APPENDIX E

First Quarter 2018 Analytical Laboratory Reports and Validation Reports

APPENDIX E

TABLE OF CONTENTS

Section No.

APPENDIX E
Table of Contents (continued)

Section No.

DATA VALIDATION REPORT

Boeing SSFL Outfall 002

SAMPLE DELIVERY GROUP: 440-206915-1

Prepared for

Haley & Aldrich

April 2, 2018

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

www.mecx.net

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL Outfall 002

Contract: 40458-078 and 40458-083

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

Sample Delivery Group: 440-206915-1

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	Matrix	Collection	Method
Outfall002_20180322_ Grab	440-206915-1	Water	3/22/2018 2:00:00 PM	E120.1, SM9221F, SW8015D, SW8015V

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-206915-1:

- The laboratory received samples in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers; however, no evidence of tampering was noted.

TABLE 2 - DATA QUALIFIER REFERENCE

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

TABLE 3 - REASON CODE REFERENCE

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

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

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

L. Calvin of MEC^X reviewed the SDG on April 2, 2018

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0), EPA Method 8015B*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

III.1. HOLDING TIMES

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

III.2. CALIBRATION

Initial calibration %RSDs were within the method control limit of ≤20%, and the ICV and CCV %Ds were within ≤15%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks.

III.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the laboratory control limits for GRO and DRO of 80-120% and 40-115%, respectively, and the RPD for the DRO LCS/LCSD pair was within the control limit of ≤25%.

III.3.3. *SURROGATE RECOVERY*

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

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

MS/MSD analyses were not performed on the site sample from this SDG. MEC^X evaluated method accuracy for GRO and accuracy and precision for DRO based on the respective LCS and LCS/LCSD results.

III.4. FIELD QC SAMPLES

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

III.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

III.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.5. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory reported two total petroleum hydrocarbon ranges: C_4-C_{12} (GRO), and C_{13}-C_{28} (DRO). Review indicated no issues with target compound range identification.

III.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified. Review of the raw data did not indicate calculation or transcription errors; however, the reviewer noted an inconsistency between the surrogate baseline used for quantitation and the relatively lower DRO range baseline in sample Outfall002_20180322_Grab, which may have elevated the reported DRO result. As a conservative measure, the result reported below the reporting limit was qualified as estimated with a potential positive bias (J+) and coded DNQ to comply with the NPDES permit. Nondetects are valid to the reporting limit.

IV. METHODS SM 9221F AND EPA 120.1 —*E. COLI* AND SPECIFIC CONDUCTANCE

Marcia Hilchey of MEC^X reviewed the SDG on April 3, 2018.

The samples 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. 1), EPA Method 120.1, Standard Methods for the Examination of Water and Wastewater 9221F,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. HOLDING TIMES

The sample was received and analyzed past the analytical holding time of 8 hours (as indicated on the COC) but within 2x the holding time requirement for E. coli. The analysis was within the 30 hour holding time indicated in the QAPP. As a conservative measure, the sample result was qualified as estimated (J). The holding time for specific conductance, 28 days after collection, was met.

IV.2. CALIBRATION

Calibration criteria were met. Biological controls were acceptable. No instrument calibration information was provided for specific conductance analysis.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

The method blank had no detect for specific conductance. The negative biological control sample was acceptable

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recovery for specific conductance was within the laboratory control limits. The presumptive test was analyzed with the positive detects for the target bacteria.

IV.3.3. *LABORATORY DUPLICATES*

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

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

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

IV.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the reported sample result for E. coli was verified against the raw data. No transcription errors or calculation errors were noted. No sample raw data was presented in the SDG for specific conductance.

IV.5. FIELD QC SAMPLES

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

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402069151

Analysis Method E120.1

Sample Name Outfall002_20180322_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/22/2018 2:00:00 PM **Validation Level:** 8

Lab Sample Name: 440-206915-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Specific Conductance	N	CONDSPEC	400	1.0	1.0	umhos/c			

Analysis Method SM9221F

Sample Name Outfall002_20180322_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/22/2018 2:00:00 PM **Validation Level:** 8

Lab Sample Name: 440-206915-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Escherichia coli	N	ECOLI	280	1.8	1.8	mpn/100	BUBV	J	H

Analysis Method SW8015D

Sample Name Outfall002_20180322_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/22/2018 2:00:00 PM **Validation Level:** 8

Lab Sample Name: 440-206915-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Petroleum Hydrocarbons (C13-C28)(DRO)	N	PHC1328	0.18	0.51	0.10	mg/L	J,DX	J+	DNQ, *III

Analysis Method SW8015V

Sample Name Outfall002_20180322_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/22/2018 2:00:00 PM **Validation Level:** 8

Lab Sample Name: 440-206915-1

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

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: 440-206915-1
Client Project/Site: Annual Outfall 002 Grab

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

Attn: Katherine Miller

Authorized for release by:
3/30/2018 4:16:18 PM

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

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

Urvashi Patel
Manager of Project Management
3/30/2018 4:16:18 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-206915-1	Outfall002_20180322_Grab	Water	03/22/18 14:00	03/23/18 18:05
440-206915-3	TB-20180322	Water	03/22/18 14:00	03/23/18 18:05

Job ID: 440-206915-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-206915-1

Comments
Bacti sample received past hold time as cooler was received the following day. Cooler was left at the sight.

Receipt
The samples were received on 3/23/2018 6:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method(s) 624: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH of 6 was outside the required criteria when verified by the laboratory, and corrective action was not possible: TB-20180322 (440-206915-3). The sample was analyzed within 7 days per EPA recommendation.

Method(s) 624: The preservative used in the sample containers provided is not compatible with the Method 624 analytes requested. The following sample was received preserved with hydrochloric acid: TB-20180322 (440-206915-3). The requested target analyte list contains 2-Chloroethyl vinyl ether and/or Acrolein, which are acid-labile compounds that degrade in an acidic medium.

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

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

GC Semi VOA
Method(s) 8015B: Insufficient 8015-DRO sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch preparation batch 440-465947 and analytical batch 440-465998. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-465947/2-A)

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

General Chemistry
Method(s) SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 440-465744.

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

Biology
Method(s) SM 9221F: The following sample was received outside of holding time: Outfall002_20180322_Grab (440-206915-1).

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

Organic Prep
Method(s) 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-466202 and analytical batch 440-466313. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-465947.

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

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

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Client Sample ID: Outfall002_20180322_Grab
Date Collected: 03/22/18 14:00
Date Received: 03/23/18 18:05

Lab Sample ID: 440-206915-1
Matrix: Water

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/18 12:11	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Acrolein	ND		5.0	2.5	ug/L			03/24/18 12:11	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/18 12:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/26/18 12:00	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Benzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Bromoform	ND		1.0	0.40	ug/L			03/26/18 12:00	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/26/18 12:00	1
Bromomethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Chloroethane	ND		1.0	0.40	ug/L			03/26/18 12:00	1
Chloroform	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Chloromethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/26/18 12:00	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Toluene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Trichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Cyclohexane	ND		2.0	1.0	ug/L			03/26/18 12:00	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/26/18 12:00	1
Naphthalene	ND		1.0	0.40	ug/L			03/26/18 12:00	1
o-Xylene	ND		0.50	0.25	ug/L			03/26/18 12:00	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/26/18 12:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*80 - 128*		*03/24/18 12:11*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 132*		*03/24/18 12:11*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*03/24/18 12:11*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*03/26/18 12:00*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 132*		*03/26/18 12:00*	*1*
Toluene-d8 (Surr)	*102*		*80 - 128*		*03/26/18 12:00*	*1*

Client Sample ID: Outfall002_20180322_Grab

Lab Sample ID: 440-206915-1
Date Collected: 03/22/18 14:00
Matrix: Water
Date Received: 03/23/18 18:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			03/29/18 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*65 - 140*		*03/29/18 15:34*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	**0.18**	**J,DX**	0.51	0.10	mg/L		03/26/18 06:24	03/26/18 22:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*64*		*45 - 120*	*03/26/18 06:24*	*03/26/18 22:23*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.2	1.5	mg/L		03/27/18 06:16	03/27/18 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**400**		1.0	1.0	umhos/cm			03/28/18 09:00	1
Settleable Solids	**0.10**		0.10	0.10	mL/L/Hr			03/23/18 20:11	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	**280**	**BU BV**	1.8	1.8	MPN/100mL			03/23/18 20:04	1

Client Sample ID: TB-20180322

Lab Sample ID: 440-206915-3
Date Collected: 03/22/18 14:00
Matrix: Water
Date Received: 03/23/18 18:05

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/18 12:39	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Acrolein	ND		5.0	2.5	ug/L			03/24/18 12:39	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/18 12:39	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/26/18 12:27	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Benzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Bromoform	ND		1.0	0.40	ug/L			03/26/18 12:27	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/26/18 12:27	1
Bromomethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Chloroethane	ND		1.0	0.40	ug/L			03/26/18 12:27	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Client Sample ID: TB-20180322
Date Collected: 03/22/18 14:00
Date Received: 03/23/18 18:05

Lab Sample ID: 440-206915-3
Matrix: Water

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Chloromethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/26/18 12:27	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Toluene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Trichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Cyclohexane	ND		2.0	1.0	ug/L			03/26/18 12:27	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/26/18 12:27	1
Naphthalene	ND		1.0	0.40	ug/L			03/26/18 12:27	1
o-Xylene	ND		0.50	0.25	ug/L			03/26/18 12:27	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/26/18 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 128*		*03/24/18 12:39*	*1*
Dibromofluoromethane (Surr)	*101*		*76 - 132*		*03/24/18 12:39*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*03/24/18 12:39*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*		*03/26/18 12:27*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 132*		*03/26/18 12:27*	*1*
Toluene-d8 (Surr)	*104*		*80 - 128*		*03/26/18 12:27*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Method	Method Description	Protocol	Laboratory
624	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL IRV
120.1	Conductivity, Specific Conductance	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 9221F	E.Coli (Multiple-Tube Fermentation; EC-MUG)	SM	TAL IRV

Protocol References:

1664A = EPA-821-98-002

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

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

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

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

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 Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Client Sample ID: Outfall002_20180322_Grab

Lab Sample ID: 440-206915-1
Date Collected: 03/22/18 14:00
Matrix: Water
Date Received: 03/23/18 18:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	10 mL	10 mL	465948	03/26/18 12:00	RM	TAL IRV
Total/NA	Analysis	624		1	10 mL	10 mL	465795	03/24/18 12:11	AYL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	466819	03/29/18 15:34	KGL	TAL IRV
Total/NA	Prep	3510C			990 mL	1 mL	465947	03/26/18 06:24	L1H	TAL IRV
Total/NA	Analysis	8015B		1			465998	03/26/18 22:23	LMB	TAL IRV
Total/NA	Analysis	120.1		1			466554	03/28/18 09:00	XL	TAL IRV
Total/NA	Prep	1664A			960 mL	1000 mL	466202	03/27/18 06:16	JC1	TAL IRV
Total/NA	Analysis	1664A		1			466313	03/27/18 11:41	JC1	TAL IRV
Total/NA	Analysis	SM 2540F		1			465744	03/23/18 20:11	CMM	TAL IRV
Total/NA	Analysis	SM 9221F		1	100 mL	100 mL	466356		CMM	TAL IRV
								(Start) 03/23/18 20:04		
								(End) 03/26/18 16:00		

Client Sample ID: TB-20180322

Lab Sample ID: 440-206915-3
Date Collected: 03/22/18 14:00
Matrix: Water
Date Received: 03/23/18 18:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	10 mL	10 mL	465948	03/26/18 12:27	RM	TAL IRV
Total/NA	Analysis	624		1	10 mL	10 mL	465795	03/24/18 12:39	AYL	TAL IRV

Laboratory References:

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

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-465795/4
Matrix: Water
Analysis Batch: 465795

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	ND		2.0	1.0	ug/L			03/24/18 10:48	1
Acrolein	ND		5.0	2.5	ug/L			03/24/18 10:48	1
Acrylonitrile	ND		2.0	1.0	ug/L			03/24/18 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 128*		*03/24/18 10:48*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 132*		*03/24/18 10:48*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*03/24/18 10:48*	*1*

Lab Sample ID: LCS 440-465795/5
Matrix: Water
Analysis Batch: 465795

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloroethyl vinyl ether	25.0	23.3		ug/L		93	37 - 150
Acrolein	25.0	21.5		ug/L		86	10 - 145
Acrylonitrile	250	228		ug/L		91	48 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 128*
Dibromofluoromethane (Surr)	*101*		*76 - 132*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: 440-206915-1 MS
Matrix: Water
Analysis Batch: 465795

Client Sample ID: Outfall002_20180322_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloroethyl vinyl ether	ND		25.0	21.1		ug/L		85	10 - 140
Acrolein	ND		25.0	18.5		ug/L		74	10 - 147
Acrylonitrile	ND		250	252		ug/L		101	38 - 144

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 128*
Dibromofluoromethane (Surr)	*104*		*76 - 132*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: 440-206915-1 MSD
Matrix: Water
Analysis Batch: 465795

Client Sample ID: Outfall002_20180322_Grab
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chloroethyl vinyl ether	ND		25.0	23.2		ug/L		93	10 - 140	9	25
Acrolein	ND		25.0	14.0		ug/L		56	10 - 147	27	40
Acrylonitrile	ND		250	264		ug/L		106	38 - 144	5	40

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-206915-1 MSD
Matrix: Water
Analysis Batch: 465795

Client Sample ID: Outfall002_20180322_Grab
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*80 - 128*
Dibromofluoromethane (Surr)	*98*		*76 - 132*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: MB 440-465948/5
Matrix: Water
Analysis Batch: 465948

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.50	ug/L			03/26/18 08:29	1
1,1-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,1-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,2-Dichloroethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,2-Dichloropropane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Benzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Bromoform	ND		1.0	0.40	ug/L			03/26/18 08:29	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	1.0	ug/L			03/26/18 08:29	1
Bromomethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Carbon tetrachloride	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Chlorobenzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Dibromochloromethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Chloroethane	ND		1.0	0.40	ug/L			03/26/18 08:29	1
Chloroform	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Chloromethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
cis-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Bromodichloromethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Ethylbenzene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Methylene Chloride	ND		2.0	0.88	ug/L			03/26/18 08:29	1
Tetrachloroethene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Toluene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
trans-1,3-Dichloropropene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Trichlorofluoromethane	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Vinyl chloride	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Trichloroethene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
cis-1,2-Dichloroethene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Cyclohexane	ND		2.0	1.0	ug/L			03/26/18 08:29	1
m,p-Xylene	ND		1.0	0.50	ug/L			03/26/18 08:29	1
Naphthalene	ND		1.0	0.40	ug/L			03/26/18 08:29	1
o-Xylene	ND		0.50	0.25	ug/L			03/26/18 08:29	1
Xylenes, Total	ND		1.0	0.50	ug/L			03/26/18 08:29	1

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-465948/5
Matrix: Water
Analysis Batch: 465948

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		80 - 120		03/26/18 08:29	1
Dibromofluoromethane (Surr)	98		76 - 132		03/26/18 08:29	1
Toluene-d8 (Surr)	102		80 - 128		03/26/18 08:29	1

Lab Sample ID: LCS 440-465948/6
Matrix: Water
Analysis Batch: 465948

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	25.1		ug/L		100	70 - 130
1,1,2,2-Tetrachloroethane	25.0	24.8		ug/L		99	63 - 130
1,1,2-Trichloroethane	25.0	27.0		ug/L		108	70 - 130
1,1-Dichloroethane	25.0	24.7		ug/L		99	64 - 130
1,1-Dichloroethene	25.0	23.8		ug/L		95	70 - 130
1,2-Dichlorobenzene	25.0	27.2		ug/L		109	70 - 130
1,2-Dichloroethane	25.0	25.9		ug/L		103	57 - 138
1,2-Dichloropropane	25.0	25.6		ug/L		102	67 - 130
1,3-Dichlorobenzene	25.0	26.7		ug/L		107	70 - 130
1,4-Dichlorobenzene	25.0	26.8		ug/L		107	70 - 130
Benzene	25.0	25.7		ug/L		103	68 - 130
Bromoform	25.0	26.1		ug/L		104	60 - 148
Bromomethane	25.0	21.5		ug/L		86	64 - 139
Carbon tetrachloride	25.0	26.2		ug/L		105	60 - 150
Chlorobenzene	25.0	25.7		ug/L		103	70 - 130
Dibromochloromethane	25.0	27.3		ug/L		109	69 - 145
Chloroethane	25.0	22.4		ug/L		90	64 - 135
Chloroform	25.0	24.7		ug/L		99	70 - 130
Chloromethane	25.0	20.9		ug/L		84	47 - 140
cis-1,3-Dichloropropene	25.0	26.2		ug/L		105	70 - 133
Bromodichloromethane	25.0	25.9		ug/L		104	70 - 132
Ethylbenzene	25.0	27.0		ug/L		108	70 - 130
Methylene Chloride	25.0	22.7		ug/L		91	52 - 130
Tetrachloroethene	25.0	27.2		ug/L		109	70 - 130
Toluene	25.0	27.0		ug/L		108	70 - 130
trans-1,2-Dichloroethene	25.0	24.2		ug/L		97	70 - 130
trans-1,3-Dichloropropene	25.0	25.3		ug/L		101	70 - 132
Trichlorofluoromethane	25.0	24.1		ug/L		96	60 - 150
Vinyl chloride	25.0	23.0		ug/L		92	59 - 133
Trichloroethene	25.0	26.6		ug/L		107	70 - 130
cis-1,2-Dichloroethene	25.0	24.6		ug/L		99	70 - 133
m,p-Xylene	25.0	26.7		ug/L		107	70 - 130
Naphthalene	25.0	28.4		ug/L		114	60 - 140
o-Xylene	25.0	26.8		ug/L		107	70 - 130
Xylenes, Total	50.0	53.5		ug/L		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		80 - 120

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-465948/6
Matrix: Water
Analysis Batch: 465948

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*102*		*76 - 132*
Toluene-d8 (Surr)	*100*		*80 - 128*

Lab Sample ID: 320-37266-C-1 MS
Matrix: Water
Analysis Batch: 465948

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	25.6		ug/L		102	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	26.5		ug/L		106	63 - 130
1,1,2-Trichloroethane	ND		25.0	27.9		ug/L		112	70 - 130
1,1-Dichloroethane	ND		25.0	25.1		ug/L		100	65 - 130
1,1-Dichloroethene	ND		25.0	23.2		ug/L		93	70 - 130
1,2-Dichlorobenzene	ND		25.0	27.8		ug/L		111	70 - 130
1,2-Dichloroethane	ND		25.0	25.9		ug/L		103	56 - 146
1,2-Dichloropropane	ND		25.0	25.3		ug/L		101	69 - 130
1,3-Dichlorobenzene	ND		25.0	27.7		ug/L		111	70 - 130
1,4-Dichlorobenzene	ND		25.0	27.6		ug/L		110	70 - 130
Benzene	ND		25.0	25.4		ug/L		102	66 - 130
Bromoform	ND		25.0	27.0		ug/L		108	59 - 150
Bromomethane	ND		25.0	21.6		ug/L		86	62 - 131
Carbon tetrachloride	ND		25.0	26.6		ug/L		106	60 - 150
Chlorobenzene	ND		25.0	26.2		ug/L		105	70 - 130
Dibromochloromethane	ND		25.0	27.6		ug/L		110	70 - 148
Chloroethane	ND		25.0	22.4		ug/L		89	68 - 130
Chloroform	ND		25.0	24.9		ug/L		100	70 - 130
Chloromethane	ND		25.0	20.9		ug/L		84	39 - 144
cis-1,3-Dichloropropene	ND		25.0	26.4		ug/L		106	70 - 133
Bromodichloromethane	ND		25.0	25.8		ug/L		103	70 - 138
Ethylbenzene	ND		25.0	27.4		ug/L		109	70 - 130
Methylene Chloride	ND		25.0	21.3		ug/L		85	52 - 130
Tetrachloroethene	ND		25.0	27.8		ug/L		111	70 - 137
Toluene	ND		25.0	27.9		ug/L		112	70 - 130
trans-1,2-Dichloroethene	ND		25.0	24.9		ug/L		100	70 - 130
trans-1,3-Dichloropropene	ND		25.0	25.8		ug/L		103	70 - 138
Trichlorofluoromethane	ND		25.0	24.6		ug/L		98	60 - 150
Vinyl chloride	ND		25.0	22.9		ug/L		92	50 - 137
Trichloroethene	ND		25.0	26.6		ug/L		107	70 - 130
cis-1,2-Dichloroethene	ND		25.0	24.3		ug/L		97	70 - 130
m,p-Xylene	ND		25.0	27.3		ug/L		109	70 - 133
Naphthalene	ND		25.0	28.6		ug/L		114	60 - 140
o-Xylene	ND		25.0	26.6		ug/L		106	70 - 133
Xylenes, Total	ND		50.0	53.9		ug/L		108	70 - 133

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*76 - 132*

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 320-37266-C-1 MS
Matrix: Water
Analysis Batch: 465948

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	*101*		*80 - 128*

Lab Sample ID: 320-37266-C-1 MSD
Matrix: Water
Analysis Batch: 465948

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		25.0	25.7		ug/L		103	70 - 130	0	20
1,1,2,2-Tetrachloroethane	ND		25.0	26.5		ug/L		106	63 - 130	0	30
1,1,2-Trichloroethane	ND		25.0	27.3		ug/L		109	70 - 130	2	25
1,1-Dichloroethane	ND		25.0	25.6		ug/L		102	65 - 130	2	20
1,1-Dichloroethene	ND		25.0	24.1		ug/L		96	70 - 130	4	20
1,2-Dichlorobenzene	ND		25.0	28.5		ug/L		114	70 - 130	2	20
1,2-Dichloroethane	ND		25.0	26.1		ug/L		104	56 - 146	1	20
1,2-Dichloropropane	ND		25.0	26.3		ug/L		105	69 - 130	4	20
1,3-Dichlorobenzene	ND		25.0	28.0		ug/L		112	70 - 130	1	20
1,4-Dichlorobenzene	ND		25.0	28.2		ug/L		113	70 - 130	2	20
Benzene	ND		25.0	26.1		ug/L		104	66 - 130	3	20
Bromoform	ND		25.0	26.7		ug/L		107	59 - 150	1	25
Bromomethane	ND		25.0	22.4		ug/L		90	62 - 131	4	25
Carbon tetrachloride	ND		25.0	26.6		ug/L		106	60 - 150	0	25
Chlorobenzene	ND		25.0	25.3		ug/L		101	70 - 130	4	20
Dibromochloromethane	ND		25.0	27.2		ug/L		109	70 - 148	2	25
Chloroethane	ND		25.0	22.3		ug/L		89	68 - 130	0	25
Chloroform	ND		25.0	25.9		ug/L		104	70 - 130	4	20
Chloromethane	ND		25.0	21.4		ug/L		85	39 - 144	2	25
cis-1,3-Dichloropropene	ND		25.0	26.2		ug/L		105	70 - 133	1	20
Bromodichloromethane	ND		25.0	26.5		ug/L		106	70 - 138	3	20
Ethylbenzene	ND		25.0	26.9		ug/L		107	70 - 130	2	20
Methylene Chloride	ND		25.0	21.6		ug/L		86	52 - 130	1	20
Tetrachloroethene	ND		25.0	27.3		ug/L		109	70 - 137	2	20
Toluene	ND		25.0	27.5		ug/L		110	70 - 130	2	20
trans-1,2-Dichloroethene	ND		25.0	25.7		ug/L		103	70 - 130	3	20
trans-1,3-Dichloropropene	ND		25.0	25.2		ug/L		101	70 - 138	3	25
Trichlorofluoromethane	ND		25.0	25.1		ug/L		101	60 - 150	2	25
Vinyl chloride	ND		25.0	23.4		ug/L		94	50 - 137	2	30
Trichloroethene	ND		25.0	27.7		ug/L		111	70 - 130	4	20
cis-1,2-Dichloroethene	ND		25.0	25.8		ug/L		103	70 - 130	6	20
m,p-Xylene	ND		25.0	26.9		ug/L		107	70 - 133	2	25
Naphthalene	ND		25.0	29.5		ug/L		118	60 - 140	3	30
o-Xylene	ND		25.0	26.0		ug/L		104	70 - 133	2	20
Xylenes, Total	ND		50.0	52.9		ug/L		106	70 - 133	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*76 - 132*
Toluene-d8 (Surr)	*96*		*80 - 128*

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

Lab Sample ID: MB 440-466819/4
Matrix: Water
Analysis Batch: 466819

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		0.050	0.025	mg/L			03/29/18 09:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*65 - 140*		*03/29/18 09:51*	*1*

