,3-Dichlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	400	2,600	NONE	2600	Yes	No	No	NA	No
077	1,4-Dichlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	400	2,600	5	5	Yes	No	No	NA	No
078	3,3'-Dichlorobenzidine	ug/L	Available Data <DL	0.6	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	0.077	No
079	Diethylphthalate	ug/L	Available Data <DL	0.6	NONE	NONE	23,000	120,000	NONE	120000	Yes	No	No	NA	No
080	Dimethylphthalate	ug/L	Available Data <DL	0.6	NONE	NONE	313,000	2,900,000	NONE	2900000	Yes	No	No	NA	No

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)**

**FIRST QUARTER 2015 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3 Was Constituent Detected in Effluent Data	Step 3 Are all Detection Limits > C	Step 3 If DL > C, MEC = Min (DL)	Step 4 MEC >= C
					CTR CRITERIA										
					Freshwater		Human Health								
					CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
081	Di-n-butylphthalate	ug/L	Available Data <DL	0.6	NONE	NONE	2,700	12,000	NONE	12000	Yes	No	No	NA	No
082	2,4-Dinitrotoluene	ug/L	Available Data <DL	0.6	NONE	NONE	0.11	9.1	NONE	9.1	Yes	No	No	NA	No
083	2,6-Dinitrotoluene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
084	Di-n-octylphthalate	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
085	1,2-Diphenylhydrazine	ug/L	Available Data <DL	0.6	NONE	NONE	0.04	0.54	NONE	0.54	Yes	No	No	NA	No
086	Fluoranthene	ug/L	Available Data <DL	0.6	NONE	NONE	300	370	NONE	370	Yes	No	No	NA	No
087	Fluorene	ug/L	Available Data <DL	0.6	NONE	NONE	1,300	14,000	NONE	14000	Yes	No	No	NA	No
088	Hexachlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.00077	No
089	Hexachlorobutadiene	ug/L	Available Data <DL	0.6	NONE	NONE	0.44	50	NONE	50	Yes	No	No	NA	No
090	Hexachlorocyclopentadiene	ug/L	Available Data <DL	0.6	NONE	NONE	240	17,000	50	50	Yes	No	No	NA	No
091	Hexachloroethane	ug/L	Available Data <DL	0.6	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	No	NA	No
092	Indeno(1,2,3-cd)Pyrene	ug/L	Available Data <DL	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
093	Isophorone	ug/L	Available Data <DL	0.6	NONE	NONE	8.4	600	NONE	600	Yes	No	No	NA	No
094	Naphthalene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
095	Nitrobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	17	1,900	NONE	1900	Yes	No	No	NA	No
096	N-Nitrosodimethylamine	ug/L	Available Data <DL	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	Yes	No	No	NA	No
097	n-Nitroso-di-n-propylamine	ug/L	Available Data <DL	0.6	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	No	NA	No
098	N-Nitrosodiphenylamine	ug/L	Available Data <DL	0.6	NONE	NONE	5	16	NONE	16	Yes	No	No	NA	No
099	Phenanthrene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
100	Pyrene	ug/L	Available Data <DL	0.6	NONE	NONE	960	11,000	NONE	11000	Yes	No	No	NA	No
101	1,2,4-Trichlorobenzene	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No
102	Aldrin	ug/L	Available Data <DL	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
103	alpha-BHC	ug/L	Available Data <DL	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	Yes	No	No	NA	No
104	beta-BHC	ug/L	Available Data <DL	0.6	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	No	NA	No
105	Lindane (gamma-BHC)	ug/L	Available Data <DL	0.6	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	No	NA	No
106	delta-BHC	ug/L	Available Data <DL	0.6	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
107	Chlordane	ug/L	Available Data <DL	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.00059	No
108	4,4'-DDT	ug/L	Available Data <DL	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
109	4,4'-DDE	ug/L	Available Data <DL	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
110	4,4'-DDD	ug/L	Available Data <DL	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.00084	No
111	Dieldrin	ug/L	Available Data <DL	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
112	Endosulfan I	ug/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
113	Endosulfan II	ug/L	Available Data <DL	0.6	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
114	Endosulfan Sulfate	ug/L	Available Data <DL	0.6	NONE	NONE	110	240	NONE	240	Yes	No	No	NA	No
115	Endrin	ug/L	Available Data <DL	0.6	0.086	0.036	0.76	0.81	2	0.036	Yes	No	No	NA	No
116	Endrin Aldehyde	ug/L	Available Data <DL	0.6	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	No	NA	No
117	Heptachlor	ug/L	Available Data <DL	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.00021	No
118	Heptachlor Epoxide	ug/L	Available Data <DL	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	Yes	No	Yes	0.00011	No
119	Aroclor-1016	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
120	Aroclor-1221	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
121	Aroclor-1232	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No

**TABLE F-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)**

**FIRST QUARTER 2015 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C				Basin Plan	C = Lowest Criteria	Step 2	Step 3			Step 4
					CTR CRITERIA						Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
					Freshwater		Human Health								
					CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
122	Aroclor-1242	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
123	Aroclor-1248	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
124	Aroclor-1254	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
125	Aroclor-1260	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
126	Toxaphene	ug/L	Available Data <DL	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.0002	No
127	E. Coli	MPN/100ml	All Data Qualified	0.6	NA	NA	NA	NA	235	235	No	Yes	NA	NA	No

**TABLE F-2
REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALLS 003-007,009 AND 010)**

**FIRST QUARTER 2015 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection TMDL-Total Maximum Daily Load
3_7,9-10	Boron	Annual	mg/L	0	All Data Qualified	0.6	All Data Qualified	All Data Qualified	0	0	All Data Qualified	1	BU
3_7,9-10	Chloride	Discharge	mg/L	2	4.5	0.6	7.4	33.3	0	0	33.3	150	BU
3_7,9-10	Fluoride	Annual	mg/L	1	0.15	0.6	13.2	1.98	0	0	1.98	1.6	BU
3_7,9-10	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	2	0.84	0.6	7.4	6.22	0	0	6.22	8	BU/TMDL
3_7,9-10	Oil & Grease	Discharge	mg/L	1	Available Data <DL	0.6	13.2	Available Data <DL	0	0	Available Data <DL	10	BU
3_7,9-10	Sulfate	Discharge	mg/L	2	4.6	0.6	7.4	34.04	0	0	34.04	300	BU
3_7,9-10	Total Dissolved Solids	Discharge	mg/L	2	90	0.6	7.4	666	0	0	666	150	BU
3_7,9-10	Total Suspended Solids	Annual	mg/L	2	33	0.6	7.4	244.2	0	0	244.2	45	BU