Lab Sample ID: LCS 440-466819/3
Matrix: Water
Analysis Batch: 466819

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			0.800	0.837		mg/L		105	80 - 120		

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

Lab Sample ID: 440-206673-A-1 MS
Matrix: Water
Analysis Batch: 466819

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		0.800	0.800		mg/L		100	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*65 - 140*

Lab Sample ID: 440-206673-A-1 MSD
Matrix: Water
Analysis Batch: 466819

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		0.800	0.799		mg/L		100	65 - 140	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*65 - 140*

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

Lab Sample ID: MB 440-465947/1-A
Matrix: Water
Analysis Batch: 465998

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 465947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.50	0.10	mg/L		03/26/18 06:24	03/26/18 14:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*69*		*45 - 120*	*03/26/18 06:24*	*03/26/18 14:40*	*1*

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

Lab Sample ID: LCS 440-465947/2-A
Matrix: Water
Analysis Batch: 465998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 465947

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28			1.00	0.653		mg/L		65	40 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*73*		*45 - 120*

Lab Sample ID: LCSD 440-465947/3-A
Matrix: Water
Analysis Batch: 465998

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 465947

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28			1.00	0.634		mg/L		63	40 - 115	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane	*73*		*45 - 120*

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: MB 440-466554/3
Matrix: Water
Analysis Batch: 466554

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/28/18 09:00	1

Lab Sample ID: LCS 440-466554/4
Matrix: Water
Analysis Batch: 466554

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Conductance			1010	1030		umhos/cm		102	90 - 110		

Lab Sample ID: 440-206662-B-1 DU
Matrix: Water
Analysis Batch: 466554

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	130			127		umhos/cm				1	5

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-466202/1-A
Matrix: Water
Analysis Batch: 466313

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466202

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		03/27/18 06:16	03/27/18 11:41	1

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

Lab Sample ID: LCS 440-466202/2-A
Matrix: Water
Analysis Batch: 466313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466202

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	36.3		mg/L		91	78 - 114		

Lab Sample ID: LCSD 440-466202/3-A
Matrix: Water
Analysis Batch: 466313

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 466202

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	37.1		mg/L		93	78 - 114	2	11

GC/MS VOA

Analysis Batch: 465795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	624	
440-206915-3	TB-20180322	Total/NA	Water	624	
MB 440-465795/4	Method Blank	Total/NA	Water	624	
LCS 440-465795/5	Lab Control Sample	Total/NA	Water	624	
440-206915-1 MS	Outfall002_20180322_Grab	Total/NA	Water	624	
440-206915-1 MSD	Outfall002_20180322_Grab	Total/NA	Water	624	

Analysis Batch: 465948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	624	
440-206915-3	TB-20180322	Total/NA	Water	624	
MB 440-465948/5	Method Blank	Total/NA	Water	624	
LCS 440-465948/6	Lab Control Sample	Total/NA	Water	624	
320-37266-C-1 MS	Matrix Spike	Total/NA	Water	624	
320-37266-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	624	

GC VOA

Analysis Batch: 466819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	8015B	
MB 440-466819/4	Method Blank	Total/NA	Water	8015B	
LCS 440-466819/3	Lab Control Sample	Total/NA	Water	8015B	
440-206673-A-1 MS	Matrix Spike	Total/NA	Water	8015B	
440-206673-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 465947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	3510C	
MB 440-465947/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-465947/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-465947/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 465998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	8015B	465947
MB 440-465947/1-A	Method Blank	Total/NA	Water	8015B	465947
LCS 440-465947/2-A	Lab Control Sample	Total/NA	Water	8015B	465947
LCSD 440-465947/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	465947

General Chemistry

Analysis Batch: 465744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	SM 2540F	

General Chemistry (Continued)

Prep Batch: 466202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	1664A	
MB 440-466202/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-466202/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-466202/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 466313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	1664A	466202
MB 440-466202/1-A	Method Blank	Total/NA	Water	1664A	466202
LCS 440-466202/2-A	Lab Control Sample	Total/NA	Water	1664A	466202
LCSD 440-466202/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	466202

Analysis Batch: 466554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	120.1	
MB 440-466554/3	Method Blank	Total/NA	Water	120.1	
LCS 440-466554/4	Lab Control Sample	Total/NA	Water	120.1	
440-206662-B-1 DU	Duplicate	Total/NA	Water	120.1	

Biology

Analysis Batch: 466356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206915-1	Outfall002_20180322_Grab	Total/NA	Water	SM 9221F	

Qualifiers

GC Semi VOA

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

Biology

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Glossary

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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Laboratory: TestAmerica Irvine

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
624		Water	1,1,2-Trichloro-1,2,2-trifluoroethane
624		Water	1,2-Dichloro-1,1,2-trifluoroethane
624		Water	cis-1,2-Dichloroethene
624		Water	Cyclohexane
624		Water	m,p-Xylene
624		Water	Naphthalene
624		Water	o-Xylene
624		Water	Xylenes, Total
8015B		Water	GRO (C4-C12)
8015B	3510C	Water	C13-C28

Test America

440-206915 Chain of Custody

CHAIN OF CUSTODY FORM

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

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

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

Sampler: Roy Barajas, Daniel Gar[illegible]

Project:
Boeing-SSFL NPDES
Permit 2018
Annual Outfall [001, 002, 011, 018]
Outfall 002
Grab

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
818.350.7312, 818.599.0702 (cell)

Field Readings | Meter serial #

Field Readings: (include units)
Time of Readings: 1410
DO 8.24 mg/L
pH 7.16 pH unit
Temp 13.55 °F
TRC 0.07 mg/L

Field readings QC
Checked by: [signature]
Date/Time: 3-22-18/1400

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	A: ~~MCT Bacteroidales, Human (SAM348-357)~~	A: E. coli (SM9221)	R: Settleable Solids (E160.5 (SM2540F))	R: Conductivity (SM2510B / E120.1)	R: Oil & Grease (E1664A-HEM)	R/Q/A: VOCs + VOCs PP + xylenes, Freon 11, Freon 113, Freon 123A, Cyclohexane, cis-1,2-DCE (E624)	A: VOCs - only A+A+2CVE (E624)	A: TPH gas (GRO(C4-C12)) (SW8015B)	A: TPH diesel/jet fuel (DRO (C13-C28)) (SW8015B)	Comments
Outfall 002	Outfall002_20180322_Grab	3/22/2018/1410	WM	125mL Sterile Poly	1	None	5	No	~~[struck]~~									~~Deliver to lab ASAP 8 hr hold time~~
			WM	125mL Sterile Poly	3	Na2S2O3	10	No		X								Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No					X					
			WM	40 mL VOA	3	HCl	45	No						X				
			WM	40 mL VOA	3	None	55	No							X			
			WM	40 mL VOA	3	HCl	60	No								X		
			WM	1 L Glass Amber	2	None	65	No									X	
			WM	1 L Poly	1	None	70	No			X							
			WM	500 mL Poly	1	None	75	No				X						
	Outfall002_20180322_Grab_Extra	3/22/2018/1410	WM	1 L Glass Amber	2	HCl	15	No					H					Hold
			WM	40 mL VOA	3	HCl	45	No						H				Hold
			WM	40 mL VOA	3	None	55	No							H			Hold
			WM	500 mL Poly	1	None	75	No				H						Hold
Trip Blanks	TB-20180322	3/22/2018/1410	WQ	40 mL VOA	2	HCl	45	No						X				
			WQ	40 mL VOA	2	None	55	No							X			

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

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-22-18/1730	Haley/Aldrich	[signature]	3-22-18/17:30
[signature]	~~3-22-18/2000~~	DCS	[signature]	3-23-18 1115
[signature]	3-23-18 1805	TA	[signature]	~~3/22/18 2000~~ 3/23/18 18:05 ~~1806~~

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

Sample Integrity: (Check)
Intact: ______ On Ice: ______

Store samples for 6 months.

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

3.8/3.5
IR89

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-206915-1

Login Number: 206915
List Number: 1
Creator: Escalante, Maria I

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

4985 SW 74th Court, Miami, FL 33155 USA
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733

ACCREDITED Certificate 4126.01
ISO 17025 Accredited Testing Laboratory

Human Fecal Quantification ID

Detection and quantification of the fecal associated Human gene biomarker by real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received: March 23, 2018
Report Generated: March 29, 2018

DNQ: Detected Not Quantified

SM #	Sample ID	Analysis Requested	Marker Quantified (copies/100 ml)	DNA Analytical Results
SM-8C23022	Outfall002_20180322_Grab	Human Bacteroidetes ID: Dorei	DNQ	**Detected**

Revision 1.2
Effective Date 11/2/17

Source Molecular

4985 SW 74th Court, Miami, FL 33155 USA
Tel: (1) 786-220-0379 Fax: (1) 786-513-2733

ilac-MRA A2LA ACCREDITED Certificate 4126.01
ISO 17025 Accredited Testing Laboratory

Preliminary Interpretation of Human Fecal "Quantification" ID Results

Detection and quantification of the fecal associated Human gene biomarker by real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology

Submitter: Haley and Aldrich
Date Received: March 23, 2018
Report Generated: March 29, 2018

Sample ID	INTERPRETATION	
	Concentration of Human Fecal Pollution in Sample	Comment
Outfall002_20180322_Grab	**Low Concentration**	Low levels of Human fecal biomarker(s)

The opinions/interpretations identified/expressed in this report are outside the scope of this organization's A2LA Accreditation.

Laboratory Comments

Submitter: Haley and Aldrich
Report Generated: March 29, 2018

Non-Detect Results
In sample(s) classified as non-detect, the host-associated fecal gene biomarker(s) was either not detected in test replicates, one replicate was detected at a cycle threshold greater than 35 and the other was not, or one replicate was detected at a cycle threshold less than 35 and the other was not after repeated analysis.

Detected Results
In sample(s) classified as detected, the host-associated fecal gene biomarker(s) was detected in both test replicates suggesting that the host's fecal contamination is present in the sample(s). Copy number measurements reported are relative, not absolute, quantification.

Detected Not Quantified (DNQ) Results
In sample(s) classified as Detected Not Quantified (DNQ), the host-associated fecal biomarker was detected in both test replicates but in quantities below the limit of quantification. This result indicates that fecal indicators associated with the respective host was present in the sample(s) but in low concentrations.

Fecal Reference Samples
The client is encouraged to submit fecal samples from suspected sources in the surrounding area in order to gain a better understanding of the concentration of the host-associated biomarker with the regional population. A more precise interpretation would be available to the client with the submittal of such baseline samples.

Result Interpretations
Quantitative results are reported along with interpretations. Interpretations are given as "non-detect", "low concentration", "moderate concentration", or "high concentration" based on the concentration of the genetic markers found in the sample(s).

The presence of the biomarker does not signify the presence or absence of that form of fecal pollution conclusively. Only repeated sampling will enable you to draw more definitive conclusions as to the contributor(s) of fecal pollution.

Additional Testing
A portion of all samples has been frozen and will be archived for 3 months. The client is encouraged to perform additional tests on the sample(s) for other hosts suspected of contributing to the fecal contamination. A list of available tests can be found at **sourcemolecular.com/tests**

DNA Analytical Method Explanation
Water Samples: Each submitted water sample is filtered through 0.45 micron membrane filter(s). Each filter is placed in a separate, sterile 2ml disposable tube containing a unique mix of beads and lysis buffer. The sample is homogenized for 1min and the DNA extracted using the Generite DNA-EZ ST1 extraction kit (GeneRite, NJ), as per manufacturer's protocol. Devitations to these procedures may occur at the client's request.

Non-Water Samples: Each non-water sample submitted by the client is processed as per internal laboratory extraction procedures. An extracted DNA sample is proceed directly to PCR analysis. Details available upon request.

Amplifications to detect the target gene biomarker were run on an Applied Biosystems StepOnePlus real-time thermal cycler (Applied Biosystems, Foster City, CA) in a final reaction volume of 20ul sample extract, forward primer, reverse primer, probe and an optimized buffer. All assays are run in duplicate. Quantification is achieved by extrapolating target gene copy numbers from a standard curve generated from serial dilutions of known gene copy numbers.

For quality control purposes, a positive control and a negative control, were run alongside the sample(s) to ensure a properly functioning reaction and reveal any false negatives or false positives.

Human Bacteroidetes ID™ Species*: B. dorei*

The **Human Bacteroidetes ID™ Species*: B. dorei*** service targets the species *Bacteroides dorei*. *B. dorei* is an anaerobe that is frequently shed from the gastrointestinal tract and isolated from human feces worldwide. It is a newly discovered species that is widely distributed in the USA.[1,2] The human-associated marker DNA sequence is located on the 16S rRNA gene of *B. dorei*.[3] The marker is the microbial source tracking (MST) marker of choice for detecting human fecal pollution due to its exceptional sensitivity and specificity. Internal validations have been conducted on hundreds of sewage, septage, human and animal host fecal samples collected from throughout the U.S and archived in the Source Molecular fecal bank. The marker has also been evaluated in both inland and coastal waters. A recent, comprehensive, multi-laboratory MST method evaluation study, exploring the performance of current MST methods, concluded the *B. dorei* qPCR assay to be the top performing human-associated assay amongst those tested. The success and consistency of this marker in numerous studies around the world[1,3,4] makes the **Human Bacteroidetes ID™ Species*: B. dorei*** service the primary service for identifying human fecal pollution at Source Molecular.

Fecal *Bacteroidetes* are considered for several reasons an interesting alternative to more traditional indicator organisms such as *E. coli* and *Enterococci*.[5] Since they are strict anaerobes, they are indicative of recent fecal contamination when found in water systems. This is a particularly strong reference point when trying to determine recent outbreaks in fecal pollution. They are also more abundant in feces of warm-blooded animals than *E. coli* and *Enterococci*.

The Human Bacteroidetes ID™ service is designed around the principle that fecal *Bacteroidetes* are found in large quantities in feces of warm-blooded animals.[3,5,6,7,8] Furthermore, certain strains of *Bacteroidetes* have been found to be associated with humans.[3,6] As such, these bacterial strains can be used as indicators of human fecal contamination.

Accuracy of the results is possible because the method amplifies DNA into a large number of small copies of the gene biomarker of interest. This is accomplished with small pieces of DNA called primers that are complementary and specific to the unique *B. dorei* DNA sequence. Through a heating process called thermal cycling, the double stranded DNA is denatured, hybridized to the complementary primers and amplified to create many copies of the DNA fragment desired. If the primers are successful in finding a site on the DNA fragment that is specific to the *B. dorei* DNA sequence, then billions of copies of the DNA fragment will be available and detected in real-time. The accumulation of DNA product is plotted as an amplification curve by the qPCR software. The absence of an amplification curve indicates that the *B. dorei* gene biomarker is not detected in the water sample because it is either not present or present at concentrations below the analytical detection limit.

To strengthen the validity of the results, additional tests targeting other high-ranking, human-associated *Bacteroidetes* species should be performed, such as
Human Bacteroidetes ID™ Species*: B. stercoris*,
Human Bacteroidetes ID™ Species*: B. fragilis,* and
Human Bacteroidetes ID™ Species*: B. thetaiotaomicron*.

[1]Boehm, A., Fuhrman, J., Mrse, R., Grant, S. **Tiered approach for identification of a human fecal pollution source at a recreational beach: case study at Avalon Bay, Catalina Island, California**. Environ Sci Technol. 2003 37**:** 673–680.
[2]Bakir, M., Sakamoto, M., Kitahara, M., Matsumoto, M., Benno, Y. **Bacteroides dorei sp. nov., isolated from human faeces**. Int. J. Syst. Evol. Microbiol. 2006 56: 1639–1641.
[3] Bernhard, A., Field, K. **A PCR assay to discriminate human and ruminant feces on the basis of host differences in Bacteroides-Prevotella genes encoding 16S rRNA.** Appl. Environ. Microbiol. 2000b 66: 4571-4574.
[4]Ahmed, w., Masters, N., Toze, S. **Consistency in the host specificity and host sensitivity of the Bacteroides HF183 marker for sewage pollution tracking. Lett. Appl. Microbiol. 2012 55: 283-289.**
[5] Scott, T., Rose, J., Jenkins, T., Farrah, S., Lukasik, J. **Microbial Source Tracking: Current Methodology and Future Directions.** Appl. Environ. Microbiol. 2002 68: 5796-5803.
[6] Bernhard, A., Field, K. **Identification of nonpoint sources of fecal pollution in coastal waters by using host-specific 16S ribosomal DNA genetic markers from fecal anaerobes.** Appl. Environ. Microbiol. 2000a 66: 1587-1594.
[7] Fogarty, L., Voytek, M. **A Comparison of Bacteroides-Prevotella 16S rRNA Genetic Markers for Fecal Samples from Different Animal Species.** Appl. Environ. Microbiol. 2005 71: 5999-6007.
[8] Dick, L., Bernhard, A., Brodeur, T., Santo Domingo, J., *et al*. **Host Distributions of Uncultivated Fecal Bacteroidales Bacteria Reveal Genetic Markers for Fecal Source Identification.** Appl. Environ. Microbiol. 2005 71: 3184-3191.

DATA VALIDATION REPORT

Boeing SSFL Outfall 002

SAMPLE DELIVERY GROUP: 440-206832-1

Prepared for

Haley & Aldrich

April 9, 2018

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

www.mecx.net

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL Outfall 002

Contract: 40458-078 and 40458-083

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

Sample Delivery Group: 440-206832-1

Project Manager: K. Miller

Matrix: Water

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica - Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
Outfall002_20180323_Comp	440-206832-2	Water	3/23/2018 10:00:00 AM	CALC, E1613B, E180.1, E200.7, E200.8, E218.6, E245.1, E300, SM2340BSM2540C/D, SM5210B, SM5310B, SM5540
Outfall002_20180323_Comp_F	440-206832-1	Water	3/23/2018 10:00:00 AM	E200.7, E200.8, E245.1, SM2340B

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-206832-1:

- The laboratory received samples in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist, custody seals were absent on the coolers; however, no evidence of tampering was noted.
- The sample collection time was not recorded on the original COC. The samples were logged per the information on the sample container labels. A revised COC was provided which included the collection time matching the container labels.
- The case narrative stated that sample Outfall002_20180323_Comp (440-206832-2) was filtered at the laboratory for dissolved metals instead of sample Outfall002_20180323_Comp_F (440-206832-1). Upon request for clarification the lab stated, “We did take the unpreserved sample and filter it and preserved it before digestion for dissolved samples, which is why you see the pH<2 in the prep sheet.”; therefore, no qualification was required.

TABLE 2 - DATA QUALIFIER REFERENCE

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

TABLE 3 - REASON CODE REFERENCE

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

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

III. EPA METHOD 1613B — DIOXIN/FURANS

L. Calvin of MEC^X reviewed the SDG on April 9, 2017

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

III.1. HOLDING TIMES

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

III.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were met. Following are findings associated with instrument performance:

III.2.1. *GC COLUMN PERFORMANCE*

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.

III.2.2. *MASS SPECTROMETER PERFORMANCE*

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.

III.3. CALIBRATION

Calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

III.4. QUALITY CONTROL SAMPLES

III.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit for all isomers and all totals. Isomer results for the method blank contaminants detected below the reporting limit were qualified as nondetects (U) at the level of contamination based upon professional judgement and the guidance for blank qualification in the National Functional Guidelines for Dioxin Review. The method blank concentration of OCDD was not sufficient to qualify the sample result above the reporting limit. The result for total HxCDD matched the qualified isomer result; therefore, total HxCDD was also qualified as a nondetect (U). The reviewer verified that peaks comprising remaining total detects for HpCDD and HpCDF in the method blank were the same peaks comprising the totals in sample Outfall002_20180323_Comp at similar

concentrations. The results for totals HpCDD and HpCDF were qualified as nondetects (U) at the level of contamination.

III.4.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the acceptance criteria listed in Table 6 of Method 1613B, and RPDs were within the laboratory control limit of ≤50%.

III.5. FIELD QC SAMPLES

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

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

III.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.

III.7. COMPOUND IDENTIFICATION

Compound identification was verified. All detected compounds met the ion abundance ratio, retention time window and signal to noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. Isomer 2,3,7,8-TCDF was not detected in the initial analysis of the sample, therefore, confirmation analysis was not required.

III.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating a representative number of sample and LCS results. The laboratory calculated and reported compound-specific detection limits. Detects between the EDL and the RL were qualified as estimated (J) and coded with DNQ to comply with the NPDES permit; however, after qualification for method blank contamination, no detects remained. Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, this sample had no reported detects below the EDL.

Isomers reported as estimated maximum possible concentrations (EMPCs) were not detected in the sample of this SDG. Total results for HpCDD and HpCDF each included an EMPC peak; however, the method blank included the same peaks, and the total results were not further qualified for EMPCs, as they were previously qualified as method blank contamination.

IV. METHODS 200.7, 200.8, 245.1 AND SM2340B— METALS, MERCURY AND HARDNESS

Marcia Hilchey of MEC[X] reviewed the SDG on April 10, 2018.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Metals (DVP-5, Rev. 2), EPA Methods 200.7, 200.8 and 245.1* and *Standard Methods for the Examination of Water and Wastewater 2340B*, and the *National Functional Guidelines for Inorganic Data Review* (2014).

IV.1. HOLDING TIMES

The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.

IV.2. MS TUNING AND CALIBRATION

ICPMS mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.

QAPP calibration criteria were met. A blank and two to four standards were used for calibration of all ICPMS and ICP-AES target analytes. A blank and five standards were used for calibration of mercury. The initial calibration r values were ≥0.995. CRQL recoveries were within the laboratory control limits of 50-150%. ICV and CCV recoveries were within NFG control limits of 90-110%

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

There were no target analyte detections in the method blanks and calibration blanks of sufficient concentration to warrant qualification of site sample results except for dissolved antimony (0.675 µg/L) in a bracketing continuing calibration blank. The associated sample detect below the reporting limit (RL) was qualified as a nondetect (U) at the level of contamination.

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICSAB recoveries were within the control limits of 80-120% or ±2x the reporting limit, whichever is greater. All the interferents were present in the site samples at concentrations less than half those of the ICSAs; therefore, the samples were not assessed for matrix interference.

IV.3.3. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the method control limits of 85-115%. The laboratory control sample duplicate analyzed for dissolved mercury met RPD control limits.

IV.3.4. *LABORATORY DUPLICATES:*

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

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

MS/MSD analyses were performed on sample Outfall002_20180323_Comp_F for ICPMS and ICP-AES (with the exception of dissolved silver), and on sample Outfall002_20180323_Comp for ICPMS. Results were not assessed when the parent sample concentration exceeded the spike amount by 4×. Recoveries and RPDs were within the method control limits of 70-130% and ≤20%, respectively. MS/MSD analyses were not performed on a sample from this SDG for dissolved silver by ICPMS, for total metals by ICP-AES, or for total or dissolved mercury.

IV.4. SERIAL DILUTION

No serial dilution analyses were performed on a sample in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within 60-125% of the calibration blank.

IV.6. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified and the reported sample results were verified against the raw data. No transcription errors or calculation errors were noted. Detects below the RL were qualified as estimated (J) and coded with DNQ in order to comply with the NPDES permit. Nondetects are valid to the MDL.

IV.7. FIELD QC SAMPLES

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

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

V. VARIOUS METHODS — GENERAL CHEMISTRY

Marcia Hilchey of MEC^X reviewed the SDG on April 11, 2018.

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 300.0, E180.1 and E218.6, Standard Methods for the Examination of Water and Wastewater 2540C/D, 5210B, 5310B and 5540C,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

V.1. HOLDING TIMES

The analytical holding times as listed below were met:

- 7 days for total dissolved solids (TDS)
- 7 days for total suspended solids (TSS)
- 28 days for chloride, fluoride, and sulfate
- 48 hours for nitrate and nitrite
- 48 hours for Biological Oxygen Demand (BOD)
- 48 hours for turbidity
- 28 days for total organic carbon (TOC)
- 48 hours for surfactants (MBAS)
- 24 hours for hexavalent chromium

V.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values, as appropriate, were ≥0.995 and all initial and continuing calibration (CCV) recoveries were within laboratory control limits. The low level CCV recovery for hexavalent chromium was within the laboratory control limits. Analytical balance calibration logs were provided.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects.

V.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits. The laboratory control sample duplicate RPD for BOD met laboratory control limits.

V.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis was performed on the sample in this SDG for TSS. RPD control limits were met. Laboratory duplicate analyses were not performed on the sample in this SDG for the remaining methods.

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

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

V.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Detects below the RL were qualified as estimated (J) and coded with DNQ in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.

V.5. FIELD QC SAMPLES

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

V.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

V.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402068321

Analysis Method E1613B

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

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	0.000013	0.000095	0.00000038	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00015	0.000095	0.00000038	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000033	0.000048	0.00000029	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000012	0.000048	0.00000035	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7		0.000048	0.00000036	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9		0.000048	0.00000056	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.0000021	0.000048	0.00000039	ug/L	J,DXMB	U	B
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		0.000048	0.00000035	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9		0.000048	0.00000033	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3		0.000048	0.00000035	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6		0.000048	0.00000033	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4		0.000048	0.00000038	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5		0.000048	0.00000040	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4		0.000048	0.00000035	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9		0.0000095	0.00000029	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6		0.0000095	0.00000030	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.0000071	0.000048	0.00000032	ug/L	J,DXMB	U	B
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000023	0.000048	0.00000035	ug/L	J,DXMB	U	B
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1		0.000048	0.00000033	ug/L	U	U	
Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000021	0.000048	0.00000036	ug/L	J,DXMB	U	B
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4		0.000048	0.00000033	ug/L	U	U	

Analysis Method E1613B

Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.000048	0.00000038	ug/L	U	U
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.0000095	0.00000029	ug/L	U	U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.0000095	0.00000030	ug/L	U	U

Analysis Method E180.1

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Turbidity	N	TURBIDITY	54	1.0	0.40	NTU			

Analysis Method E200.7

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	T	7440-38-2		10	8.9	ug/L	U	U	
Barium	T	7440-39-3	0.038	0.010	0.0050	mg/L			
Beryllium	T	7440-41-7		2.0	1.0	ug/L	U	U	
Boron	T	7440-42-8	0.074	0.050	0.025	mg/L			
Chromium	T	7440-47-3	3.0	5.0	2.5	ug/L	J,DX	J	DNQ
Cobalt	T	7440-48-4		10	5.0	ug/L	U	U	
Iron	T	7439-89-6	2.1	0.10	0.050	mg/L			
Manganese	T	7439-96-5	32	20	15	ug/L			
Nickel	T	7440-02-0		10	5.0	ug/L	U	U	
Vanadium	T	7440-62-2		10	5.0	ug/L	U	U	
Zinc	T	7440-66-6		20	12	ug/L	U	U	

Sample Name Outfall002_20180323_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	D	7440-38-2		10	8.9	ug/L	U	U	
Barium	D	7440-39-3	0.026	0.010	0.0050	mg/L			
Beryllium	D	7440-41-7		2.0	1.0	ug/L	U	U	
Boron	D	7440-42-8	0.076	0.050	0.025	mg/L			
Chromium	D	7440-47-3		5.0	2.5	ug/L	U	U	
Cobalt	D	7440-48-4		10	5.0	ug/L	U	U	

Analysis Method E200.7

Iron	D	7439-89-6	0.14	0.10	0.050	mg/L		
Manganese	D	7439-96-5		20	15	ug/L	U	U
Nickel	D	7440-02-0		10	5.0	ug/L	U	U
Vanadium	D	7440-62-2		10	5.0	ug/L	U	U
Zinc	D	7440-66-6		20	12	ug/L	U	U

Analysis Method E200.8

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0		2.0	0.50	ug/L	U	U	
Cadmium	T	7440-43-9		1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	3.4	2.0	0.50	ug/L			
Lead	T	7439-92-1	0.82	1.0	0.50	ug/L	J,DX	J	DNQ
Selenium	T	7782-49-2		2.0	0.50	ug/L	U	U	
Silver	T	7440-22-4		1.0	0.50	ug/L	U	U	
Thallium	T	7440-28-0		1.0	0.50	ug/L	U	U	

Sample Name Outfall002_20180323_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	1.0	2.0	0.50	ug/L	J,DX	U	B
Cadmium	D	7440-43-9		1.0	0.25	ug/L	U	U	
Copper	D	7440-50-8	2.4	2.0	0.50	ug/L			
Lead	D	7439-92-1		1.0	0.50	ug/L	U	U	
Selenium	D	7782-49-2	0.66	2.0	0.50	ug/L	J,DX	J	DNQ
Silver	D	7440-22-4		1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0		1.0	0.50	ug/L	U	U	

Analysis Method E218.6

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chromium VI (Hexavalent)	T	18540-29-9		1.0	0.25	ug/L	U	U	

Analysis Method E245.1

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6		0.20	0.10	ug/L	U	U	

Sample Name Outfall002_20180323_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6		0.20	0.10	ug/L	U	U	

Analysis Method E300

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	12	0.50	0.25	mg/L			
Nitrate (as N)	N	14797-55-8	0.70	0.11	0.055	mg/L			
Nitrite/Nitrate	N	NO2NO3	0.70	0.15	0.070	mg/L			
Sulfate	N	14808-79-8	85	2.5	1.3	mg/L			

Analysis Method SM2340

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	T	HARDNESSCACO3	120	0.33	0.17	mg/L			

Sample Name Outfall002_20180323_Comp_F **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-1

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	D	HARDNESSCACO3	690	0.33	0.17	mg/L			

Analysis Method SM2540C

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	290	10	5.0	mg/L			

Analysis Method SM2540D

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	N	TSS	14	1.7	0.83	mg/L			

Analysis Method SM5210B

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Biochemical Oxygen Demand (BOD)	N	BOD	3.1	2.0	0.50	mg/L			

Analysis Method SM5310B

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Organic Carbon (TOC)	N	TOC	17	1.0	0.65	mg/L			

Analysis Method SM5540

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Surfactants as MBAS	N	SURFASMBAS	0.087	0.10	0.050	mg/L	J,DX	J	DNQ

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: 440-206832-1
Client Project/Site: Annual Outfall 002 Comp
Revision: 2

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

Attn: Katherine Miller

Authorized for release by:
4/19/2018 8:05:55 AM

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

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

Urvashi Patel
Manager of Project Management
4/19/2018 8:05:55 AM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-206832-1	Outfall002_20180323_Comp_F	Water	03/23/18 10:00	03/23/18 18:10
440-206832-2	Outfall002_20180323_Comp	Water	03/23/18 10:00	03/23/18 18:10

Job ID: 440-206832-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-206832-1

Comments
Client provided revised COCs to include the sample time.
Samples recieved on Friday night. Sample Recieving gave sample Outfall002_20180323_Comp (440-206832-2) to metals to filter for dissolved metals to meet the 24 hour hold time instead of Outfall002_20180323_Comp_F (440-206832-1). Client was notfied and gave the ok to analyze sample-2 for dissolved metals since they are the same sample site.

Revision I created to add Total Hardness. Upon further review, it was found that the dissolved hardness was miscalcualted and correct value is reported in the revised report.

Revision II created to change sample time to 10:00am

Receipt
The samples were received on 3/23/2018 6:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.8º C, 2.3º C and 3.9º C.

Receipt Exceptions

The Field Sampler was not listed on the Chain of Custody.

The following samples were received at the laboratory without a sample collection time documented on the chain of custody: Outfall002_20180323_Comp_F (440-206832-1), Outfall002_20180323_Comp (440-206832-2) and Outfall002_20180323_Comp_Extra (440-206832-3). Logged in with 0001.

Total hardness Calc for sample was missed at login, by login review and by PM.

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

GC/MS Semi VOA
Method(s) 625: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-466272 and analytical batch 440-466864 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 625: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 440-466272 and analytical batch 440-466864 was outside control limits. Sample matrix interference is suspected.

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

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

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

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

Dioxin
Method(s) 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: Outfall002_20180323_Comp (440-206832-2), (CCV 320-215705/2), (LCS 320-215317/2-A), (LCSD 320-215317/3-A) and (MB 320-215317/1-A). This retention time shift is due to normal and reasonable column maintenance and

Job ID: 440-206832-1 (Continued)

Laboratory: TestAmerica Irvine (Continued)

does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method(s) 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: (CCV 320-215889/2) and (MB 320-215317/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

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

Metals

Method(s) 200.2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-466085 and 440-466400.

Method(s) 200.2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-466085 and 440-466403.

Method(s) 200.8: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20180323_Comp_F (440-206832-1). These samples were filtered and preserved upon receipt to the laboratory.

Method(s) 200.7 Rev 4.4: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20180323_Comp_F (440-206832-1). These samples were filtered and preserved upon receipt to the laboratory.

Method(s) 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-466362 and analytical batch 440-466695 were outside control limits for Iron. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 200.7 Rev 4.4: The following sample was reprepared from sample 206832-2 that was filtered within the 24 hr HT required per client. (Per PM and Client, samples 206832-2 and 206832-1 were duplicates)

Outfall002_20180323_Comp_F (440-206832-1)

Method(s) 200.8: The following sample was reprepared from sample 206832-2 that was filtered within the 24 hr HT required per client. (Per PM and Client, samples 206832-2 and 206832-1 were duplicates)

Outfall002_20180323_Comp_F (440-206832-1)

Method(s) 200.7 Rev 4.4: The method blank for preparation batch 440-466869 and analytical batch 440-467000 contained Calcium above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 245.1: The following sample was reprepared from sample 206832-2 that was filtered within the 24 hr HT required per client. (Per PM and Client, samples 206832-2 and 206832-1 were duplicates)

Outfall002_20180323_Comp_F (440-206832-1)

Method(s) 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-465710 and 440-467183 and analytical batch 440-467258 were outside control limits for Calcium. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 200.8: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20180323_Comp_F (440-206832-1). These samples were filtered and preserved upon receipt to the laboratory.

Job ID: 440-206832-1 (Continued)

Laboratory: TestAmerica Irvine (Continued)

Method(s) 245.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 440-465710 and 440-467200 and analytical batch 440-467289.

Method(s) 200.8: The following samples requested dissolved metals and were not filtered in the field: Outfall002_20180323_Comp_F (440-206832-1). These samples were filtered and preserved upon receipt to the laboratory.

There is only one sample in batch no. 468327 and it's volume was not enough for source and MS and MSD, so sample (LCS) was performed in duplicate to provide precision data for the batch.

Method(s) SM 2340B: During the review of this method it was noted that the results initially reported were incorrect. Therefore, the results for the following sample (hardness dissolved) have been revised. The results for this calculation method are generated by the laboratory LIMS once the samples are properly identified/batched. The lab LIMS pulls the Calcium and Magnesium results and performs the calculation once the data for these analytes is at 2nd level review. In this case, the analyst performing this batch did not properly batch and calculate the result for this sample.

Outfall002_20180323_Comp_F (440-206832-1)

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

General Chemistry
Method(s) Filtration: The following sample was prepared outside of preparation holding time due to logistical challenge of transferring the sample between laboratories inside the preservation holding time: Outfall002_20180323_Comp (440-206832-2). The reference standard operating procedure does not list a specific holding time for this preservation of hydrazine by IC samples; therefore, the laboratory defaults to an in-house holding time of 48 hours. Filtration and preservation batch 280-409571 for hydrazine analysis by ion chromatography, DV-WC-0077.

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

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

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

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

Client Sample ID: Outfall002_20180323_Comp_F

Lab Sample ID: 440-206832-1
Date Collected: 03/23/18 10:00
Matrix: Water
Date Received: 03/23/18 18:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/30/18 13:17	03/30/18 16:44	1
Boron	**0.076**		0.050	0.025	mg/L		03/30/18 13:17	03/30/18 16:44	1
Barium	**0.026**		0.010	0.0050	mg/L		03/30/18 13:17	03/30/18 16:44	1
Beryllium	ND		2.0	1.0	ug/L		03/30/18 13:17	03/30/18 16:44	1
Cobalt	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:44	1
Chromium	ND		5.0	2.5	ug/L		03/30/18 13:17	03/30/18 16:44	1
Iron	**0.14**		0.10	0.050	mg/L		03/30/18 13:17	03/30/18 16:44	1
Manganese	ND		20	15	ug/L		03/30/18 13:17	03/30/18 16:44	1
Nickel	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:44	1
Vanadium	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:44	1
Zinc	ND		20	12	ug/L		03/30/18 13:17	03/30/18 16:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/30/18 13:15	03/30/18 16:34	1
Copper	**2.4**		2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:34	1
Lead	ND		1.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:34	1
Antimony	**1.0**	**J,DX**	2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:34	1
Selenium	**0.66**	**J,DX**	2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:34	1
Thallium	ND		1.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:34	1
Silver	ND		1.0	0.50	ug/L		04/05/18 09:02	04/05/18 14:09	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/18 13:52	03/30/18 23:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**120**		0.33	0.17	mg/L			04/06/18 16:53	1

Client Sample ID: Outfall002_20180323_Comp

Lab Sample ID: 440-206832-2
Date Collected: 03/23/18 10:00
Matrix: Water
Date Received: 03/23/18 18:10

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			03/25/18 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*03/25/18 20:10*	*1*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Acenaphthylene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Anthracene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzidine	ND		9.57	4.78	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzo[a]anthracene	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzo[b]fluoranthene	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzo[k]fluoranthene	ND		0.478	0.239	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzo[a]pyrene	ND		1.91	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Outfall002_20180323_Comp
Date Collected: 03/23/18 10:00
Date Received: 03/23/18 18:10

Lab Sample ID: 440-206832-2
Matrix: Water

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Bis(2-chloroethyl)ether	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Bis(2-ethylhexyl) phthalate	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
4-Bromophenyl phenyl ether	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Butyl benzyl phthalate	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
4-Chloro-3-methylphenol	ND		1.91	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
2-Chloronaphthalene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
2-Chlorophenol	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
4-Chlorophenyl phenyl ether	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Chrysene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Dibenz(a,h)anthracene	ND		0.478	0.239	ug/L		03/27/18 09:48	03/29/18 16:50	1
Di-n-butyl phthalate	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
1,2-Dichlorobenzene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
1,3-Dichlorobenzene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
1,4-Dichlorobenzene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
3,3'-Dichlorobenzidine	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,4-Dichlorophenol	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Diethyl phthalate	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,4-Dimethylphenol	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Dimethyl phthalate	ND		0.478	0.239	ug/L		03/27/18 09:48	03/29/18 16:50	1
4,6-Dinitro-2-methylphenol	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,4-Dinitrophenol	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,4-Dinitrotoluene	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,6-Dinitrotoluene	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
Di-n-octyl phthalate	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Fluoranthene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Fluorene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Hexachlorobenzene	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Hexachlorobutadiene	ND		1.91	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Hexachloroethane	ND		2.87	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Hexachlorocyclopentadiene	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
Indeno[1,2,3-cd]pyrene	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Isophorone	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Naphthalene	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Nitrobenzene	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
2-Nitrophenol	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
4-Nitrophenol	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
N-Nitrosodimethylamine	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
N-Nitrosodiphenylamine	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
N-Nitrosodi-n-propylamine	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Pentachlorophenol	ND		1.91	0.957	ug/L		03/27/18 09:48	03/29/18 16:50	1
Phenanthrene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
Phenol	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Pyrene	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1
1,2,4-Trichlorobenzene	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
2,4,6-Trichlorophenol	ND		0.957	0.478	ug/L		03/27/18 09:48	03/29/18 16:50	1
Benzo[g,h,i]perylene	ND		4.78	1.91	ug/L		03/27/18 09:48	03/29/18 16:50	1
bis (2-chloroisopropyl) ether	ND		0.478	0.191	ug/L		03/27/18 09:48	03/29/18 16:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*83*		*50 - 120*	*03/27/18 09:48*	*03/29/18 16:50*	*1*
2-Fluorophenol	*65*		*30 - 120*	*03/27/18 09:48*	*03/29/18 16:50*	*1*
2,4,6-Tribromophenol	*95*		*40 - 120*	*03/27/18 09:48*	*03/29/18 16:50*	*1*
Nitrobenzene-d5	*80*		*45 - 120*	*03/27/18 09:48*	*03/29/18 16:50*	*1*
Terphenyl-d14	*95*		*37 - 144*	*03/27/18 09:48*	*03/29/18 16:50*	*1*
Phenol-d6	*73*		*35 - 120*	*03/27/18 09:48*	*03/29/18 16:50*	*1*

Method: 608 PCB LL - Polychlorinated Biphenyls (PCBs) Low level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1221	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1232	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1242	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1248	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1254	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1
Aroclor 1260	ND		0.49	0.24	ug/L		03/27/18 06:02	03/27/18 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*68*		*29 - 115*	*03/27/18 06:02*	*03/27/18 15:43*	*1*

Method: 608 Pesticides - Organochlorine Pesticides Low level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0049	0.0015	ug/L		03/27/18 06:02	03/28/18 12:10	1
alpha-BHC	ND		0.0049	0.0024	ug/L		03/27/18 06:02	03/28/18 12:10	1
beta-BHC	ND		0.0097	0.0039	ug/L		03/27/18 06:02	03/28/18 12:10	1
Chlordane (technical)	ND		0.097	0.078	ug/L		03/27/18 06:02	03/28/18 12:10	1
delta-BHC	ND		0.0049	0.0034	ug/L		03/27/18 06:02	03/28/18 12:10	1
Dieldrin	ND		0.0049	0.0019	ug/L		03/27/18 06:02	03/28/18 12:10	1
Endosulfan I	ND		0.0049	0.0029	ug/L		03/27/18 06:02	03/28/18 12:10	1
Endosulfan II	ND		0.0049	0.0019	ug/L		03/27/18 06:02	03/28/18 12:10	1
Endosulfan sulfate	ND		0.0097	0.0029	ug/L		03/27/18 06:02	03/28/18 12:10	1
Endrin	ND		0.0049	0.0019	ug/L		03/27/18 06:02	03/28/18 12:10	1
Endrin aldehyde	ND		0.0097	0.0019	ug/L		03/27/18 06:02	03/28/18 12:10	1
gamma-BHC (Lindane)	ND		0.0097	0.0029	ug/L		03/27/18 06:02	03/28/18 12:10	1
Heptachlor	ND		0.0097	0.0029	ug/L		03/27/18 06:02	03/28/18 12:10	1
Heptachlor epoxide	ND		0.0049	0.0024	ug/L		03/27/18 06:02	03/28/18 12:10	1
Toxaphene	ND		0.49	0.24	ug/L		03/27/18 06:02	03/28/18 12:10	1
4,4'-DDD	ND		0.0049	0.0039	ug/L		03/27/18 06:02	03/28/18 12:10	1
4,4'-DDE	ND		0.0049	0.0029	ug/L		03/27/18 06:02	03/28/18 12:10	1
4,4'-DDT	ND		0.0097	0.0039	ug/L		03/27/18 06:02	03/28/18 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*52*		*10 - 150*	*03/27/18 06:02*	*03/28/18 12:10*	*1*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/23/18 20:42	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12**		0.50	0.25	mg/L			03/23/18 21:29	1
Nitrate as N	**0.70**		0.11	0.055	mg/L			03/23/18 21:29	1
Fluoride	ND		0.50	0.25	mg/L			03/23/18 21:29	1
Nitrite as N	ND		0.15	0.070	mg/L			03/23/18 21:29	1
Sulfate	**85**		2.5	1.3	mg/L			03/23/18 21:43	5

Client Sample ID: Outfall002_20180323_Comp
Date Collected: 03/23/18 10:00
Date Received: 03/23/18 18:10

Lab Sample ID: 440-206832-2
Matrix: Water

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/27/18 12:53	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.70**		0.15	0.070	mg/L			03/30/18 15:03	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.00000030	ug/L		03/29/18 07:29	03/30/18 20:20	1
2,3,7,8-TCDF	ND		0.0000095	0.00000029	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8-PeCDD	ND		0.000048	0.00000038	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8-PeCDF	ND		0.000048	0.00000033	ug/L		03/29/18 07:29	03/30/18 20:20	1
2,3,4,7,8-PeCDF	ND		0.000048	0.00000035	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,7,8-HxCDD	**0.0000021**	**J,DX MB**	0.000048	0.00000039	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,6,7,8-HxCDD	ND		0.000048	0.00000035	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8,9-HxCDD	ND		0.000048	0.00000035	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.00000056	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.00000056	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8,9-HxCDF	ND		0.000048	0.00000033	ug/L		03/29/18 07:29	03/30/18 20:20	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.00000040	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,6,7,8-HpCDD	**0.000012**	**J,DX MB**	0.000048	0.00000035	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,6,7,8-HpCDF	**0.0000033**	**J,DX MB**	0.000048	0.00000029	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.00000036	ug/L		03/29/18 07:29	03/30/18 20:20	1
OCDD	**0.00015**	**MB**	0.000095	0.00000038	ug/L		03/29/18 07:29	03/30/18 20:20	1
OCDF	**0.000013**	**J,DX MB**	0.000095	0.00000038	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total TCDD	ND		0.0000095	0.00000030	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total TCDF	ND		0.0000095	0.00000029	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total PeCDD	ND		0.000048	0.00000038	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total PeCDF	ND		0.000048	0.00000033	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total HxCDD	**0.0000021**	**J,DX MB**	0.000048	0.00000036	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total HxCDF	ND		0.000048	0.00000033	ug/L		03/29/18 07:29	03/30/18 20:20	1
Total HpCDD	**0.000023**	**J,DX MB**	0.000048	0.00000035	ug/L		03/29/18 07:29	03/30/18 20:20	1

Client Sample ID: Outfall002_20180323_Comp
Date Collected: 03/23/18 10:00
Date Received: 03/23/18 18:10

Lab Sample ID: 440-206832-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDF	**0.0000071**	**J,DX MB**	0.000048	0.00000032	ug/L		03/29/18 07:29	03/30/18 20:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*79*		*25 - 164*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-2,3,7,8-TCDF	*78*		*24 - 169*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,7,8-PeCDD	*72*		*25 - 181*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,7,8-PeCDF	*74*		*24 - 185*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-2,3,4,7,8-PeCDF	*75*		*21 - 178*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*75*		*32 - 141*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*76*		*28 - 130*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*71*		*26 - 152*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*72*		*26 - 123*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*69*		*28 - 136*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*70*		*23 - 140*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*72*		*28 - 143*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*71*		*26 - 138*	*03/29/18 07:29*	*03/30/18 20:20*	*1*
13C-OCDD	*63*		*17 - 157*	*03/29/18 07:29*	*03/30/18 20:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*03/29/18 07:29*	*03/30/18 20:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/29/18 11:29	03/29/18 17:58	1
Boron	**0.074**		0.050	0.025	mg/L		03/29/18 11:29	03/29/18 17:58	1
Barium	**0.038**		0.010	0.0050	mg/L		03/29/18 11:29	03/29/18 17:58	1
Beryllium	ND		2.0	1.0	ug/L		03/29/18 11:29	03/29/18 17:58	1
Cobalt	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:58	1
Chromium	**3.0**	**J,DX**	5.0	2.5	ug/L		03/29/18 11:29	03/29/18 17:58	1
Iron	**2.1**		0.10	0.050	mg/L		03/29/18 11:29	03/29/18 17:58	1
Manganese	**32**		20	15	ug/L		03/29/18 11:29	03/29/18 17:58	1
Nickel	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:58	1
Vanadium	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:58	1
Zinc	ND		20	12	ug/L		03/29/18 11:29	03/29/18 17:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/18 14:25	03/28/18 12:56	1
Copper	**3.4**		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	1
Lead	**0.82**	**J,DX**	1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	1
Antimony	ND		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	1
Selenium	ND		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	1
Thallium	ND		1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	1
Silver	ND		1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:56	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		03/26/18 22:24	03/27/18 19:45	1

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Outfall002_20180323_Comp
Date Collected: 03/23/18 10:00
Date Received: 03/23/18 18:10

Lab Sample ID: 440-206832-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**120**		0.33	0.17	mg/L			04/06/18 16:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**54**		1.0	0.40	NTU			03/23/18 21:10	10
Monomethyl Hydrazine	ND	BU	10	0.25	ug/L		03/29/18 18:58	03/29/18 23:32	1
Total Dissolved Solids	**290**		10	5.0	mg/L			03/26/18 12:09	1
Total Suspended Solids	**14**		1.7	0.83	mg/L			03/26/18 16:12	1
Cyanide, Total	ND		5.0	2.5	ug/L		03/28/18 10:17	03/29/18 13:34	1
Ammonia (as N)	ND		0.200	0.100	mg/L			04/03/18 16:42	1
Total Organic Carbon	**17**		1.0	0.65	mg/L			03/26/18 23:48	1
Methylene Blue Active Substances	**0.087**	**J,DX**	0.10	0.050	mg/L			03/24/18 10:46	1
Biochemical Oxygen Demand	**3.1**		2.0	0.50	mg/L			03/24/18 10:56	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Method	Method Description	Protocol	Laboratory
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
625	Semivolatile Organic Compounds (GC/MS)	EPA	TAL IRV
608 PCB LL	Polychlorinated Biphenyls (PCBs) Low level	40CFR136A	TAL IRV
608 Pesticides	Organochlorine Pesticides Low level	40CFR136A	TAL IRV
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
180.1	Turbidity, Nephelometric	MCAWW	TAL IRV
DV-WC-0077	Hydrazine, Ion Chromatography	TAL-DEN	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
SM 4500 NH3 G	Ammonia	SM	TAL IRV
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
200.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
245.1	Preparation, Mercury	EPA	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
625	Liquid-Liquid Extraction	40CFR136A	TAL IRV
Distill/CN	Distillation, Cyanide	None	TAL IRV
Filtration	Sample Filtration	TestAmerica SOP	TAL DEN
FILTRATION	Sample Filtration	None	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-DEN = TestAmerica Laboratories, Denver, Facility Standard Operating Procedure.
TestAmerica SOP = TestAmerica, Inc., Standard Operating Procedure

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Client Sample ID: Outfall002_20180323_Comp_F

Lab Sample ID: 440-206832-1

Date Collected: 03/23/18 10:00

Matrix: Water

Date Received: 03/23/18 18:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			150 mL	150 mL	465710	03/23/18 17:38	MN1	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	467183	03/30/18 13:17	MN1	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			467258	03/30/18 16:44	K1E	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	465710	03/23/18 17:38	MN1	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	467182	03/30/18 13:15	MN1	TAL IRV
Dissolved	Analysis	200.8		1			467247	03/30/18 16:34	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	466085	03/26/18 16:34	JL	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	468327	04/05/18 09:02	MN1	TAL IRV
Dissolved	Analysis	200.8		1			468455	04/05/18 14:09	B1H	TAL IRV
Dissolved	Filtration	FILTRATION			150 mL	150 mL	465710	03/23/18 17:38	MN1	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	467200	03/30/18 13:52	DB	TAL IRV
Dissolved	Analysis	245.1		1			467289	03/30/18 23:42	DB	TAL IRV
Dissolved	Analysis	SM 2340B		1			468757	04/06/18 16:53	LH	TAL IRV

Client Sample ID: Outfall002_20180323_Comp

Lab Sample ID: 440-206832-2

Date Collected: 03/23/18 10:00

Matrix: Water

Date Received: 03/23/18 18:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	10 mL	10 mL	465923	03/25/18 20:10	GK	TAL IRV
Total/NA	Prep	625			1045 mL	2.0 mL	466272	03/27/18 09:48	JS1	TAL IRV
Total/NA	Analysis	625		1			466864	03/29/18 16:50	DF	TAL IRV
Total/NA	Prep	608			1030 mL	2 mL	466200	03/27/18 06:02	L1H	TAL IRV
Total/NA	Analysis	608 PCB LL		1			466278	03/27/18 15:43	JM	TAL IRV
Total/NA	Prep	608			1030 mL	2 mL	466200	03/27/18 06:02	L1H	TAL IRV
Total/NA	Analysis	608 Pesticides		1			466528	03/28/18 12:10	IVA	TAL IRV
Total/NA	Analysis	218.6		1			465493	03/23/18 20:42	RW	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	465567	03/23/18 21:29	NTN	TAL IRV
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	465568	03/23/18 21:29	NTN	TAL IRV
Total/NA	Analysis	300.0		5			465568	03/23/18 21:43	NTN	TAL IRV
Total/NA	Analysis	314.0		1			466225	03/27/18 12:53	PS	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			467223	03/30/18 15:03	TLN	TAL IRV
Total/NA	Prep	1613B			1048.5 mL	20.0 uL	215317	03/29/18 07:29	KQT	TAL SAC
Total/NA	Analysis	1613B		1			215705	03/30/18 20:20	ALM	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	466869	03/29/18 11:29	MN1	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			467000	03/29/18 17:58	K1E	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	466364	03/27/18 14:25	JL	TAL IRV
Total Recoverable	Analysis	200.8		1			466637	03/28/18 12:56	B1H	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	466172	03/26/18 22:24	DB	TAL IRV
Total/NA	Analysis	245.1		1			466984	03/27/18 19:45	DB	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			468757	04/06/18 16:45	LH	TAL IRV
Total/NA	Analysis	180.1		10			465750	03/23/18 21:10	CMM	TAL IRV
Total/NA	Prep	Filtration			30 mL	30 mL	409571	03/29/18 18:58	MPS	TAL DEN

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Outfall002_20180323_Comp

Date Collected: 03/23/18 10:00
Date Received: 03/23/18 18:10

Lab Sample ID: 440-206832-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	DV-WC-0077		1	4.5 mL	5 mL	409566	03/29/18 23:32	MPS	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	466028	03/26/18 12:09	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	600 mL	1000 mL	466101	03/26/18 16:12	HTL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	466573	03/28/18 10:17	KMY	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			466913	03/29/18 13:34	KMY	TAL IRV
Total/NA	Analysis	SM 4500 NH3 G		1	0.8 mL	8 mL	467971	04/03/18 16:42	MMH	TAL IRV
Total/NA	Analysis	SM 5310B		1	100 mL	100 mL	466199	03/26/18 23:48	YZ	TAL IRV
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	465838	03/24/18 10:46	KMY	TAL IRV
Total/NA	Analysis	SM5210B		1			465841	03/24/18 10:56	MMP	TAL IRV

Laboratory References:

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

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

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

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-465923/3
Matrix: Water
Analysis Batch: 465923

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		2.0	0.50	ug/L			03/25/18 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*03/25/18 13:52*	*1*

Lab Sample ID: LCS 440-465923/4
Matrix: Water
Analysis Batch: 465923

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.0		ug/L		110	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 120*

Lab Sample ID: 720-85328-F-2 MS
Matrix: Water
Analysis Batch: 465923

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	ND		10.0	10.6		ug/L		106	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*94*		*80 - 120*

Lab Sample ID: 720-85328-F-2 MSD
Matrix: Water
Analysis Batch: 465923

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		10.0	11.0		ug/L		110	70 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*94*		*80 - 120*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-466272/1-A
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Acenaphthylene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Anthracene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Benzidine	ND		10.1	5.05	ug/L		03/27/18 09:48	03/29/18 12:03	1
Benzo[a]anthracene	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-466272/1-A
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Benzo[k]fluoranthene	ND		0.505	0.253	ug/L		03/27/18 09:48	03/29/18 12:03	1
Benzo[a]pyrene	ND		2.02	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Bis(2-chloroethoxy)methane	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Bis(2-chloroethyl)ether	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Bis(2-ethylhexyl) phthalate	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
4-Bromophenyl phenyl ether	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Butyl benzyl phthalate	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
4-Chloro-3-methylphenol	ND		2.02	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
2-Chloronaphthalene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
2-Chlorophenol	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
4-Chlorophenyl phenyl ether	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Chrysene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Dibenz(a,h)anthracene	ND		0.505	0.253	ug/L		03/27/18 09:48	03/29/18 12:03	1
Di-n-butyl phthalate	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
1,2-Dichlorobenzene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
1,3-Dichlorobenzene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
1,4-Dichlorobenzene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
3,3'-Dichlorobenzidine	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,4-Dichlorophenol	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Diethyl phthalate	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,4-Dimethylphenol	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Dimethyl phthalate	ND		0.505	0.253	ug/L		03/27/18 09:48	03/29/18 12:03	1
4,6-Dinitro-2-methylphenol	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,4-Dinitrophenol	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,4-Dinitrotoluene	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,6-Dinitrotoluene	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
Di-n-octyl phthalate	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Fluoranthene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Fluorene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Hexachlorobenzene	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Hexachlorobutadiene	ND		2.02	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Hexachloroethane	ND		3.03	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Hexachlorocyclopentadiene	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
Indeno[1,2,3-cd]pyrene	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Isophorone	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Naphthalene	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Nitrobenzene	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
2-Nitrophenol	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
4-Nitrophenol	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
N-Nitrosodimethylamine	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
N-Nitrosodiphenylamine	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
N-Nitrosodi-n-propylamine	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Pentachlorophenol	ND		2.02	1.01	ug/L		03/27/18 09:48	03/29/18 12:03	1
Phenanthrene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
Phenol	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-466272/1-A
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1
1,2,4-Trichlorobenzene	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
2,4,6-Trichlorophenol	ND		1.01	0.505	ug/L		03/27/18 09:48	03/29/18 12:03	1
Benzo[g,h,i]perylene	ND		5.05	2.02	ug/L		03/27/18 09:48	03/29/18 12:03	1
bis (2-chloroisopropyl) ether	ND		0.505	0.202	ug/L		03/27/18 09:48	03/29/18 12:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*50 - 120*	*03/27/18 09:48*	*03/29/18 12:03*	*1*
2-Fluorophenol	*66*		*30 - 120*	*03/27/18 09:48*	*03/29/18 12:03*	*1*
2,4,6-Tribromophenol	*95*		*40 - 120*	*03/27/18 09:48*	*03/29/18 12:03*	*1*
Nitrobenzene-d5	*74*		*45 - 120*	*03/27/18 09:48*	*03/29/18 12:03*	*1*
Terphenyl-d14	*83*		*37 - 144*	*03/27/18 09:48*	*03/29/18 12:03*	*1*
Phenol-d6	*71*		*35 - 120*	*03/27/18 09:48*	*03/29/18 12:03*	*1*

Lab Sample ID: LCS 440-466272/2-A
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	10.2	8.031		ug/L		79	47 - 145
Acenaphthylene	10.2	7.949		ug/L		78	33 - 145
Anthracene	10.2	8.037		ug/L		79	27 - 133
Benzidine	10.2	ND		ug/L		33	5 - 66
Benzo[a]anthracene	10.2	8.265		ug/L		81	33 - 143
Benzo[b]fluoranthene	10.2	8.071		ug/L		79	24 - 150
Benzo[k]fluoranthene	10.2	8.234		ug/L		81	11 - 150
Benzo[a]pyrene	10.2	8.051		ug/L		79	17 - 150
Bis(2-chloroethoxy)methane	10.2	7.948		ug/L		78	33 - 150
Bis(2-chloroethyl)ether	10.2	8.040		ug/L		79	12 - 150
Bis(2-ethylhexyl) phthalate	10.2	8.614		ug/L		85	10 - 150
4-Bromophenyl phenyl ether	10.2	7.758		ug/L		76	53 - 127
Butyl benzyl phthalate	10.2	8.578		ug/L		84	10 - 150
4-Chloro-3-methylphenol	10.2	8.551		ug/L		84	22 - 147
2-Chloronaphthalene	10.2	7.858		ug/L		77	60 - 118
2-Chlorophenol	10.2	7.397		ug/L		73	23 - 134
4-Chlorophenyl phenyl ether	10.2	7.862		ug/L		77	25 - 150
Chrysene	10.2	8.188		ug/L		81	17 - 150
Dibenz(a,h)anthracene	10.2	7.596		ug/L		75	10 - 150
Di-n-butyl phthalate	10.2	8.540		ug/L		84	10 - 118
1,2-Dichlorobenzene	10.2	7.083		ug/L		70	32 - 129
1,3-Dichlorobenzene	10.2	6.868		ug/L		68	10 - 150
1,4-Dichlorobenzene	10.2	6.990		ug/L		69	20 - 124
3,3'-Dichlorobenzidine	10.2	7.083		ug/L		70	10 - 150
2,4-Dichlorophenol	10.2	7.801		ug/L		77	39 - 135
Diethyl phthalate	10.2	8.136		ug/L		80	10 - 114
2,4-Dimethylphenol	10.2	7.566		ug/L		75	32 - 119
Dimethyl phthalate	10.2	7.954		ug/L		78	10 - 112
4,6-Dinitro-2-methylphenol	20.3	15.44		ug/L		76	10 - 150

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-466272/2-A
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrophenol	20.3	13.90		ug/L		68	50 - 150
2,4-Dinitrotoluene	10.2	7.950		ug/L		78	39 - 139
2,6-Dinitrotoluene	10.2	8.066		ug/L		79	50 - 150
Di-n-octyl phthalate	10.2	8.989		ug/L		89	10 - 146
1,2-Diphenylhydrazine(as Azobenzene)	10.3	7.646		ug/L		75	47 - 116
Fluoranthene	10.2	8.634		ug/L		85	26 - 137
Fluorene	10.2	7.974		ug/L		79	59 - 121
Hexachlorobenzene	10.2	8.139		ug/L		80	10 - 150
Hexachlorobutadiene	10.2	6.205		ug/L		61	24 - 116
Hexachloroethane	10.2	6.210		ug/L		61	40 - 113
Hexachlorocyclopentadiene	10.2	3.903	J,DX	ug/L		38	10 - 67
Indeno[1,2,3-cd]pyrene	10.2	8.113		ug/L		80	10 - 150
Isophorone	10.2	8.559		ug/L		84	21 - 150
Naphthalene	10.2	7.377		ug/L		73	21 - 133
Nitrobenzene	10.2	7.602		ug/L		75	35 - 150
2-Nitrophenol	10.2	7.443		ug/L		73	29 - 150
4-Nitrophenol	20.3	14.35		ug/L		71	10 - 132
N-Nitrosodimethylamine	10.2	8.272		ug/L		81	26 - 117
N-Nitrosodiphenylamine	10.2	7.673		ug/L		76	54 - 110
N-Nitrosodi-n-propylamine	10.2	8.247		ug/L		81	10 - 150
Pentachlorophenol	20.3	14.13		ug/L		70	14 - 150
Phenanthrene	10.2	8.169		ug/L		80	54 - 120
Phenol	10.2	7.026		ug/L		69	10 - 112
Pyrene	10.2	8.160		ug/L		80	52 - 115
1,2,4-Trichlorobenzene	10.2	7.170		ug/L		71	44 - 142
2,4,6-Trichlorophenol	10.2	8.278		ug/L		82	37 - 144
Benzo[g,h,i]perylene	10.2	7.599		ug/L		75	10 - 150
bis (2-chloroisopropyl) ether	10.2	7.265		ug/L		72	47 - 103

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*77*		*50 - 120*
2-Fluorophenol	*67*		*30 - 120*
2,4,6-Tribromophenol	*86*		*40 - 120*
Nitrobenzene-d5	*75*		*45 - 120*
Terphenyl-d14	*79*		*37 - 144*
Phenol-d6	*74*		*35 - 120*

Lab Sample ID: 440-206741-L-1-B MSD
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		9.62	6.859		ug/L		71	47 - 145	11	25
Acenaphthylene	ND		9.62	2.778	LN BA	ug/L		29	33 - 145	32	25
Anthracene	ND		9.62	5.557		ug/L		58	27 - 133	8	25
Benzidine	ND		9.62	ND	LN	ug/L		0	30 - 160	NC	35
Benzo[a]anthracene	ND		9.62	6.822		ug/L		71	33 - 143	14	20

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-206741-L-1-B MSD
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[b]fluoranthene	ND		9.62	8.092		ug/L		84	24 - 150	17	25
Benzo[k]fluoranthene	ND		9.62	7.614		ug/L		79	11 - 150	20	30
Benzo[a]pyrene	ND		9.62	4.242	BA	ug/L		44	17 - 150	33	25
Bis(2-chloroethoxy)methane	ND		9.62	0.3898	J,DX LN BA	ug/L		4	33 - 150	64	25
Bis(2-chloroethyl)ether	ND		9.62	7.190		ug/L		75	12 - 150	5	25
Bis(2-ethylhexyl) phthalate	ND		9.62	7.671		ug/L		80	10 - 150	17	25
4-Bromophenyl phenyl ether	ND		9.62	7.247		ug/L		75	53 - 127	11	25
Butyl benzyl phthalate	ND		9.62	4.422	J,DX BA	ug/L		46	10 - 150	59	25
4-Chloro-3-methylphenol	ND		9.62	7.766		ug/L		81	22 - 147	12	25
2-Chloronaphthalene	ND		9.62	7.116		ug/L		74	60 - 118	7	20
2-Chlorophenol	ND		9.62	6.505		ug/L		68	23 - 134	10	25
4-Chlorophenyl phenyl ether	ND		9.62	7.711		ug/L		80	25 - 150	7	25
Chrysene	ND		9.62	6.961		ug/L		72	17 - 150	14	25
Dibenz(a,h)anthracene	ND		9.62	6.106		ug/L		64	10 - 150	17	30
Di-n-butyl phthalate	ND		9.62	7.834		ug/L		81	10 - 118	12	25
1,2-Dichlorobenzene	ND		9.62	6.506		ug/L		68	32 - 129	3	25
1,3-Dichlorobenzene	ND		9.62	6.199		ug/L		64	10 - 150	4	25
1,4-Dichlorobenzene	ND		9.62	6.276		ug/L		65	20 - 124	5	25
3,3'-Dichlorobenzidine	ND		9.62	ND	LN	ug/L		0	10 - 150	NC	25
2,4-Dichlorophenol	ND		9.62	6.908		ug/L		72	39 - 135	12	25
Diethyl phthalate	ND		9.62	7.616		ug/L		79	10 - 114	11	30
2,4-Dimethylphenol	ND		9.62	6.869		ug/L		71	32 - 119	10	25
Dimethyl phthalate	ND		9.62	7.357		ug/L		77	10 - 112	9	30
4,6-Dinitro-2-methylphenol	ND		19.2	14.18		ug/L		74	10 - 150	10	25
2,4-Dinitrophenol	ND		19.2	13.45		ug/L		70	50 - 150	13	25
2,4-Dinitrotoluene	ND		9.62	7.447		ug/L		77	39 - 139	12	25
2,6-Dinitrotoluene	ND		9.62	7.602		ug/L		79	50 - 150	9	20
Di-n-octyl phthalate	ND		9.62	8.001		ug/L		83	10 - 146	13	20
1,2-Diphenylhydrazine(as Azobenzene)	ND		9.71	1.132	LN BA	ug/L		12	60 - 120	32	25
Fluoranthene	ND		9.62	7.797		ug/L		81	26 - 137	12	25
Fluorene	ND		9.62	7.485		ug/L		78	59 - 121	8	25
Hexachlorobenzene	ND		9.62	7.366		ug/L		77	10 - 150	9	25
Hexachlorobutadiene	ND		9.62	6.376		ug/L		66	24 - 116	3	25
Hexachloroethane	ND		9.62	5.922		ug/L		62	40 - 113	1	25
Hexachlorocyclopentadiene	ND		9.62	3.791	J,DX	ug/L		39	25 - 120	4	30
Indeno[1,2,3-cd]pyrene	ND		9.62	5.768		ug/L		60	10 - 150	22	30
Isophorone	ND		9.62	7.567		ug/L		79	21 - 150	9	25
Naphthalene	ND		9.62	6.580		ug/L		68	21 - 133	8	25
Nitrobenzene	ND		9.62	6.635		ug/L		69	35 - 150	8	25
2-Nitrophenol	ND		9.62	6.629		ug/L		69	29 - 150	10	25
4-Nitrophenol	ND		19.2	13.71		ug/L		71	10 - 132	13	30
N-Nitrosodimethylamine	ND		9.62	7.451		ug/L		77	12 - 123	0	35
N-Nitrosodiphenylamine	ND		9.62	2.702	LN BA	ug/L		28	60 - 120	32	25
N-Nitrosodi-n-propylamine	ND		9.62	7.129		ug/L		74	10 - 150	7	25
Pentachlorophenol	ND		19.2	13.48		ug/L		70	14 - 150	13	25
Phenanthrene	ND		9.62	7.313		ug/L		76	54 - 120	10	25
Phenol	ND		9.62	5.856		ug/L		61	10 - 112	9	25

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-206741-L-1-B MSD
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pyrene	ND		9.62	6.399		ug/L		67	52 - 115	20	25
1,2,4-Trichlorobenzene	ND		9.62	6.552		ug/L		68	44 - 142	7	20
2,4,6-Trichlorophenol	ND		9.62	7.398		ug/L		77	37 - 144	11	30
Benzo[g,h,i]perylene	ND		9.62	4.957		ug/L		52	10 - 150	30	30
bis (2-chloroisopropyl) ether	ND		9.62	6.165		ug/L		64	45 - 120	7	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*71*		*50 - 120*
2-Fluorophenol	*62*		*30 - 120*
2,4,6-Tribromophenol	*84*		*40 - 120*
Nitrobenzene-d5	*67*		*45 - 120*
Terphenyl-d14	*79*		*37 - 144*
Phenol-d6	*54*		*35 - 120*

Lab Sample ID: 440-206741-M-1-M MS
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		9.71	7.630		ug/L		79	47 - 145
Acenaphthylene	ND		9.71	3.848		ug/L		40	33 - 145
Anthracene	ND		9.71	6.008		ug/L		62	27 - 133
Benzidine	ND		9.71	ND	LN	ug/L		0	30 - 160
Benzo[a]anthracene	ND		9.71	7.868		ug/L		81	33 - 143
Benzo[b]fluoranthene	ND		9.71	9.597		ug/L		99	24 - 150
Benzo[k]fluoranthene	ND		9.71	9.334		ug/L		96	11 - 150
Benzo[a]pyrene	ND		9.71	5.917		ug/L		61	17 - 150
Bis(2-chloroethoxy)methane	ND		9.71	0.7542	LN	ug/L		8	33 - 150
Bis(2-chloroethyl)ether	ND		9.71	6.855		ug/L		71	12 - 150
Bis(2-ethylhexyl) phthalate	ND		9.71	9.068		ug/L		93	10 - 150
4-Bromophenyl phenyl ether	ND		9.71	8.050		ug/L		83	53 - 127
Butyl benzyl phthalate	ND		9.71	8.121		ug/L		84	10 - 150
4-Chloro-3-methylphenol	ND		9.71	8.763		ug/L		90	22 - 147
2-Chloronaphthalene	ND		9.71	7.638		ug/L		79	60 - 118
2-Chlorophenol	ND		9.71	7.168		ug/L		74	23 - 134
4-Chlorophenyl phenyl ether	ND		9.71	8.231		ug/L		85	25 - 150
Chrysene	ND		9.71	7.978		ug/L		82	17 - 150
Dibenz(a,h)anthracene	ND		9.71	7.217		ug/L		74	10 - 150
Di-n-butyl phthalate	ND		9.71	8.849		ug/L		91	10 - 118
1,2-Dichlorobenzene	ND		9.71	6.679		ug/L		69	32 - 129
1,3-Dichlorobenzene	ND		9.71	6.470		ug/L		67	10 - 150
1,4-Dichlorobenzene	ND		9.71	6.592		ug/L		68	20 - 124
3,3'-Dichlorobenzidine	ND		9.71	ND	LN	ug/L		0	10 - 150
2,4-Dichlorophenol	ND		9.71	7.750		ug/L		80	39 - 135
Diethyl phthalate	ND		9.71	8.532		ug/L		88	10 - 114
2,4-Dimethylphenol	ND		9.71	7.614		ug/L		78	32 - 119
Dimethyl phthalate	ND		9.71	8.086		ug/L		83	10 - 112
4,6-Dinitro-2-methylphenol	ND		19.4	15.65		ug/L		81	10 - 150

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-206741-M-1-M MS
Matrix: Water
Analysis Batch: 466864

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrophenol	ND		19.4	15.33		ug/L		79	50 - 150
2,4-Dinitrotoluene	ND		9.71	8.376		ug/L		86	39 - 139
2,6-Dinitrotoluene	ND		9.71	8.322		ug/L		86	50 - 150
Di-n-octyl phthalate	ND		9.71	9.142		ug/L		94	10 - 146
1,2-Diphenylhydrazine(as Azobenzene)	ND		9.81	0.8200	J,DX LN	ug/L		8	60 - 120
Fluoranthene	ND		9.71	8.754		ug/L		90	26 - 137
Fluorene	ND		9.71	8.131		ug/L		84	59 - 121
Hexachlorobenzene	ND		9.71	8.042		ug/L		83	10 - 150
Hexachlorobutadiene	ND		9.71	6.583		ug/L		68	24 - 116
Hexachloroethane	ND		9.71	6.006		ug/L		62	40 - 113
Hexachlorocyclopentadiene	ND		9.71	3.630	J,DX	ug/L		37	25 - 120
Indeno[1,2,3-cd]pyrene	ND		9.71	7.167		ug/L		74	10 - 150
Isophorone	ND		9.71	8.242		ug/L		85	21 - 150
Naphthalene	ND		9.71	7.147		ug/L		74	21 - 133
Nitrobenzene	ND		9.71	7.179		ug/L		74	35 - 150
2-Nitrophenol	ND		9.71	7.337		ug/L		76	29 - 150
4-Nitrophenol	ND		19.4	15.54		ug/L		80	10 - 132
N-Nitrosodimethylamine	ND		9.71	7.460		ug/L		77	12 - 123
N-Nitrosodiphenylamine	ND		9.71	3.731	LN	ug/L		38	60 - 120
N-Nitrosodi-n-propylamine	ND		9.71	7.681		ug/L		79	10 - 150
Pentachlorophenol	ND		19.4	15.29		ug/L		79	14 - 150
Phenanthrene	ND		9.71	8.076		ug/L		83	54 - 120
Phenol	ND		9.71	6.438		ug/L		66	10 - 112
Pyrene	ND		9.71	7.844		ug/L		81	52 - 115
1,2,4-Trichlorobenzene	ND		9.71	7.041		ug/L		73	44 - 142
2,4,6-Trichlorophenol	ND		9.71	8.235		ug/L		85	37 - 144
Benzo[g,h,i]perylene	ND		9.71	6.686		ug/L		69	10 - 150
bis (2-chloroisopropyl) ether	ND		9.71	6.582		ug/L		68	45 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*77*		*50 - 120*
2-Fluorophenol	*67*		*30 - 120*
2,4,6-Tribromophenol	*92*		*40 - 120*
Nitrobenzene-d5	*74*		*45 - 120*
Terphenyl-d14	*93*		*37 - 144*
Phenol-d6	*64*		*35 - 120*

Method: 608 PCB LL - Polychlorinated Biphenyls (PCBs) Low level

Lab Sample ID: MB 440-466200/1-A
Matrix: Water
Analysis Batch: 466278

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466200

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1
Aroclor 1221	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1
Aroclor 1232	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1

Method: 608 PCB LL - Polychlorinated Biphenyls (PCBs) Low level (Continued)

Lab Sample ID: MB 440-466200/1-A
Matrix: Water
Analysis Batch: 466278

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466200

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1242	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1
Aroclor 1248	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1
Aroclor 1254	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1
Aroclor 1260	ND		0.50	0.25	ug/L		03/27/18 06:02	03/27/18 14:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*29 - 115*	*03/27/18 06:02*	*03/27/18 14:09*	*1*

Lab Sample ID: LCS 440-466200/5-A
Matrix: Water
Analysis Batch: 466278

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	4.00	3.94		ug/L		99	10 - 127
Aroclor 1260	4.00	4.05		ug/L		101	50 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*93*		*29 - 115*

Lab Sample ID: 440-206741-K-1-B MSD
Matrix: Water
Analysis Batch: 466278

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	ND		3.86	3.49		ug/L		90	45 - 120	7	30
Aroclor 1260	ND		3.86	3.76		ug/L		97	55 - 125	2	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*89*		*29 - 115*

Lab Sample ID: 440-206741-L-1-A MS
Matrix: Water
Analysis Batch: 466278

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	ND		3.81	3.74		ug/L		98	45 - 120
Aroclor 1260	ND		3.81	3.82		ug/L		100	55 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*29 - 115*

Method: 608 Pesticides - Organochlorine Pesticides Low level

Lab Sample ID: MB 440-466200/1-A
Matrix: Water
Analysis Batch: 466528

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466200

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0050	0.0015	ug/L		03/27/18 06:02	03/28/18 09:42	1
alpha-BHC	ND		0.0050	0.0025	ug/L		03/27/18 06:02	03/28/18 09:42	1
beta-BHC	ND		0.010	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	1
Chlordane (technical)	ND		0.10	0.080	ug/L		03/27/18 06:02	03/28/18 09:42	1
delta-BHC	ND		0.0050	0.0035	ug/L		03/27/18 06:02	03/28/18 09:42	1
Dieldrin	ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	1
Endosulfan I	ND		0.0050	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	1
Endosulfan II	ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	1
Endrin	ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	1
Heptachlor	ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		03/27/18 06:02	03/28/18 09:42	1
Toxaphene	ND		0.50	0.25	ug/L		03/27/18 06:02	03/28/18 09:42	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	1
4,4'-DDT	ND		0.010	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*10 - 150*	*03/27/18 06:02*	*03/28/18 09:42*	*1*

Lab Sample ID: LCS 440-466200/2-A
Matrix: Water
Analysis Batch: 466528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.200	0.162		ug/L		81	42 - 122
alpha-BHC	0.200	0.162		ug/L		81	37 - 134
beta-BHC	0.200	0.165		ug/L		83	17 - 147
delta-BHC	0.200	0.171		ug/L		85	19 - 140
Dieldrin	0.200	0.170		ug/L		85	36 - 146
Endosulfan I	0.200	0.168		ug/L		84	45 - 150
Endosulfan II	0.200	0.167		ug/L		83	10 - 150
Endosulfan sulfate	0.200	0.163		ug/L		81	26 - 144
Endrin	0.200	0.154		ug/L		77	30 - 147
Endrin aldehyde	0.200	0.155		ug/L		77	47 - 115
gamma-BHC (Lindane)	0.200	0.157		ug/L		79	32 - 127
Heptachlor	0.200	0.147		ug/L		73	34 - 115
Heptachlor epoxide	0.200	0.169		ug/L		85	37 - 142
4,4'-DDD	0.200	0.163		ug/L		81	31 - 141
4,4'-DDE	0.200	0.165		ug/L		82	30 - 145
4,4'-DDT	0.200	0.141		ug/L		71	25 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*69*		*10 - 150*

Method: 608 Pesticides - Organochlorine Pesticides Low level (Continued)

Lab Sample ID: 440-206741-K-1-A MS
Matrix: Water
Analysis Batch: 466528

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		0.193	0.147		ug/L		76	35 - 120
alpha-BHC	ND		0.193	0.138		ug/L		71	40 - 120
beta-BHC	ND		0.193	0.132		ug/L		68	50 - 120
delta-BHC	ND		0.193	0.156		ug/L		81	50 - 120
Dieldrin	ND		0.193	0.148		ug/L		76	50 - 120
Endosulfan I	ND		0.193	0.143		ug/L		74	50 - 120
Endosulfan II	ND		0.193	0.140		ug/L		72	50 - 125
Endosulfan sulfate	ND		0.193	0.151		ug/L		78	55 - 125
Endrin	ND		0.193	0.147		ug/L		76	50 - 120
Endrin aldehyde	ND		0.193	0.138		ug/L		71	45 - 125
gamma-BHC (Lindane)	ND		0.193	0.140		ug/L		72	40 - 120
Heptachlor	ND		0.193	0.152		ug/L		79	40 - 120
Heptachlor epoxide	ND		0.193	0.155		ug/L		80	50 - 120
4,4'-DDD	ND		0.193	0.140		ug/L		73	50 - 125
4,4'-DDE	ND		0.193	0.142		ug/L		73	45 - 125
4,4'-DDT	ND		0.193	0.124		ug/L		64	50 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*62*		*10 - 150*

Lab Sample ID: 440-206741-M-1-C MSD
Matrix: Water
Analysis Batch: 466528

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466200

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		0.191	0.143		ug/L		75	35 - 120	3	30
alpha-BHC	ND		0.191	0.135		ug/L		70	40 - 120	2	30
beta-BHC	ND		0.191	0.143		ug/L		75	50 - 120	8	30
delta-BHC	ND		0.191	0.146		ug/L		77	50 - 120	6	30
Dieldrin	ND		0.191	0.134		ug/L		70	50 - 120	10	30
Endosulfan I	ND		0.191	0.134		ug/L		70	50 - 120	7	30
Endosulfan II	ND		0.191	0.129		ug/L		67	50 - 125	8	30
Endosulfan sulfate	ND		0.191	0.133		ug/L		69	55 - 125	13	30
Endrin	ND		0.191	0.131		ug/L		68	50 - 120	11	30
Endrin aldehyde	ND		0.191	0.115		ug/L		60	45 - 125	18	30
gamma-BHC (Lindane)	ND		0.191	0.149		ug/L		78	40 - 120	6	30
Heptachlor	ND		0.191	0.141		ug/L		74	40 - 120	8	30
Heptachlor epoxide	ND		0.191	0.139		ug/L		72	50 - 120	11	30
4,4'-DDD	ND		0.191	0.123		ug/L		64	50 - 125	13	30
4,4'-DDE	ND		0.191	0.133		ug/L		69	45 - 125	7	30
4,4'-DDT	ND		0.191	0.112		ug/L		59	50 - 125	10	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*58*		*10 - 150*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-465493/6
Matrix: Water
Analysis Batch: 465493

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			03/23/18 07:28	1

Lab Sample ID: LCS 440-465493/5
Matrix: Water
Analysis Batch: 465493

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	50.0	46.3		ug/L		93	90 - 110

Lab Sample ID: MRL 440-465493/4
Matrix: Water
Analysis Batch: 465493

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	1.00	0.922	J,DX	ug/L		92	50 - 150

Lab Sample ID: 440-206864-D-6 MS
Matrix: Water
Analysis Batch: 465493

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	6.9		50.0	54.9		ug/L		96	90 - 110

Lab Sample ID: 440-206864-D-6 MSD
Matrix: Water
Analysis Batch: 465493

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	6.9		50.0	54.9		ug/L		96	90 - 110	0	10

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-465567/6
Matrix: Water
Analysis Batch: 465567

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			03/23/18 12:04	1
Nitrite as N	ND		0.15	0.070	mg/L			03/23/18 12:04	1

Lab Sample ID: LCS 440-465567/5
Matrix: Water
Analysis Batch: 465567

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.09		mg/L		97	90 - 110
Nitrite as N	1.52	1.47		mg/L		96	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-206819-G-4 MS
Matrix: Water
Analysis Batch: 465567

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.52		1.13	1.64		mg/L		99	80 - 120
Nitrite as N	ND		1.52	1.77		mg/L		116	80 - 120

Lab Sample ID: 440-206819-G-4 MSD
Matrix: Water
Analysis Batch: 465567

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.52		1.13	1.65		mg/L		100	80 - 120	0	20
Nitrite as N	ND		1.52	1.77		mg/L		116	80 - 120	0	20

Lab Sample ID: MB 440-465568/6
Matrix: Water
Analysis Batch: 465568

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			03/23/18 12:04	1
Fluoride	ND		0.50	0.25	mg/L			03/23/18 12:04	1
Sulfate	ND		0.50	0.25	mg/L			03/23/18 12:04	1

Lab Sample ID: LCS 440-465568/5
Matrix: Water
Analysis Batch: 465568

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	4.61		mg/L		92	90 - 110
Fluoride	5.00	4.68		mg/L		94	90 - 110
Sulfate	5.00	4.89		mg/L		98	90 - 110

Lab Sample ID: 440-206819-G-4 MS
Matrix: Water
Analysis Batch: 465568

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	210	EY	5.00	217	EY BB	mg/L		107	80 - 120
Fluoride	0.42	J,DX	5.00	5.24		mg/L		96	80 - 120
Sulfate	520	EY	5.00	524	EY BB	mg/L		80	80 - 120

Lab Sample ID: 440-206819-G-4 MSD
Matrix: Water
Analysis Batch: 465568

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	210	EY	5.00	218	EY BB	mg/L		113	80 - 120	0	20
Fluoride	0.42	J,DX	5.00	5.30		mg/L		98	80 - 120	1	20
Sulfate	520	EY	5.00	525	EY BB	mg/L		101	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-466225/6
Matrix: Water
Analysis Batch: 466225

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			03/27/18 09:05	1

Lab Sample ID: LCS 440-466225/5
Matrix: Water
Analysis Batch: 466225

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	25.0	21.6		ug/L		86	85 - 115

Lab Sample ID: MRL 440-466225/4
Matrix: Water
Analysis Batch: 466225

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	1.00	0.976	J,DX	ug/L		98	75 - 125

Lab Sample ID: 440-206832-2 MS
Matrix: Water
Analysis Batch: 466225

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	26.0		ug/L		104	80 - 120

Lab Sample ID: 440-206832-2 MSD
Matrix: Water
Analysis Batch: 466225

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		25.0	26.6		ug/L		106	80 - 120	2	20

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

Lab Sample ID: MB 320-215317/1-A
Matrix: Water
Analysis Batch: 215705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 215317

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.00000274	J,DX	0.000010	0.00000051	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,7,8-PeCDD	0.00000397	J,DX	0.000050	0.00000053	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,7,8-PeCDF	0.00000309	J,DX q	0.000050	0.00000044	ug/L		03/29/18 07:29	03/30/18 15:44	1
2,3,4,7,8-PeCDF	0.00000255	J,DX q	0.000050	0.00000046	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,4,7,8-HxCDD	0.00000383	J,DX	0.000050	0.00000043	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,6,7,8-HxCDD	0.00000290	J,DX	0.000050	0.00000041	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,7,8,9-HxCDD	0.00000271	J,DX q	0.000050	0.00000039	ug/L		03/29/18 07:29	03/30/18 15:44	1

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

Lab Sample ID: MB 320-215317/1-A
Matrix: Water
Analysis Batch: 215705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 215317

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8-HxCDF	0.00000255	J,DX	0.000050	0.00000076	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,6,7,8-HxCDF	0.00000235	J,DX	0.000050	0.00000078	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,7,8,9-HxCDF	0.00000281	J,DX	0.000050	0.00000047	ug/L		03/29/18 07:29	03/30/18 15:44	1
2,3,4,6,7,8-HxCDF	0.00000191	J,DX	0.000050	0.00000055	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,4,6,7,8-HpCDD	0.00000451	J,DX	0.000050	0.00000044	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,4,6,7,8-HpCDF	0.00000290	J,DX	0.000050	0.00000030	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,4,7,8,9-HpCDF	0.00000269	J,DX q	0.000050	0.00000039	ug/L		03/29/18 07:29	03/30/18 15:44	1
OCDD	0.0000211	J,DX	0.00010	0.00000040	ug/L		03/29/18 07:29	03/30/18 15:44	1
OCDF	0.00000629	J,DX	0.00010	0.00000055	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total TCDD	0.00000274	J,DX	0.000010	0.00000051	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total TCDF	0.00000168	J,DX	0.000010	0.00000037	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total PeCDD	0.00000397	J,DX	0.000050	0.00000053	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total PeCDF	0.00000564	J,DX q	0.000050	0.00000045	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HxCDD	0.00000943	J,DX q	0.000050	0.00000041	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HxCDF	0.00000963	J,DX	0.000050	0.00000064	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HpCDD	0.00000711	J,DX	0.000050	0.00000044	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HpCDF	0.00000559	J,DX q	0.000050	0.00000035	ug/L		03/29/18 07:29	03/30/18 15:44	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*78*		*25 - 164*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-2,3,7,8-TCDF	*78*		*24 - 169*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,7,8-PeCDD	*79*		*25 - 181*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,7,8-PeCDF	*78*		*24 - 185*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-2,3,4,7,8-PeCDF	*81*		*21 - 178*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,4,7,8-HxCDD	*80*		*32 - 141*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,6,7,8-HxCDD	*85*		*28 - 130*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,4,7,8-HxCDF	*73*		*26 - 152*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,6,7,8-HxCDF	*76*		*26 - 123*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,7,8,9-HxCDF	*75*		*29 - 147*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-2,3,4,6,7,8-HxCDF	*73*		*28 - 136*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*72*		*23 - 140*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*74*		*28 - 143*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*72*		*26 - 138*	*03/29/18 07:29*	*03/30/18 15:44*	*1*
13C-OCDD	*65*		*17 - 157*	*03/29/18 07:29*	*03/30/18 15:44*	*1*

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

Lab Sample ID: MB 320-215317/1-A
Matrix: Water
Analysis Batch: 215705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 215317

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197	03/29/18 07:29	03/30/18 15:44	1

Lab Sample ID: LCS 320-215317/2-A
Matrix: Water
Analysis Batch: 215705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 215317

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			0.000200	0.000197	MB	ug/L		99	67 - 158		
2,3,7,8-TCDF			0.000200	0.000191	MB	ug/L		95	75 - 158		
1,2,3,7,8-PeCDD			0.00100	0.00106	MB	ug/L		106	70 - 142		
1,2,3,7,8-PeCDF			0.00100	0.000966	MB	ug/L		97	80 - 134		
2,3,4,7,8-PeCDF			0.00100	0.000971	MB	ug/L		97	68 - 160		
1,2,3,4,7,8-HxCDD			0.00100	0.000953	MB	ug/L		95	70 - 164		
1,2,3,6,7,8-HxCDD			0.00100	0.000888	MB	ug/L		89	76 - 134		
1,2,3,7,8,9-HxCDD			0.00100	0.000942	MB	ug/L		94	64 - 162		
1,2,3,4,7,8-HxCDF			0.00100	0.000962	MB	ug/L		96	72 - 134		
1,2,3,6,7,8-HxCDF			0.00100	0.000970	MB	ug/L		97	84 - 130		
1,2,3,7,8,9-HxCDF			0.00100	0.000961	MB	ug/L		96	78 - 130		
2,3,4,6,7,8-HxCDF			0.00100	0.000983	MB	ug/L		98	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	0.000935	MB	ug/L		94	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.00100	0.000920	MB	ug/L		92	78 - 138		
OCDD			0.00200	0.00185	MB	ug/L		92	78 - 144		
OCDF			0.00200	0.00181	MB	ug/L		91	63 - 170		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	81		20 - 175
13C-2,3,7,8-TCDF	80		22 - 152
13C-1,2,3,7,8-PeCDD	78		21 - 227
13C-1,2,3,7,8-PeCDF	79		21 - 192
13C-2,3,4,7,8-PeCDF	81		13 - 328
13C-1,2,3,4,7,8-HxCDD	80		21 - 193
13C-1,2,3,6,7,8-HxCDD	85		25 - 163
13C-1,2,3,4,7,8-HxCDF	75		19 - 202
13C-1,2,3,6,7,8-HxCDF	76		21 - 159
13C-1,2,3,7,8,9-HxCDF	77		17 - 205
13C-2,3,4,6,7,8-HxCDF	74		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	73		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	78		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	67		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	104		31 - 191

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

Lab Sample ID: LCSD 320-215317/3-A
Matrix: Water
Analysis Batch: 215705

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 215317

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD			0.000200	0.000197	MB	ug/L		99	67 - 158	0	50
2,3,7,8-TCDF			0.000200	0.000188	MB	ug/L		94	75 - 158	1	50
1,2,3,7,8-PeCDD			0.00100	0.00108	MB	ug/L		108	70 - 142	1	50
1,2,3,7,8-PeCDF			0.00100	0.000964	MB	ug/L		96	80 - 134	0	50
2,3,4,7,8-PeCDF			0.00100	0.000972	MB	ug/L		97	68 - 160	0	50
1,2,3,4,7,8-HxCDD			0.00100	0.000967	MB	ug/L		97	70 - 164	1	50
1,2,3,6,7,8-HxCDD			0.00100	0.000905	MB	ug/L		91	76 - 134	2	50
1,2,3,7,8,9-HxCDD			0.00100	0.000831	MB	ug/L		83	64 - 162	13	50
1,2,3,4,7,8-HxCDF			0.00100	0.000969	MB	ug/L		97	72 - 134	1	50
1,2,3,6,7,8-HxCDF			0.00100	0.000982	MB	ug/L		98	84 - 130	1	50
1,2,3,7,8,9-HxCDF			0.00100	0.000954	MB	ug/L		95	78 - 130	1	50
2,3,4,6,7,8-HxCDF			0.00100	0.000976	MB	ug/L		98	70 - 156	1	50
1,2,3,4,6,7,8-HpCDD			0.00100	0.00102	MB	ug/L		102	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF			0.00100	0.000965	MB	ug/L		97	82 - 122	3	50
1,2,3,4,7,8,9-HpCDF			0.00100	0.000912	MB	ug/L		91	78 - 138	1	50
OCDD			0.00200	0.00195	MB	ug/L		98	78 - 144	5	50
OCDF			0.00200	0.00168	MB	ug/L		84	63 - 170	8	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*81*		*20 - 175*
13C-2,3,7,8-TCDF	*79*		*22 - 152*
13C-1,2,3,7,8-PeCDD	*78*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*79*		*21 - 192*
13C-2,3,4,7,8-PeCDF	*81*		*13 - 328*
13C-1,2,3,4,7,8-HxCDD	*95*		*21 - 193*
13C-1,2,3,6,7,8-HxCDD	*98*		*25 - 163*
13C-1,2,3,4,7,8-HxCDF	*92*		*19 - 202*
13C-1,2,3,6,7,8-HxCDF	*95*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*65*		*17 - 205*
13C-2,3,4,6,7,8-HxCDF	*90*		*22 - 176*
13C-1,2,3,4,6,7,8-HpCDD	*78*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*61*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*76*		*20 - 186*
13C-OCDD	*78*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*104*		*31 - 191*

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

Lab Sample ID: MB 320-215317/1-A
Matrix: Water
Analysis Batch: 215889

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 215317

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF - RA	0.00000285	J,DX	0.000010	0.00000048	ug/L		03/29/18 07:29	04/02/18 12:53	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF - RA	74		24 - 169	03/29/18 07:29	04/02/18 12:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD - RA	92		35 - 197	03/29/18 07:29	04/02/18 12:53	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-466869/1-A
Matrix: Water
Analysis Batch: 467000

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 466869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/29/18 11:29	03/29/18 17:14	1
Boron	ND		0.050	0.025	mg/L		03/29/18 11:29	03/29/18 17:14	1
Barium	ND		0.010	0.0050	mg/L		03/29/18 11:29	03/29/18 17:14	1
Beryllium	ND		2.0	1.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
Cobalt	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
Chromium	ND		5.0	2.5	ug/L		03/29/18 11:29	03/29/18 17:14	1
Iron	ND		0.10	0.050	mg/L		03/29/18 11:29	03/29/18 17:14	1
Manganese	ND		20	15	ug/L		03/29/18 11:29	03/29/18 17:14	1
Nickel	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
Vanadium	ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
Zinc	ND		20	12	ug/L		03/29/18 11:29	03/29/18 17:14	1

Lab Sample ID: LCS 440-466869/2-A
Matrix: Water
Analysis Batch: 467000

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 466869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	500		ug/L		100	85 - 115
Boron	0.500	0.500		mg/L		100	85 - 115
Barium	0.500	0.501		mg/L		100	85 - 115
Beryllium	500	497		ug/L		99	85 - 115
Calcium	2.50	2.60		mg/L		104	85 - 115
Cobalt	500	502		ug/L		100	85 - 115
Chromium	500	500		ug/L		100	85 - 115
Iron	0.500	0.508		mg/L		102	85 - 115
Magnesium	2.50	2.49		mg/L		100	85 - 115
Manganese	500	502		ug/L		100	85 - 115
Nickel	500	502		ug/L		100	85 - 115
Vanadium	500	496		ug/L		99	85 - 115
Zinc	500	502		ug/L		100	85 - 115

Lab Sample ID: 440-206673-E-1-C MS
Matrix: Water
Analysis Batch: 467000

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 466869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	511		ug/L		102	70 - 130
Boron	0.12		0.500	0.627		mg/L		101	70 - 130
Barium	0.022		0.500	0.523		mg/L		100	70 - 130
Beryllium	ND		500	504		ug/L		101	70 - 130
Calcium	18	MB	2.50	21.6	BB	mg/L		128	70 - 130
Cobalt	ND		500	505		ug/L		101	70 - 130

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

Lab Sample ID: 440-206673-E-1-C MS
Matrix: Water
Analysis Batch: 467000

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 466869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	5.1		500	510		ug/L		101	70 - 130
Iron	0.80		0.500	1.39		mg/L		116	70 - 130
Magnesium	2.6		2.50	5.17		mg/L		104	70 - 130
Manganese	52		500	567		ug/L		103	70 - 130
Nickel	5.0	J,DX	500	507		ug/L		100	70 - 130
Vanadium	15		500	523		ug/L		102	70 - 130
Zinc	97		500	605		ug/L		101	70 - 130

Lab Sample ID: 440-206673-E-1-D MSD
Matrix: Water
Analysis Batch: 467000

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 466869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	506		ug/L		101	70 - 130	1	20
Boron	0.12		0.500	0.619		mg/L		100	70 - 130	1	20
Barium	0.022		0.500	0.517		mg/L		99	70 - 130	1	20
Beryllium	ND		500	501		ug/L		100	70 - 130	1	20
Calcium	18	MB	2.50	21.1	BB	mg/L		106	70 - 130	3	20
Cobalt	ND		500	501		ug/L		100	70 - 130	1	20
Chromium	5.1		500	507		ug/L		100	70 - 130	0	20
Iron	0.80		0.500	1.40		mg/L		119	70 - 130	1	20
Magnesium	2.6		2.50	5.08		mg/L		100	70 - 130	2	20
Manganese	52		500	558		ug/L		101	70 - 130	2	20
Nickel	5.0	J,DX	500	511		ug/L		101	70 - 130	1	20
Vanadium	15		500	519		ug/L		101	70 - 130	1	20
Zinc	97		500	598		ug/L		100	70 - 130	1	20

Lab Sample ID: MB 440-465710/1-I
Matrix: Water
Analysis Batch: 467258

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 467183

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10	8.9	ug/L		03/30/18 13:17	03/30/18 16:39	1
Boron	ND		0.050	0.025	mg/L		03/30/18 13:17	03/30/18 16:39	1
Barium	ND		0.010	0.0050	mg/L		03/30/18 13:17	03/30/18 16:39	1
Beryllium	ND		2.0	1.0	ug/L		03/30/18 13:17	03/30/18 16:39	1
Cobalt	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:39	1
Chromium	ND		5.0	2.5	ug/L		03/30/18 13:17	03/30/18 16:39	1
Iron	ND		0.10	0.050	mg/L		03/30/18 13:17	03/30/18 16:39	1
Manganese	ND		20	15	ug/L		03/30/18 13:17	03/30/18 16:39	1
Nickel	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:39	1
Vanadium	ND		10	5.0	ug/L		03/30/18 13:17	03/30/18 16:39	1
Zinc	ND		20	12	ug/L		03/30/18 13:17	03/30/18 16:39	1

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

Lab Sample ID: LCS 440-465710/2-I
Matrix: Water
Analysis Batch: 467258

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 467183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	500	494		ug/L		99	85 - 115
Boron	0.500	0.483		mg/L		97	85 - 115
Barium	0.500	0.481		mg/L		96	85 - 115
Beryllium	500	487		ug/L		97	85 - 115
Calcium	2.50	2.44		mg/L		98	85 - 115
Cobalt	500	491		ug/L		98	85 - 115
Chromium	500	488		ug/L		98	85 - 115
Iron	0.500	0.486		mg/L		97	85 - 115
Magnesium	2.50	2.42		mg/L		97	85 - 115
Manganese	500	492		ug/L		98	85 - 115
Nickel	500	492		ug/L		98	85 - 115
Vanadium	500	483		ug/L		97	85 - 115
Zinc	500	488		ug/L		98	85 - 115

Lab Sample ID: 440-206832-1 MS
Matrix: Water
Analysis Batch: 467258

Client Sample ID: Outfall002_20180323_Comp_F
Prep Type: Dissolved
Prep Batch: 467183

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		500	501		ug/L		100	70 - 130
Boron	0.076		0.500	0.567		mg/L		98	70 - 130
Barium	0.026		0.500	0.496		mg/L		94	70 - 130
Beryllium	ND		500	493		ug/L		99	70 - 130
Calcium	34		2.50	35.8	BB	mg/L		63	70 - 130
Cobalt	ND		500	488		ug/L		98	70 - 130
Chromium	ND		500	490		ug/L		98	70 - 130
Iron	0.14		0.500	0.611		mg/L		94	70 - 130
Magnesium	9.2		2.50	11.4		mg/L		89	70 - 130
Manganese	ND		500	496		ug/L		99	70 - 130
Nickel	ND		500	483		ug/L		97	70 - 130
Vanadium	ND		500	492		ug/L		98	70 - 130
Zinc	ND		500	489		ug/L		98	70 - 130

Lab Sample ID: 440-206832-1 MSD
Matrix: Water
Analysis Batch: 467258

Client Sample ID: Outfall002_20180323_Comp_F
Prep Type: Dissolved
Prep Batch: 467183

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		500	512		ug/L		102	70 - 130	2	20
Boron	0.076		0.500	0.578		mg/L		100	70 - 130	2	20
Barium	0.026		0.500	0.506		mg/L		96	70 - 130	2	20
Beryllium	ND		500	503		ug/L		101	70 - 130	2	20
Calcium	34		2.50	35.7	BB	mg/L		60	70 - 130	0	20
Cobalt	ND		500	498		ug/L		100	70 - 130	2	20
Chromium	ND		500	499		ug/L		100	70 - 130	2	20
Iron	0.14		0.500	0.626		mg/L		98	70 - 130	3	20
Magnesium	9.2		2.50	11.4		mg/L		89	70 - 130	0	20
Manganese	ND		500	507		ug/L		101	70 - 130	2	20

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

Lab Sample ID: 440-206832-1 MSD
Matrix: Water
Analysis Batch: 467258

Client Sample ID: Outfall002_20180323_Comp_F
Prep Type: Dissolved
Prep Batch: 467183

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	492		ug/L		98	70 - 130	2	20
Vanadium	ND		500	502		ug/L		100	70 - 130	2	20
Zinc	ND		500	500		ug/L		100	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-466364/1-A
Matrix: Water
Analysis Batch: 466637

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 466364

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/27/18 14:25	03/28/18 12:41	1
Copper	ND		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1
Lead	ND		1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1
Antimony	ND		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1
Selenium	ND		2.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1
Thallium	ND		1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1
Silver	ND		1.0	0.50	ug/L		03/27/18 14:25	03/28/18 12:41	1

Lab Sample ID: LCS 440-466364/2-A
Matrix: Water
Analysis Batch: 466637

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 466364

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	76.7		ug/L		96	85 - 115
Copper	80.0	76.2		ug/L		95	85 - 115
Lead	80.0	75.9		ug/L		95	85 - 115
Antimony	80.0	77.8		ug/L		97	85 - 115
Selenium	80.0	77.3		ug/L		97	85 - 115
Thallium	80.0	75.4		ug/L		94	85 - 115
Silver	80.0	75.6		ug/L		94	85 - 115

Lab Sample ID: 440-206832-2 MS
Matrix: Water
Analysis Batch: 466637

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total Recoverable
Prep Batch: 466364

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	81.3		ug/L		102	70 - 130
Copper	3.4		80.0	82.2		ug/L		99	70 - 130
Lead	0.82	J,DX	80.0	75.1		ug/L		93	70 - 130
Antimony	ND		80.0	82.9		ug/L		104	70 - 130
Selenium	ND		80.0	77.7		ug/L		97	70 - 130
Thallium	ND		80.0	81.1		ug/L		101	70 - 130
Silver	ND		80.0	79.1		ug/L		99	70 - 130

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

Lab Sample ID: 440-206832-2 MSD
Matrix: Water
Analysis Batch: 466637

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total Recoverable
Prep Batch: 466364

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	75.5		ug/L		94	70 - 130	7	20
Copper	3.4		80.0	77.3		ug/L		92	70 - 130	6	20
Lead	0.82	J,DX	80.0	73.0		ug/L		90	70 - 130	3	20
Antimony	ND		80.0	76.4		ug/L		95	70 - 130	8	20
Selenium	ND		80.0	73.1		ug/L		91	70 - 130	6	20
Thallium	ND		80.0	75.9		ug/L		95	70 - 130	7	20
Silver	ND		80.0	74.0		ug/L		93	70 - 130	7	20

Lab Sample ID: MB 440-465710/1-H
Matrix: Water
Analysis Batch: 467247

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 467182

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		03/30/18 13:15	03/30/18 16:28	1
Copper	ND		2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:28	1
Lead	ND		1.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:28	1
Antimony	ND		2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:28	1
Selenium	ND		2.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:28	1
Thallium	ND		1.0	0.50	ug/L		03/30/18 13:15	03/30/18 16:28	1

Lab Sample ID: LCS 440-465710/2-H
Matrix: Water
Analysis Batch: 467247

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 467182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	72.7		ug/L		91	85 - 115
Copper	80.0	71.3		ug/L		89	85 - 115
Lead	80.0	69.7		ug/L		87	85 - 115
Antimony	80.0	71.2		ug/L		89	85 - 115
Selenium	80.0	73.1		ug/L		91	85 - 115
Thallium	80.0	72.5		ug/L		91	85 - 115

Lab Sample ID: 440-206832-1 MS
Matrix: Water
Analysis Batch: 467247

Client Sample ID: Outfall002_20180323_Comp_F
Prep Type: Dissolved
Prep Batch: 467182

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	70.2		ug/L		88	70 - 130
Copper	2.4		80.0	70.9		ug/L		86	70 - 130
Lead	ND		80.0	67.5		ug/L		84	70 - 130
Antimony	1.0	J,DX	80.0	70.7		ug/L		87	70 - 130
Selenium	0.66	J,DX	80.0	73.3		ug/L		91	70 - 130
Thallium	ND		80.0	70.9		ug/L		89	70 - 130

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

Lab Sample ID: 440-206832-1 MSD — **Client Sample ID: Outfall002_20180323_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 467247 — **Prep Batch: 467182**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	74.1		ug/L		93	70 - 130	5	20
Copper	2.4		80.0	74.7		ug/L		90	70 - 130	5	20
Lead	ND		80.0	71.0		ug/L		89	70 - 130	5	20
Antimony	1.0	J,DX	80.0	76.3		ug/L		94	70 - 130	8	20
Selenium	0.66	J,DX	80.0	74.3		ug/L		92	70 - 130	1	20
Thallium	ND		80.0	73.0		ug/L		91	70 - 130	3	20

Lab Sample ID: MB 440-466085/1-G — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 468455 — **Prep Batch: 468327**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		04/05/18 09:02	04/05/18 14:15	1

Lab Sample ID: LCS 440-466085/2-G — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 468455 — **Prep Batch: 468327**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	80.0	73.4		ug/L		92	85 - 115

Lab Sample ID: LCSD 440-466085/23-D — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 468455 — **Prep Batch: 468327**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	80.0	74.2		ug/L		93	85 - 115	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-466172/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 466984 — **Prep Batch: 466172**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/26/18 22:23	03/27/18 18:58	1

Lab Sample ID: LCS 440-466172/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 466984 — **Prep Batch: 466172**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	8.00	8.59		ug/L		107	85 - 115

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-206802-A-1-B MS
Matrix: Water
Analysis Batch: 466984

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 466172

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		8.00	8.68		ug/L		109	70 - 130

Lab Sample ID: 440-206802-A-1-C MSD
Matrix: Water
Analysis Batch: 466984

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 466172

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		8.00	8.50		ug/L		106	70 - 130	2	20

Lab Sample ID: MB 440-465710/1-J
Matrix: Water
Analysis Batch: 467289

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 467200

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		03/30/18 13:52	03/30/18 23:35	1

Lab Sample ID: LCS 440-465710/2-J
Matrix: Water
Analysis Batch: 467289

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 467200

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	8.00	7.71		ug/L		96	85 - 115

Lab Sample ID: LCSD 440-465710/17-B
Matrix: Water
Analysis Batch: 467289

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 467200

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	8.00	7.54		ug/L		94	85 - 115	2	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-465750/5
Matrix: Water
Analysis Batch: 465750

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	0.040	NTU			03/23/18 21:10	1

Lab Sample ID: 440-206764-A-4 DU
Matrix: Water
Analysis Batch: 465750

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	9.6		9.82		NTU		2	20

Method: DV-WC-0077 - Hydrazine, Ion Chromatography

Lab Sample ID: MB 280-409571/1-A
Matrix: Water
Analysis Batch: 409566

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 409571

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monomethyl Hydrazine	ND		10	0.25	ug/L		03/29/18 18:58	03/29/18 22:57	1

Lab Sample ID: LCS 280-409571/2-A
Matrix: Water
Analysis Batch: 409566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 409571

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Monomethyl Hydrazine	49.6	49.6		ug/L		100	82 - 122

Lab Sample ID: 440-206832-2 MS
Matrix: Water
Analysis Batch: 409566

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA
Prep Batch: 409571

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Monomethyl Hydrazine	ND	BU	49.6	50.6		ug/L		102	81 - 121

Lab Sample ID: 440-206832-2 MSD
Matrix: Water
Analysis Batch: 409566

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA
Prep Batch: 409571

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Monomethyl Hydrazine	ND	BU	49.6	50.1		ug/L		101	81 - 121	1	20

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

Lab Sample ID: MB 440-466028/1
Matrix: Water
Analysis Batch: 466028

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			03/26/18 12:09	1

Lab Sample ID: LCS 440-466028/2
Matrix: Water
Analysis Batch: 466028

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	996		mg/L		100	90 - 110

Lab Sample ID: 440-206741-N-1 DU
Matrix: Water
Analysis Batch: 466028

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	75		76.0		mg/L		1	5

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

Lab Sample ID: MB 440-466101/1
Matrix: Water
Analysis Batch: 466101

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			03/26/18 16:12	1

Lab Sample ID: LCS 440-466101/2
Matrix: Water
Analysis Batch: 466101

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	960		mg/L		96	85 - 115

Lab Sample ID: 440-206741-T-1 DU
Matrix: Water
Analysis Batch: 466101

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	9.0		9.60		mg/L		6	10

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

Lab Sample ID: MB 440-466573/1-A
Matrix: Water
Analysis Batch: 466913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466573

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		03/28/18 10:17	03/29/18 13:33	1

Lab Sample ID: LCS 440-466573/2-A
Matrix: Water
Analysis Batch: 466913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	101		ug/L		101	90 - 110

Lab Sample ID: 440-207020-H-4-B MS
Matrix: Water
Analysis Batch: 466913

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 466573

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	91.5		ug/L		92	70 - 115

Lab Sample ID: 440-207020-H-4-C MSD
Matrix: Water
Analysis Batch: 466913

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 466573

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	91.6		ug/L		92	70 - 115	0	15

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-467971/12
Matrix: Water
Analysis Batch: 467971

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.200	0.100	mg/L			04/03/18 16:15	1

Lab Sample ID: LCS 440-467971/13
Matrix: Water
Analysis Batch: 467971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.050		mg/L		101	90 - 110

Lab Sample ID: MRL 440-467971/11
Matrix: Water
Analysis Batch: 467971

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.200	0.1750	J,DX	mg/L		88	50 - 150

Lab Sample ID: 440-207627-H-1 MS
Matrix: Water
Analysis Batch: 467971

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND		5.00	5.360		mg/L		107	90 - 110

Lab Sample ID: 440-207627-H-1 MSD
Matrix: Water
Analysis Batch: 467971

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND		5.00	5.220		mg/L		104	90 - 110	3	15

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-466199/10
Matrix: Water
Analysis Batch: 466199

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.65	mg/L			03/26/18 22:12	1

Lab Sample ID: LCS 440-466199/9
Matrix: Water
Analysis Batch: 466199

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.1		mg/L		101	90 - 110

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 440-206871-L-1 MS
Matrix: Water
Analysis Batch: 466199

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.7		3.00	9.70		mg/L		101	80 - 120

Lab Sample ID: 440-206871-L-1 MSD
Matrix: Water
Analysis Batch: 466199

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	6.7		3.00	9.73		mg/L		102	80 - 120	0	20

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

Lab Sample ID: MB 440-465838/3
Matrix: Water
Analysis Batch: 465838

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Blue Active Substances	ND		0.10	0.050	mg/L			03/24/18 10:45	1

Lab Sample ID: LCS 440-465838/4
Matrix: Water
Analysis Batch: 465838

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.250	0.272		mg/L		109	90 - 110

Lab Sample ID: 440-206832-2 MS
Matrix: Water
Analysis Batch: 465838

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.087	J,DX	0.250	0.313		mg/L		91	50 - 125

Lab Sample ID: 440-206832-2 MSD
Matrix: Water
Analysis Batch: 465838

Client Sample ID: Outfall002_20180323_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Blue Active Substances	0.087	J,DX	0.250	0.333		mg/L		99	50 - 125	6	20

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-465841/1
Matrix: Water
Analysis Batch: 465841

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

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	0.50	mg/L			03/24/18 10:56	1

Lab Sample ID: LCS 440-465841/4
Matrix: Water
Analysis Batch: 465841

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			199	210		mg/L		106	85 - 115		

Lab Sample ID: LCSD 440-465841/5
Matrix: Water
Analysis Batch: 465841

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand			199	212		mg/L		107	85 - 115	1	20

GC/MS VOA

Analysis Batch: 465923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	8260B SIM	
MB 440-465923/3	Method Blank	Total/NA	Water	8260B SIM	
LCS 440-465923/4	Lab Control Sample	Total/NA	Water	8260B SIM	
720-85328-F-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
720-85328-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

GC/MS Semi VOA

Prep Batch: 466272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	625	
MB 440-466272/1-A	Method Blank	Total/NA	Water	625	
LCS 440-466272/2-A	Lab Control Sample	Total/NA	Water	625	
440-206741-L-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	625	
440-206741-M-1-M MS	Matrix Spike	Total/NA	Water	625	

Analysis Batch: 466864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	625	466272
MB 440-466272/1-A	Method Blank	Total/NA	Water	625	466272
LCS 440-466272/2-A	Lab Control Sample	Total/NA	Water	625	466272
440-206741-L-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	625	466272
440-206741-M-1-M MS	Matrix Spike	Total/NA	Water	625	466272

GC Semi VOA

Prep Batch: 466200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	608	
MB 440-466200/1-A	Method Blank	Total/NA	Water	608	
LCS 440-466200/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-466200/5-A	Lab Control Sample	Total/NA	Water	608	
440-206741-K-1-A MS	Matrix Spike	Total/NA	Water	608	
440-206741-K-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608	
440-206741-L-1-A MS	Matrix Spike	Total/NA	Water	608	
440-206741-M-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	608	

Analysis Batch: 466278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	608 PCB LL	466200
MB 440-466200/1-A	Method Blank	Total/NA	Water	608 PCB LL	466200
LCS 440-466200/5-A	Lab Control Sample	Total/NA	Water	608 PCB LL	466200
440-206741-K-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	608 PCB LL	466200
440-206741-L-1-A MS	Matrix Spike	Total/NA	Water	608 PCB LL	466200

Analysis Batch: 466528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	608 Pesticides	466200
MB 440-466200/1-A	Method Blank	Total/NA	Water	608 Pesticides	466200
LCS 440-466200/2-A	Lab Control Sample	Total/NA	Water	608 Pesticides	466200

GC Semi VOA (Continued)

Analysis Batch: 466528 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206741-K-1-A MS	Matrix Spike	Total/NA	Water	608 Pesticides	466200
440-206741-M-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	608 Pesticides	466200

HPLC/IC

Analysis Batch: 465493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	218.6	
MB 440-465493/6	Method Blank	Total/NA	Water	218.6	
LCS 440-465493/5	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-465493/4	Lab Control Sample	Total/NA	Water	218.6	
440-206864-D-6 MS	Matrix Spike	Total/NA	Water	218.6	
440-206864-D-6 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 465567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	300.0	
MB 440-465567/6	Method Blank	Total/NA	Water	300.0	
LCS 440-465567/5	Lab Control Sample	Total/NA	Water	300.0	
440-206819-G-4 MS	Matrix Spike	Total/NA	Water	300.0	
440-206819-G-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 465568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	300.0	
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	300.0	
MB 440-465568/6	Method Blank	Total/NA	Water	300.0	
LCS 440-465568/5	Lab Control Sample	Total/NA	Water	300.0	
440-206819-G-4 MS	Matrix Spike	Total/NA	Water	300.0	
440-206819-G-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 466225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	314.0	
MB 440-466225/6	Method Blank	Total/NA	Water	314.0	
LCS 440-466225/5	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-466225/4	Lab Control Sample	Total/NA	Water	314.0	
440-206832-2 MS	Outfall002_20180323_Comp	Total/NA	Water	314.0	
440-206832-2 MSD	Outfall002_20180323_Comp	Total/NA	Water	314.0	

Analysis Batch: 467223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 215317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	1613B	
MB 320-215317/1-A	Method Blank	Total/NA	Water	1613B	

Specialty Organics (Continued)

Prep Batch: 215317 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-215317/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-215317/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-215317/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 215705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	1613B	215317
MB 320-215317/1-A	Method Blank	Total/NA	Water	1613B	215317
LCS 320-215317/2-A	Lab Control Sample	Total/NA	Water	1613B	215317
LCSD 320-215317/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	215317

Analysis Batch: 215889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-215317/1-A - RA	Method Blank	Total/NA	Water	1613B	215317

Metals

Filtration Batch: 465710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	FILTRATION	
MB 440-465710/1-H	Method Blank	Dissolved	Water	FILTRATION	
MB 440-465710/1-I	Method Blank	Dissolved	Water	FILTRATION	
MB 440-465710/1-J	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-465710/2-H	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-465710/2-I	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-465710/2-J	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 440-465710/17-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
440-206832-1 MS	Outfall002_20180323_Comp_F	Dissolved	Water	FILTRATION	
440-206832-1 MSD	Outfall002_20180323_Comp_F	Dissolved	Water	FILTRATION	

Filtration Batch: 466085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	FILTRATION	
MB 440-466085/1-G	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-466085/2-G	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 440-466085/23-D	Lab Control Sample Dup	Dissolved	Water	FILTRATION	

Prep Batch: 466172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	245.1	
MB 440-466172/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-466172/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-206802-A-1-B MS	Matrix Spike	Total/NA	Water	245.1	
440-206802-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Prep Batch: 466364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total Recoverable	Water	200.2	
MB 440-466364/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-466364/2-A	Lab Control Sample	Total Recoverable	Water	200.2	

Metals (Continued)

Prep Batch: 466364 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2 MS	Outfall002_20180323_Comp	Total Recoverable	Water	200.2	
440-206832-2 MSD	Outfall002_20180323_Comp	Total Recoverable	Water	200.2	

Analysis Batch: 466637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total Recoverable	Water	200.8	466364
MB 440-466364/1-A	Method Blank	Total Recoverable	Water	200.8	466364
LCS 440-466364/2-A	Lab Control Sample	Total Recoverable	Water	200.8	466364
440-206832-2 MS	Outfall002_20180323_Comp	Total Recoverable	Water	200.8	466364
440-206832-2 MSD	Outfall002_20180323_Comp	Total Recoverable	Water	200.8	466364

Prep Batch: 466869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total Recoverable	Water	200.2	
MB 440-466869/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-466869/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-206673-E-1-C MS	Matrix Spike	Total Recoverable	Water	200.2	
440-206673-E-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	

Analysis Batch: 466984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	245.1	466172
MB 440-466172/1-A	Method Blank	Total/NA	Water	245.1	466172
LCS 440-466172/2-A	Lab Control Sample	Total/NA	Water	245.1	466172
440-206802-A-1-B MS	Matrix Spike	Total/NA	Water	245.1	466172
440-206802-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	466172

Analysis Batch: 467000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total Recoverable	Water	200.7 Rev 4.4	466869
MB 440-466869/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	466869
LCS 440-466869/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	466869
440-206673-E-1-C MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	466869
440-206673-E-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	466869

Prep Batch: 467182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710
MB 440-465710/1-H	Method Blank	Dissolved	Water	200.2	465710
LCS 440-465710/2-H	Lab Control Sample	Dissolved	Water	200.2	465710
440-206832-1 MS	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710
440-206832-1 MSD	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710

Prep Batch: 467183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710
MB 440-465710/1-I	Method Blank	Dissolved	Water	200.2	465710
LCS 440-465710/2-I	Lab Control Sample	Dissolved	Water	200.2	465710
440-206832-1 MS	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710
440-206832-1 MSD	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	465710

Metals (Continued)

Prep Batch: 467200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	245.1	465710
MB 440-465710/1-J	Method Blank	Dissolved	Water	245.1	465710
LCS 440-465710/2-J	Lab Control Sample	Dissolved	Water	245.1	465710
LCSD 440-465710/17-B	Lab Control Sample Dup	Dissolved	Water	245.1	465710

Analysis Batch: 467247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.8	467182
MB 440-465710/1-H	Method Blank	Dissolved	Water	200.8	467182
LCS 440-465710/2-H	Lab Control Sample	Dissolved	Water	200.8	467182
440-206832-1 MS	Outfall002_20180323_Comp_F	Dissolved	Water	200.8	467182
440-206832-1 MSD	Outfall002_20180323_Comp_F	Dissolved	Water	200.8	467182

Analysis Batch: 467258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.7 Rev 4.4	467183
MB 440-465710/1-I	Method Blank	Dissolved	Water	200.7 Rev 4.4	467183
LCS 440-465710/2-I	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	467183
440-206832-1 MS	Outfall002_20180323_Comp_F	Dissolved	Water	200.7 Rev 4.4	467183
440-206832-1 MSD	Outfall002_20180323_Comp_F	Dissolved	Water	200.7 Rev 4.4	467183

Analysis Batch: 467289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	245.1	467200
MB 440-465710/1-J	Method Blank	Dissolved	Water	245.1	467200
LCS 440-465710/2-J	Lab Control Sample	Dissolved	Water	245.1	467200
LCSD 440-465710/17-B	Lab Control Sample Dup	Dissolved	Water	245.1	467200

Prep Batch: 468327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.2	466085
MB 440-466085/1-G	Method Blank	Dissolved	Water	200.2	466085
LCS 440-466085/2-G	Lab Control Sample	Dissolved	Water	200.2	466085
LCSD 440-466085/23-D	Lab Control Sample Dup	Dissolved	Water	200.2	466085

Analysis Batch: 468455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	200.8	468327
MB 440-466085/1-G	Method Blank	Dissolved	Water	200.8	468327
LCS 440-466085/2-G	Lab Control Sample	Dissolved	Water	200.8	468327
LCSD 440-466085/23-D	Lab Control Sample Dup	Dissolved	Water	200.8	468327

Analysis Batch: 468757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-1	Outfall002_20180323_Comp_F	Dissolved	Water	SM 2340B	
440-206832-2	Outfall002_20180323_Comp	Total Recoverable	Water	SM 2340B	

General Chemistry

Analysis Batch: 409566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	DV-WC-0077	409571
MB 280-409571/1-A	Method Blank	Total/NA	Water	DV-WC-0077	409571
LCS 280-409571/2-A	Lab Control Sample	Total/NA	Water	DV-WC-0077	409571
440-206832-2 MS	Outfall002_20180323_Comp	Total/NA	Water	DV-WC-0077	409571
440-206832-2 MSD	Outfall002_20180323_Comp	Total/NA	Water	DV-WC-0077	409571

Prep Batch: 409571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	Filtration	
MB 280-409571/1-A	Method Blank	Total/NA	Water	Filtration	
LCS 280-409571/2-A	Lab Control Sample	Total/NA	Water	Filtration	
440-206832-2 MS	Outfall002_20180323_Comp	Total/NA	Water	Filtration	
440-206832-2 MSD	Outfall002_20180323_Comp	Total/NA	Water	Filtration	

Analysis Batch: 465750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	180.1	
MB 440-465750/5	Method Blank	Total/NA	Water	180.1	
440-206764-A-4 DU	Duplicate	Total/NA	Water	180.1	

Analysis Batch: 465838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 5540C	
MB 440-465838/3	Method Blank	Total/NA	Water	SM 5540C	
LCS 440-465838/4	Lab Control Sample	Total/NA	Water	SM 5540C	
440-206832-2 MS	Outfall002_20180323_Comp	Total/NA	Water	SM 5540C	
440-206832-2 MSD	Outfall002_20180323_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 465841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM5210B	
USB 440-465841/1	Method Blank	Total/NA	Water	SM5210B	
LCS 440-465841/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-465841/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	

Analysis Batch: 466028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 2540C	
MB 440-466028/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-466028/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-206741-N-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 466101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 2540D	
MB 440-466101/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-466101/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-206741-T-1 DU	Duplicate	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 466199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 5310B	
MB 440-466199/10	Method Blank	Total/NA	Water	SM 5310B	
LCS 440-466199/9	Lab Control Sample	Total/NA	Water	SM 5310B	
440-206871-L-1 MS	Matrix Spike	Total/NA	Water	SM 5310B	
440-206871-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5310B	

Prep Batch: 466573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	Distill/CN	
MB 440-466573/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-466573/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-207020-H-4-B MS	Matrix Spike	Dissolved	Water	Distill/CN	
440-207020-H-4-C MSD	Matrix Spike Duplicate	Dissolved	Water	Distill/CN	

Analysis Batch: 466913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 4500 CN E	466573
MB 440-466573/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	466573
LCS 440-466573/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	466573
440-207020-H-4-B MS	Matrix Spike	Dissolved	Water	SM 4500 CN E	466573
440-207020-H-4-C MSD	Matrix Spike Duplicate	Dissolved	Water	SM 4500 CN E	466573

Analysis Batch: 467971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-206832-2	Outfall002_20180323_Comp	Total/NA	Water	SM 4500 NH3 G	
MB 440-467971/12	Method Blank	Total/NA	Water	SM 4500 NH3 G	
LCS 440-467971/13	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
MRL 440-467971/11	Lab Control Sample	Total/NA	Water	SM 4500 NH3 G	
440-207627-H-1 MS	Matrix Spike	Total/NA	Water	SM 4500 NH3 G	
440-207627-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 NH3 G	

Qualifiers

GC/MS Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Dioxin

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

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

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

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Laboratory: TestAmerica Irvine

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
625	625	Water	1,2-Diphenylhydrazine(as Azobenzene)

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-18
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-18
Florida	NELAP	4	E87667	06-30-18
Georgia	State Program	4	N/A	01-08-18 *
Illinois	NELAP	5	200017	04-30-18
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-18
Louisiana	NELAP	6	02096	06-30-18
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-18
New Hampshire	NELAP	1	205310	04-28-18
New Jersey	NELAP	2	CO004	06-30-18
New York	NELAP	2	11964	04-01-19
North Carolina (WW/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-18
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-18
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-18
USDA	Federal			03-26-21
Utah	NELAP	8	CO00026	07-31-18
Virginia	NELAP	3	460232	06-14-18
Washington	State Program	10	C583	08-03-18
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-18
Wyoming (UST)	A2LA	8	2907.01	10-31-19

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
Arizona	State Program	9	AZ0708	08-11-18

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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Laboratory: TestAmerica Sacramento (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-14-18 *
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18 *
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

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

Patel, Urvashi

From: Baluran, Dwayne <DBaluran@haleyaldrich.com>
Sent: Friday, March 30, 2018 3:19 PM
To: Patel, Urvashi
Cc: Miller, Katherine
Subject: SSFL Boeing - COC 440-206832
Attachments: COC 440-206832 (201803232102)_20180328_DB update.pdf; COC 440-206832 (201803232101)_20180328_DB update.pdf

-External Email-

Hi Urvashi,

Catching up on the recent sampling events that occurred, could you please ensure that sample delivery group **440-206832** (OF002 – Annual Composite) reflects the following:

- COC had no sample time. Lab used labels to note sample time on Sample Receipt. Updated COC sample times to 16:31, scanned, and is attached here.

If you have any questions feel free to contact me.

Thank you,
Dwayne Baluran, EIT, QSP
Staff Engineer

Haley & Aldrich, Inc.
5850 Canoga Avenue | Suite 400
Woodland Hills, CA 91367

T: (978) 234.5022
C: (818) 224.0704

www.haleyaldrich.com

Patel, Urvashi

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Wednesday, March 28, 2018 3:07 PM
To: Patel, Urvashi
Cc: Baluran, Dwayne
Subject: RE: NCM 440-347904, Other - Deficiency

-External Email-

Urvashi,

The samples are the same and _F is added so we don't forget to label as dissolved. Please report the sample-2 filter as sample-1.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi <Urvashi.Patel@testamericainc.com>
Sent: Tuesday, March 27, 2018 7:04 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>
Subject: FW: NCM 440-347904, Other - Deficiency

Hi Katherine
One sample that was not filtered within 24 hours, supposedly. S/R gave them sample #2 instead #1 and Metals analyst stayed Friday to complete so they wouldn't have to come in Saturday. However, aren't these samples the same sample? If so, then we didn't miss hold time as sample-2 that was filtered can be used as sample-1. Please confirm that the _F sample is the same as the _COMP sample.

Job 440-206832- see attached COCs

URVASHI PATEL
Manager of Project Management

Test America
THE LEADER IN ENVIRONMENTAL TESTING

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

www.testamericainc.com

-----Original Message-----
From: Nakhaei, Mahmoud
Sent: Tuesday, March 27, 2018 5:02 PM
To: Nguyen, Thai Q.; Dawes, Dave; Lopez-Canseco, Jessica; Nakhaei, Mahmoud; Nguyen, Jocelyn; Patel, Urvashi
Subject: NCM 440-347904, Other - Deficiency

Corrective Action Requested

Project(s): Boeing NPDES SSFL outfalls
Job(s)/Client(s): 440-206832-1 Haley & Aldrich, Inc.
Lab Section(s): Metals, Subcontract Lab non-Sister Lab
Method(s): 200.2, 200.7, 200.8, 245.1, 245.1_Prep, Auto_Prep_Diss, FILTRATION, SM2340B
NCM Type: Deficiency - Other - Deficiency
Affected Item(s): 440-206832-1 Outfall002_20180323_Comp_F

Narrative: Method note : Filter within 24 Hours
Sample received on friday 3/23/2018 @ 6:10 PM, So it couldn't be filtered within 24 hours.
It filtered on monday,the next working day.

Internal Comments: None

Patel, Urvashi

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Wednesday, April 18, 2018 10:36 AM
To: Patel, Urvashi; Marshall, Leandra
Subject: RE: March rain event sample times

-External Email-

Yes please make the change to 10AM.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi <Urvashi.Patel@testamericainc.com>
Sent: Wednesday, April 18, 2018 10:34 AM
To: Marshall, Leandra <LMarshall@haleyaldrich.com>
Cc: Miller, Katherine <KMiller@haleyaldrich.com>
Subject: RE: March rain event sample times

Hi Leandra
Per the email below, I need to revise SDG 440-206832 to change the sample time from 4:31 to 10:00am? We have to revise all the deliverables for job-1 so there will be a charge for the revision. I will see if we can complete this today.

Thank you,

URVASHI PATEL
Manager of Project Management

Test America
THE LEADER IN ENVIRONMENTAL TESTING

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

www.testamericainc.com

From: Marshall, Leandra [mailto:LMarshall@haleyaldrich.com]
Sent: Tuesday, April 17, 2018 10:46 AM
To: Patel, Urvashi
Subject: RE: March rain event sample times

-External Email-

Hi Urvashi,

One of our sampling times was revised, so please revise associated lab reports and resend to us:

OF002 Composite on 3/23/18 (SDG 440-206832) was sampled at 10:00.

Thanks!
Leandra

Test America

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody

Client Name/Address	Project
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc	
Sampler:	Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Analysis columns (with R/A code):
1. R/A – Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl
2. R – TCDD (and all congeners) (E1613B)
3. R – BOD5 (20 degrees C) (E405 1 (SM5210B_BODCalc))
4. R – Surfactants (MBAS) (SM5540C/E425 1)
5. R/A – Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)
6. R – Turbidity, TDS (SM2540C/E180.1)
7. R – TSS (160.2 (SM2540D))
8. R – Ammonia-N (E350.2)
9. A – Priority Pollutants-Pesticides+PCBs (E608)
10. A – Priority Pollutants-SVOCs (E625)
11. R – Total Recoverable Metals Mercury (E245 1)
12. R – (blank)

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	1	2	3	4	5	6	7	8	9	10	11	12			Comments
Outfall 002	Outfall002_20180323_Comp	3/23/2018	WM	500 mL Poly	1	HNO_3	80	No	X														
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
			WM	1 L Poly	1	None	185	No							X								
			~~WM~~	~~Borosilicate vials~~	~~1~~	~~HNO_3~~	~~018~~	~~No~~ ND	Take Amb bottle?										X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp_Extra	3/23/2018	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-18 / 1155	Haley & Aldrich	[signature]	3-23-18 1155
[signature]	3-23-18	TA		
			[signature]	3/23/18 1810

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

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

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

OO 3/23/18

Test America

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody

Page 1 of 2

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055 TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2016-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler	Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl (R/A)	TCDD (and all congeners) (E1613B) (R)	BOD5 (20 degrees C) (E405 1 (SM5210B_BODCalc)) (R)	Surfactants (MBAS) (SM5540C/E425 1) (R)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) (R/A)	Turbidity, TDS (SM2540C/E180.1) (R)	TSS (160.2 (SM2540D)) (R)	Ammonia-N (E350.2) (R)	Priority Pollutants-Pesticides+PCBs (E608) (A)	Priority Pollutants-SVOCs (E625) (A)	Total Recoverable Metals Mercury (E245 1) (R)	(R)	Comments
Outfall 002	Outfall002_20180323_Comp DB	3/23/2018 16:31	WM	500 mL Poly	1	HNO_3	80	No	X												
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1 L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	125	No					X								48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	250	No									X				
			WM	1 L Glass Amber	2	None	175	No										X			
			WM	1 L Poly	1	None	185	No							X						
			~~WM~~	~~Borosilicate vials~~	~~1~~	~~HNO_3~~	~~810~~	~~No~~ WD	Take from bottle										X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp_Extra DB	3/23/2018 16:31	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	125	No					H								Hold
			WM	1 L Glass Amber	2	None	250	No									H				Hold
			WM	1 L Glass Amber	2	None	175	No										H			Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time	
[signature]	3-23-18 / 1155	H&A	[signature]	3-23-18 1155	Turn-around time: (Check) 24 Hour ____ 72 Hour ____ 10 Day __X__ 48 Hour ____ 5 Day ____ Normal ____
Relinquished By [signature]	Date/Time 3-23-18	Company TA	Received By	Date/Time	Sample Integrity: (Check) Intact ____ On Ice ____
Relinquished By	Date/Time	Company	Received By [signature]	Date/Time 3/23/18 1810	Store samples for 6 months Data Requirements (Check) No Level IV ____ All Level IV __X__

OO 3/23/18

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact. Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055 TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc, its subsidiaries and affiliates, and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)
Sampler:	Field Manager: Mark Dominick 978.234 5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	(R/A) Total Dissolved Metals: (E200 7), As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	(R) Cyanide (SM4500-CN-E / E335 2)	(R) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905 0), Total Combined Radium 226 (E903.0 or E903 1) & Radium 228 (E904 0), Uranium (E908.0), K-40, CS-137 (E901 0 or E901.1)	(R) Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	(A) 1,4-Dioxane (E624 (SW8260M_SIM))	(A) Total Organic Carbon (415 2 (SM 5310B))	(A) Monomethyl hydrazine (SW8315M/DV-WC-0077)	(A) Cr (VI), Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 002	Outfall002_20180323_Comp_F	3/23/2018	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp	3/23/2018	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No											Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No			X								
			WM	1 Gal Cube	5	None	235	No				X							Only test if first or second rain events of the year
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall002_20180323_Comp_Extra	3/23/2018	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-18/1155	Haley & Aldrich	[signature]	3-23-18 1155
[signature]	3-23-18 1810	TA		
			[signature]	3/23/18 1810

Turn-around time (Check)
24 Hour ______ 72 Hour ______ 10 Day __X__
48 Hour ______ 5 Day ______ Normal ______

Sample Integrity. (Check)
Intact ______ On Ice ______

Store samples for 6 months

Data Requirements (Check)
No Level IV ______ All Level IV __X__

1289

440-206832 Chain of Custody

Test America

CHAIN OF CUSTODY FORM

									R/A	R	R	R	A	A	A	A			
Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108								Project: Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp	ANALYSIS REQUIRED										
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055		TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc , its subsidiaries and affiliates, and TestAmerica Laboratories Inc						Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	1,4-Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Sampler:								Field Manager: Mark Dominick 978.234 5033, 818 599.0702 (cell)											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD											
Outfall 002	Outfall002_20180323_Comp_F DB	3/23/2018 16:31	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp DB	3/23/2018 16:31	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No											Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No			X								
			WM	1 Gal Cube	5	None	235	No				X							Only test if first or second rain events of the year
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall002_20180323_Comp_Extra DB	3/23/2018 16:31	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-18/1155	Haley & Aldrich	[signature]	3-23-18 1155
[signature]	3-23-18 1810	TA		
			[signature]	3/23/18 1810

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

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

1289

440-206832 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-206832-1

Login Number: 206832
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.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample date and/or time on COC, logged in per container labels.
Is the Field Sampler's name present on COC?	False	The Field Sampler was not listed on the Chain of Custody.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-206832-1

Login Number: 206832
List Number: 4
Creator: Burtness, Benjamin W

List Source: TestAmerica Denver
List Creation: 03/28/18 04:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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: 440-206832-1

Login Number: 206832
List Number: 3
Creator: Her, David A

List Source: TestAmerica Sacramento
List Creation: 03/27/18 05:50 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
440-206832-2	Outfall002_20180323_Comp	79	78	72	74	75	75	76	71
MB 320-215317/1-A	Method Blank	78	78	79	78	81	80	85	73
MB 320-215317/1-A - RA	Method Blank		74						

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)
440-206832-2	Outfall002_20180323_Comp	72	71	69	70	72	71	63
MB 320-215317/1-A	Method Blank	76	75	73	72	74	72	65
MB 320-215317/1-A - RA	Method Blank							

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

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

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-215317/2-A	Lab Control Sample	81	80	78	79	81	80	85	75
LCSD 320-215317/3-A	Lab Control Sample Dup	81	79	78	79	81	95	98	92

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)
LCS 320-215317/2-A	Lab Control Sample	76	77	74	73	78	74	67
LCSD 320-215317/3-A	Lab Control Sample Dup	95	65	90	78	61	76	78

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

S

440-206832 Field Sheet

Job:_____

Tracking #4171 2740 8814 SO / PO / FO

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: Sample 5A was recieved broken. MG DH 3/27/18

Therm. ID: AK-2 / AK-3 / AK-4 / AK-5 / HACCP / Other____

Ice Y Wet Y Gel ____ Other ____

Cooler Custody Seal: Seal

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 3.0

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☐
CoC is complete w/o discrepancies?	☐	☐	☐
Samples received within holding time?	☐	☐	☐
Sample preservatives verified?	☐	☐	☐
Cooler compromised/tampered with?	☐	☐	☐
Samples compromised/tampered with?	☐	☐	☐
Samples w/o discrepancies?	☐	☐	☐
Sample containers have legible labels?	☐	☐	☐
Containers are not broken or leaking?	☐	☐	☐
Sample date/times are provided.	☐	☐	☐
Appropriate containers are used?	☐	☐	☐
Sample bottles are completely filled?	☐	☐	☐
Zero headspace?*	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☐	☐	☐
Sample out of temp?	☐	☐	☐

Initials: MG Date: 3/27/18 Time 850

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

W26C

DATA VALIDATION REPORT

Boeing SSFL Outfall 002

SAMPLE DELIVERY GROUP: 440-206832-2

Prepared for

Haley & Aldrich

April 20, 2018

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

www.mecx.net

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL Outfall 002

Contract: 40458-078 and 40458-083

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

Sample Delivery Group: 440-206832-2

Project Manager: K. Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica – Irvine; Aquatic Bioassay Consulting Laboratories (ABC)

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method
Outfall002_20180323_Comp	440-206832-2	Water	3/23/2018 10:00:00 AM	EPA-821-R-02-013

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-206832-2:

- The laboratories received sample in this SDG on ice and within the temperature limits of ≤6 degrees Celsius (°C) and >0°C.
- Field and laboratory personnel signed and dated the COC.
- According to the Login Sample Receipt Checklist for the primary laboratory (TestAmerica-Irvine), custody seals were absent on the coolers; however, no evidence of tampering was noted. There was no documentation regarding custody seals for the subcontracted laboratory (ABC) in the SDG.
- The sample collection time was not recorded on the original COC. The client notified the laboratories of a changed the time of collection. The sample was logged accordingly.

TABLE 2 - DATA QUALIFIER REFERENCE

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

TABLE 3 - REASON CODE REFERENCE

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

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

III. EPA METHOD EPA-821-R-02-013 – CHRONIC TOXICITY - SELENASTRUM

Marcia Hilchey of MEC[X] reviewed the SDG on April 20, 2018.

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method EPA-821-R-02-213,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

III.1. HOLDING TIMES

The analytical holding time, 36 hours, was met.

III.2. CALIBRATION

Instruments were calibrated as per the manufacturer requirements and standard reference toxicant testing was performed to verify culture health and sensitivity. Method Test Acceptability criteria (TAC) were met.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

Method blanks are not applicable to this method. The laboratory negative controls were within the laboratory and method established compliance criteria

III.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control samples are not applicable to this method. Positive controls were within the laboratory and method established compliance criteria.

III.3.3. *LABORATORY DUPLICATES*

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

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

MS/MSD analyses are not applicable to this method.

III.4. SAMPLE RESULT VERIFICATION

The sample result reported on the summary report were verified against the raw data. No transcription errors or calculation errors were noted.

III.5. FIELD QC SAMPLES

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

III.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

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

III.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms: 4402068322

Analysis Method EPA-821-R-02-013

Sample Name Outfall002_20180323_Comp **Matrix Type:** WM **Result Type:** TRG

Sample Date: 3/23/2018 10:00:00 AM **Validation Level:** 8

Lab Sample Name: 440-206832-2

Analyte	Fraction:	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chronic Toxicity, Selenastrum	N	CHRTOXSELENA	14.38			% effect			

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: 440-206832-2
Client Project/Site: Annual Outfall 002 Comp

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

Attn: Katherine Miller

Authorized for release by:
4/18/2018 6:37:43 PM

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

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

Urvashi Patel
Manager of Project Management
4/18/2018 6:37:43 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-206832-2	Outfall002_20180323_Comp	Water	03/23/18 10:00	03/23/18 18:10

Job ID: 440-206832-2

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-206832-2

Comments
Sample time was changed to 10:00am per client request..

Receipt
The samples were received on 3/23/2018 6:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.8º C, 2.3º C and 3.9º C.

Receipt Exceptions

The Field Sampler was not listed on the Chain of Custody.

The following samples were received at the laboratory without a sample collection time documented on the chain of custody: Outfall002_20180323_Comp_F (440-206832-1), Outfall002_20180323_Comp (440-206832-2) and Outfall002_20180323_Comp_Extra (440-206832-3). Logged in with 0001.- Client provided revised COC with sample time

Please re-calculate all methods as client changed sample time to 10:00am. Please re-run the level IV as well.

Outfall002_20180323_Comp_F (440-206832-1), Outfall002_20180323_Comp (440-206832-2) and Outfall002_20180323_Comp_Extra (440-206832-3)

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

Subcontract Work
Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay - Ventura, CA. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-2

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	ABC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Glossary

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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-2

Laboratory: TestAmerica Irvine

The accreditations/certifications listed below are applicable to this report.

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

aquatic bioassay & consulting laboratories, inc

April 17, 2018

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

Dear Ms. Patel:

We are pleased to present the enclosed revised bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013.* Results were as follows:

CLIENT:	TestAmerica Irvine
SAMPLE I.D.:	Outfall 002
DATE RECEIVED:	23 March - 18
ABC LAB. NO.:	TAM0318.264

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = 14.38 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	12-8723-4494	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	23 Mar-18 14:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	27 Mar-18 13:18	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	18-6810-6156	**Code:**	TAM0318.264sel	**Client:**	Test America Irvine
Sample Date:	23 Mar-18 10:00	**Material:**	Sample Water	**Project:**	Boeing-SSFL NPDES
Receipt Date:	23 Mar-18 13:44	**Source:**	Bioassay Report		
Sample Age:	5h (2.6 °C)	**Station:**	Outfall 002		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
02-8577-1748	Cell Density	TST-Welch's t Test	2.9E-04	100% passed cell density

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
02-8577-1748	Cell Density	Control CV	0.04485	<<	0.2	Yes	Passes Criteria
02-8577-1748	Cell Density	Control Resp	1.69E+6	1000000	>>	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.695E+6	1.631E+6	1.758E+6	1.561E+6	1.772E+6	2.687E+4	7.601E+4	4.49%	0.00%
100		8	1.451E+6	1.376E+6	1.526E+6	1.355E+6	1.582E+6	3.185E+4	9.009E+4	6.21%	14.38%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.693E+6	1.730E+6	1.749E+6	1.772E+6	1.751E+6	1.703E+6	1.561E+6	1.599E+6
100		1.565E+6	1.447E+6	1.362E+6	1.582E+6	1.355E+6	1.383E+6	1.506E+6	1.408E+6

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	02-8577-1748	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Apr-18 19:14	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes
Batch ID:	12-8723-4494	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	23 Mar-18 14:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	27 Mar-18 13:18	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	18-6810-6156	**Code:**	TAM0318.264sel	**Client:**	Test America Irvine
Sample Date:	23 Mar-18 10:00	**Material:**	Sample Water	**Project:**	Boeing-SSFL NPDES
Receipt Date:	23 Mar-18 13:44	**Source:**	Bioassay Report		
Sample Age:	5h (2.6 °C)	**Station:**	Outfall 002		

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density

TST-Welch's t Test

Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	4.774	0.6974	11	CDF	2.9E-04	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.04485	<<	0.2	Yes	Passes Criteria
Control Resp	1.69E+6	1000000	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.377E+11	2.377E+11	1	34.21	4.2E-05	Significant Effect
Error	9.725E+10	6.947E+09	14			
Total	3.349E+11		15			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	0.6484	8.862	0.4342	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.5071	8.862	0.4881	Equal Variances
Variances	Variance Ratio F Test	1.405	8.885	0.6652	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.342	3.878	0.4966	Normal Distribution
Distribution	D'Agostino Skewness Test	0.1411	2.576	0.8878	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1248	0.2471	0.8158	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9555	0.8408	0.5812	Normal Distribution

Cell Density Summary

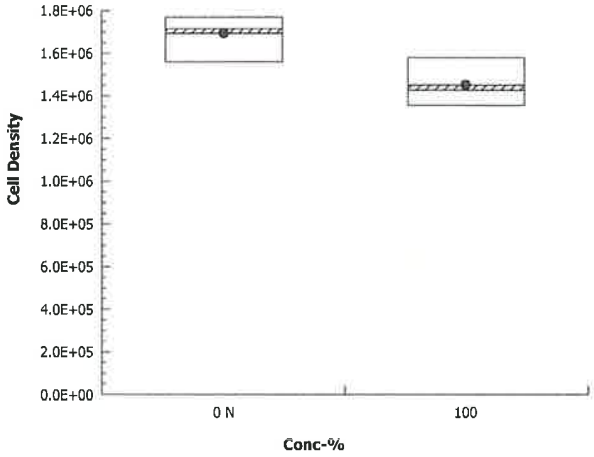
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.695E+6	1.631E+6	1.758E+6	1.716E+6	1.561E+6	1.772E+6	2.687E+4	4.49%	0.00%
100		8	1.451E+6	1.376E+6	1.526E+6	1.428E+6	1.355E+6	1.582E+6	3.185E+4	6.21%	14.38%

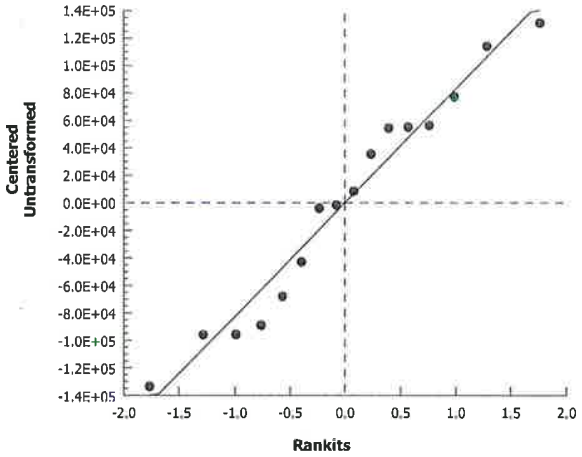
Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.693E+6	1.730E+6	1.749E+6	1.772E+6	1.751E+6	1.703E+6	1.561E+6	1.599E+6
100		1.565E+6	1.447E+6	1.362E+6	1.582E+6	1.355E+6	1.383E+6	1.506E+6	1.408E+6

Analysis ID:	02-8577-1748	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Apr-18 19:14	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Graphics





Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	12-8723-4494	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	23 Mar-18 14:31	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	27 Mar-18 13:18	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	18-6810-6156	**Code:**	TAM0318.264sel	**Client:**	Test America Irvine
Sample Date:	23 Mar-18 10:00	**Material:**	Sample Water	**Project:**	Boeing-SSFL NPDES
Receipt Date:	23 Mar-18 13:44	**Source:**	Bioassay Report		
Sample Age:	5h (2.6 °C)	**Station:**	Outfall 002		

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	62			62	62	0	0	0.0%	0
100		1	86			86	86	0	0	0.0%	0
Overall		2	74	-78.47	226.5	62	86	12	16.97	22.93%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	457	445.2	468.8	448	471	4.243	9.487	2.08%	0
100		5	455.4	451.4	459.4	451	458	1.435	3.209	0.7%	0
Overall		10	456.2	451.4	461	448	471	2.128	6.73	1.48%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	101			101	101	0	0	0.0%	0
100		1	144			144	144	0	0	0.0%	0
Overall		2	122.5	-150.7	395.7	101	144	21.5	30.41	24.82%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.82	7.598	8.042	7.5	7.9	0.08	0.1789	2.29%	0
100		5	7.7	7.612	7.788	7.6	7.8	0.03162	0.07071	0.92%	0
Overall		10	7.76	7.658	7.862	7.5	7.9	0.04522	0.143	1.84%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.48	24.24	24.72	24.3	24.8	0.08604	0.1924	0.79%	0
100		5	24.48	24.24	24.72	24.3	24.8	0.08604	0.1924	0.79%	0
Overall		10	24.48	24.35	24.61	24.3	24.8	0.05735	0.1814	0.74%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

Conc-%	Code	1
0	N	62
100		86

Conductivity-µmhos

Conc-%	Code	1	2	3	4	5
0	N	454	450	448	462	471
100		457	458	458	451	453

Hardness (CaCO3)-mg/L

Conc-%	Code	1
0	N	101
100		144

pH-Units

Conc-%	Code	1	2	3	4	5
0	N	7.9	7.9	7.9	7.9	7.5
100		7.6	7.7	7.7	7.8	7.7

Temperature-°C

Conc-%	Code	1	2	3	4	5
0	N	24.3	24.4	24.4	24.8	24.5
100		24.3	24.4	24.4	24.8	24.5

Test America

CHAIN OF CUSTODY FORM

Temp. deg. C = 2.6

Chlorine (mg/L) = <0.1

NH3 (mg/L) <0.1

Page 2 of

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055 TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)
Sampler:	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.7): As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	1,4-Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals: Mercury (E245.1)		Comments
									R/A	R	R	R	A	A	A				
Outfall 002	Outfall002_20180323_Comp_F	3/23/2018	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp	3/23/2018	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No			X								Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No											
			WM	1 Gal Cube	5	None	235	No				X							Only test if first or second rain events of the year
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall002_20180323_Comp_Extra	3/23/2018	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

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

Relinquished By	Date/Time:	Company:	Received By	Date/Time:	
[signature]	3-23-18/1155	Haley/Aldrich	[signature]	3-23-18 1155	Turn-around time: (Check) 24 Hour: ____ 72 Hour: ____ 10 Day: X 48 Hour: ____ 5 Day: ____ Normal: ____
Relinquished By [signature]	3-23-18 1349	Test America	[signature]	3-23-18 1344	Sample Integrity: (Check) Intact: ____ On Ice: ____
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Store samples for 6 months. Data Requirements: (Check) No Level IV: ____ All Level IV: X

aquatic bioassay & consulting laboratories, inc

CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 8 March - 2018

STANDARD TOXICANT: Cadmium Chloride

NOEC = 40.00 ug/l

IC25 = 85.88 ug/l
IC50 = 113.40 ug/l

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 22 Mar-18 08:34 (p 1 of 1)
Test Code: SEL030818 | 06-7676-7890

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	04-5085-2596	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	08 Mar-18 12:36	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	12 Mar-18 11:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-7924-9043	**Code:**	SEL030818s	**Client:**	Internal Lab
Sample Date:	08 Mar-18 12:36	**Material:**	Cadmium chloride	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	n/a	**Station:**			

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
08-5786-6342	Cell Density	Dunnett Multiple Comparison Test	40	80	56.57		6.04%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	µg/L	95% LCL	95% UCL	TU ✓
05-0330-6571	Cell Density	Linear Interpolation (ICPIN)	IC5	41.97	26.31	55.07	
			IC10	54.95	39.98	67.02	
			IC15	67.92	55.33	79.69	
			IC20	80.38	69.95	85.46	
			IC25	85.88	81.22	90.52	
			IC40	102.4	99.08	106	
			IC50	113.4	110.6	116.8	

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
05-0330-6571	Cell Density	Control CV	0.02162	<<	0.2	Yes	Passes Criteria
08-5786-6342	Cell Density	Control CV	0.02162	<<	0.2	Yes	Passes Criteria
05-0330-6571	Cell Density	Control Resp	1.06E+6	1000000	>>	Yes	Passes Criteria
08-5786-6342	Cell Density	Control Resp	1.06E+6	1000000	>>	Yes	Passes Criteria
08-5786-6342	Cell Density	PMSD	0.0604	0.091	0.29	Yes	Below Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.060E+6	1.023E+6	1.096E+6	1.033E+6	1.089E+6	1.146E+4	2.291E+4	2.16%	0.00%
20		4	1.133E+6	1.018E+6	1.248E+6	1.059E+6	1.203E+6	3.616E+4	7.233E+4	6.38%	-6.94%
40		4	1.050E+6	9.967E+5	1.103E+6	1.002E+6	1.078E+6	1.673E+4	3.347E+4	3.19%	0.92%
80		4	8.810E+5	8.522E+5	9.098E+5	8.620E+5	9.010E+5	9.046E+3	1.809E+4	2.05%	16.87%
140		4	2.832E+5	2.439E+5	3.226E+5	2.600E+5	3.130E+5	1.238E+4	2.476E+4	8.74%	73.27%
180		4	2.230E+5	1.818E+5	2.642E+5	2.010E+5	2.550E+5	1.294E+4	2.587E+4	11.60%	78.96%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.089E+6	1.058E+6	1.033E+6	1.059E+6
20		1.084E+6	1.059E+6	1.203E+6	1.187E+6
40		1.054E+6	1.002E+6	1.066E+6	1.078E+6
80		8.620E+5	8.910E+5	8.700E+5	9.010E+5
140		2.940E+5	2.600E+5	2.660E+5	3.130E+5
180		2.550E+5	2.330E+5	2.010E+5	2.030E+5

CETIS Analytical Report

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	08-5786-6342	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.2
Analyzed:	19 Mar-18 13:53	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	04-5085-2596	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	08 Mar-18 12:36	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	12 Mar-18 11:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-7924-9043	**Code:**	SEL030818s	**Client:**	Internal Lab
Sample Date:	08 Mar-18 12:36	**Material:**	Cadmium chloride	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	n/a	**Station:**			

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	40	80	56.57		6.04%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		20	-2.764	2.407	64010	6	CDF	0.9999	Non-Significant Effect
		40	0.3667	2.407	64010	6	CDF	0.7037	Non-Significant Effect
		80*	6.722	2.407	64010	6	CDF	3.3E-05	Significant Effect
		140*	29.2	2.407	64010	6	CDF	2.7E-05	Significant Effect
		180*	31.47	2.407	64010	6	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.02162	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1000000	>>	Yes	Passes Criteria
PMSD	0.0604	0.091	0.29	Yes	Below Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.371E+12	6.742E+11	5	476.7	<1.0E-37	Significant Effect
Error	2.546E+10	1.414E+09	18			
Total	3.396E+12		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	7.871	15.09	0.1635	Equal Variances
Variances	Levene Equality of Variance Test	8.358	4.248	3.1E-04	Unequal Variances
Variances	Mod Levene Equality of Variance Test	6.233	4.248	0.0016	Unequal Variances
Distribution	Anderson-Darling A2 Normality Test	0.2236	3.878	0.8577	Normal Distribution
Distribution	D'Agostino Kurtosis Test	0.4399	2.576	0.6600	Normal Distribution
Distribution	D'Agostino Skewness Test	0.2519	2.576	0.8011	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus Test	0.257	9.21	0.8794	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.08568	0.2056	1.0000	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9856	0.884	0.9734	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.060E+6	1.023E+6	1.096E+6	1.058E+6	1.033E+6	1.089E+6	1.146E+4	2.16%	0.00%
20		4	1.133E+6	1.018E+6	1.248E+6	1.136E+6	1.059E+6	1.203E+6	3.616E+4	6.38%	-6.94%
40		4	1.050E+6	9.967E+5	1.103E+6	1.060E+6	1.002E+6	1.078E+6	1.673E+4	3.19%	0.92%
80		4	8.810E+5	8.522E+5	9.098E+5	8.805E+5	8.620E+5	9.010E+5	9.046E+3	2.05%	16.87%
140		4	2.832E+5	2.439E+5	3.226E+5	2.800E+5	2.600E+5	3.130E+5	1.238E+4	8.74%	73.27%
180		4	2.230E+5	1.818E+5	2.642E+5	2.180E+5	2.010E+5	2.550E+5	1.294E+4	11.60%	78.96%

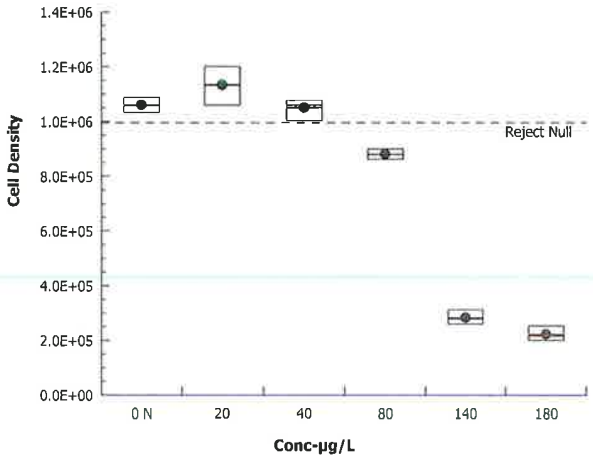
Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

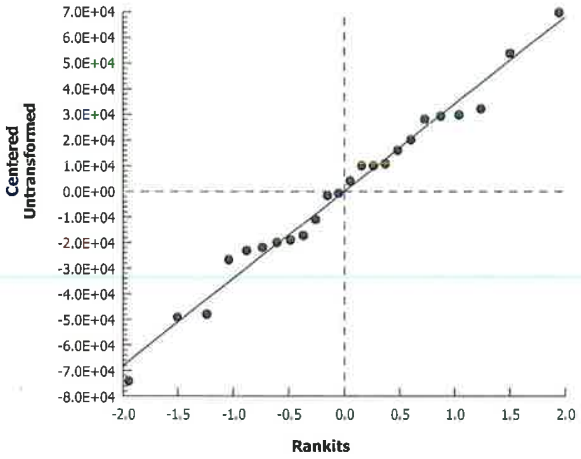
Analysis ID: 08-5786-6342 **Endpoint:** Cell Density **CETIS Version:** CETISv1.9.2
Analyzed: 19 Mar-18 13:53 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.089E+6	1.058E+6	1.033E+6	1.059E+6
20		1.084E+6	1.059E+6	1.203E+6	1.187E+6
40		1.054E+6	1.002E+6	1.066E+6	1.078E+6
80		8.620E+5	8.910E+5	8.700E+5	9.010E+5
140		2.940E+5	2.600E+5	2.660E+5	3.130E+5
180		2.550E+5	2.330E+5	2.010E+5	2.030E+5

Graphics





CETIS Analytical Report

Test Code: SEL030818 | 06-7676-7890

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	05-0330-6571	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.2
Analyzed:	19 Mar-18 13:53	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	04-5085-2596	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	08 Mar-18 12:36	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	12 Mar-18 11:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-7924-9043	**Code:**	SEL030818s	**Client:**	Internal Lab
Sample Date:	08 Mar-18 12:36	**Material:**	Cadmium chloride	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	n/a	**Station:**			

Linear Interpolation Options

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

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.02162	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1000000	>>	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC5	41.97	26.31	55.07
IC10	54.95	39.98	67.02
IC15	67.92	55.33	79.69
IC20	80.38	69.95	85.46
IC25	85.88	81.22	90.52
IC40	102.4	99.08	106
IC50	113.4	110.6	116.8

Cell Density Summary

			Calculated Variate						
Conc-µg/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**
0	N	4	1.060E+6	1.033E+6	1.089E+6	1.146E+4	2.291E+4	2.16%	0.0%
20		4	1.133E+6	1.059E+6	1.203E+6	3.616E+4	7.232E+4	6.38%	-6.94%
40		4	1.050E+6	1.002E+6	1.078E+6	1.673E+4	3.347E+4	3.19%	0.92%
80		4	8.810E+5	8.620E+5	9.010E+5	9.046E+3	1.809E+4	2.05%	16.87%
140		4	2.832E+5	2.600E+5	3.130E+5	1.238E+4	2.476E+4	8.74%	73.27%
180		4	2.230E+5	2.010E+5	2.550E+5	1.294E+4	2.587E+4	11.60%	78.96%

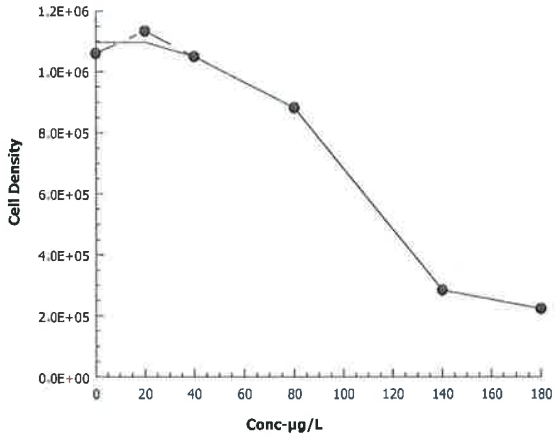
Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.089E+6	1.058E+6	1.033E+6	1.059E+6
20		1.084E+6	1.059E+6	1.203E+6	1.187E+6
40		1.054E+6	1.002E+6	1.066E+6	1.078E+6
80		8.620E+5	8.910E+5	8.700E+5	9.010E+5
140		2.940E+5	2.600E+5	2.660E+5	3.130E+5
180		2.550E+5	2.330E+5	2.010E+5	2.030E+5

Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	05-0330-6571	**Endpoint:**	Cell Density	**CETIS Version:**	CETISv1.9.2
Analyzed:	19 Mar-18 13:53	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Selenastrum Growth Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	04-5085-2596	**Test Type:**	Cell Growth	**Analyst:**	
Start Date:	08 Mar-18 12:36	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Laboratory Water
Ending Date:	12 Mar-18 11:30	**Species:**	Selenastrum capricornutum	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-7924-9043	**Code:**	SEL030818s	**Client:**	Internal Lab
Sample Date:	08 Mar-18 12:36	**Material:**	Cadmium chloride	**Project:**	REF TOX
Receipt Date:		**Source:**	Reference Toxicant		
Sample Age:	n/a	**Station:**			

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	60			60	60	0	0	0.0%	0
20		1	53			53	53	0	0	0.0%	0
40		1	57			57	57	0	0	0.0%	0
80		1	62			62	62	0	0	0.0%	0
140		1	64			64	64	0	0	0.0%	0
180		1	54			54	54	0	0	0.0%	0
Overall		6	58.33	53.7	62.96	53	64	1.801	4.412	7.56%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	459.6	453.7	465.5	453	466	2.112	4.722	1.03%	0
20		5	503.8	492.9	514.7	490	510	3.929	8.786	1.74%	0
40		5	429.2	424.2	434.2	425	435	1.8	4.025	0.94%	0
80		5	418.8	413	424.6	412	425	2.083	4.658	1.11%	0
140		5	393.6	387.3	399.9	387	400	2.272	5.079	1.29%	0
180		5	380.8	375.4	386.2	377	388	1.934	4.324	1.14%	0
Overall		30	431	415.2	446.7	377	510	7.707	42.21	9.79%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	103			103	103	0	0	0.0%	0
20		1	98			98	98	0	0	0.0%	0
40		1	110			110	110	0	0	0.0%	0
80		1	111			111	111	0	0	0.0%	0
140		1	110			110	110	0	0	0.0%	0
180		1	93			93	93	0	0	0.0%	0
Overall		6	104.2	96.33	112	93	111	3.049	7.468	7.17%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.78	7.724	7.836	7.7	7.8	0.02001	0.04473	0.58%	0
20		5	7.84	7.772	7.908	7.8	7.9	0.02449	0.05477	0.7%	0
40		5	7.84	7.772	7.908	7.8	7.9	0.02449	0.05477	0.7%	0
80		5	7.82	7.764	7.876	7.8	7.9	0.02	0.04473	0.57%	0
140		5	7.82	7.764	7.876	7.8	7.9	0.02	0.04473	0.57%	0
180		5	7.8	7.799	7.801	7.8	7.8	0	0	0.0%	0
Overall		30	7.817	7.799	7.834	7.7	7.9	0.008419	0.04611	0.59%	0 (0%)

Selenastrum Growth Test — Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
20		5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
40		5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
80		5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
140		5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
180		5	24.84	24.73	24.95	24.8	25	0.04004	0.08953	0.36%	0
Overall		30	24.84	24.81	24.87	24.8	25	0.01486	0.08137	0.33%	0 (0%)

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	1
0	N	60
20		53
40		57
80		62
140		64
180		54

Conductivity-µmhos

Conc-µg/L	Code	1	2	3	4	5
0	N	453	458	461	466	460
20		490	500	510	509	510
40		425	429	426	431	435
80		412	420	418	419	425
140		387	391	393	397	400
180		377	378	381	380	388

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	1
0	N	103
20		98
40		110
80		111
140		110
180		93

pH-Units

Conc-µg/L	Code	1	2	3	4	5
0	N	7.8	7.7	7.8	7.8	7.8
20		7.9	7.9	7.8	7.8	7.8
40		7.9	7.9	7.8	7.8	7.8
80		7.9	7.8	7.8	7.8	7.8
140		7.9	7.8	7.8	7.8	7.8
180		7.8	7.8	7.8	7.8	7.8

Temperature-°C

Conc-µg/L	Code	1	2	3	4	5
0	N	24.8	24.8	24.8	25	24.8
20		24.8	24.8	24.8	25	24.8
40		24.8	24.8	24.8	25	24.8
80		24.8	24.8	24.8	25	24.8
140		24.8	24.8	24.8	25	24.8
180		24.8	24.8	24.8	25	24.8

Patel, Urvashi

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Wednesday, April 18, 2018 10:36 AM
To: Patel, Urvashi; Marshall, Leandra
Subject: RE: March rain event sample times

-External Email-

Yes please make the change to 10AM.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Patel, Urvashi <Urvashi.Patel@testamericainc.com>
Sent: Wednesday, April 18, 2018 10:34 AM
To: Marshall, Leandra <LMarshall@haleyaldrich.com>
Cc: Miller, Katherine <KMiller@haleyaldrich.com>
Subject: RE: March rain event sample times

Hi Leandra
Per the email below, I need to revise SDG 440-206832 to change the sample time from 4:31 to 10:00am? We have to revise all the deliverables for job-1 so there will be a charge for the revision. I will see if we can complete this today.

Thank you,

URVASHI PATEL
Manager of Project Management

Test America
THE LEADER IN ENVIRONMENTAL TESTING

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

www.testamericainc.com

From: Marshall, Leandra [mailto:LMarshall@haleyaldrich.com]
Sent: Tuesday, April 17, 2018 10:46 AM
To: Patel, Urvashi
Subject: RE: March rain event sample times

-External Email-

Hi Urvashi,

One of our sampling times was revised, so please revise associated lab reports and resend to us:

OF002 Composite on 3/23/18 (SDG 440-206832) was sampled at 10:00.

Thanks!
Leandra

Test America

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody

Client Name/Address	Project	
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler:		Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

R/A R R R R/A R R R A A R R

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405 1 (SM5210B_BODCalc))	Surfactants (MBAS) (SM5540C/E425 1)	Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (E350.2)	Priority Pollutants-Pesticides+PCBs (E608)	Priority Pollutants-SVOCs (E625)	Total Recoverable Metals Mercury (E245 1)				Comments
Outfall 002	Outfall002_20180323_Comp	3/23/2018	WM	500 mL Poly	1	HNO_3	80	No	X														
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	1 L Poly	1	None	115	No			X												
			WM	500 mL Poly	2	None	120	No				X											
			WM	500 mL Poly	2	None	125	No					X										48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X							
			WM	1 L Glass Amber	2	None	250	No									X						
			WM	1 L Glass Amber	2	None	175	No										X					
			WM	1 L Poly	1	None	185	No							X								
			~~WM~~	~~Borosilicate vials~~	~~1~~	~~HNO_3~~	~~018~~	~~No~~ ND	Take Amb Bottle										X				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp_Extra	3/23/2018	WM	1 L Glass Amber	2	None	110	No		H													Hold
			WM	500 mL Poly	2	None	120	No				H											Hold
			WM	500 mL Poly	2	None	125	No					H										Hold
			WM	1 L Glass Amber	2	None	250	No									H						Hold
			WM	1 L Glass Amber	2	None	175	No										H					Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time	
[signature]	3-23-18 / 1155	Haley & Aldrich	[signature]	3-23-18 1155	Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day _X_ 48 Hour ___ 5 Day ___ Normal ___
[signature]	3-23-18	TA			Sample Integrity: (Check) Intact ___ On Ice ___
			[signature]	3/23/18 1810	Store samples for 6 months Data Requirements: (Check) No Level IV ___ All Level IV _X_

OO 3/23/18

Test America

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody

Client Name/Address	Project	
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and TestAmerica Laboratories Inc	Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)
Sampler		Field Manager: Mark Dominick 978 234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	(R/A) Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	(R) TCDD (and all congeners) (E1613B)	(R) BOD5 (20 degrees C) (E405 1 (SM5210B_BODCalc))	(R) Surfactants (MBAS) (SM5540C/E425 1)	(R/A) Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	(R) Turbidity, TDS (SM2540C/E180.1)	(R) TSS (160.2 (SM2540D))	(R) Ammonia-N (E350.2)	(A) Priority Pollutants-Pesticides+PCBs (E608)	(A) Priority Pollutants-SVOCs (E625)	(R) Total Recoverable Metals Mercury (E245 1)	(R)	Comments
Outfall 002	Outfall002_20180323_Comp DB	3/23/2018 16:31	WM	500 mL Poly	1	HNO_3	80	No	X												
			WM	1 L Glass Amber	2	None	110	No		X											
			WM	1 L Poly	1	None	115	No			X										
			WM	500 mL Poly	2	None	120	No				X									
			WM	500 mL Poly	2	None	125	No					X								48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150	No						X							48 hour holding time for turbidity
			WM	500 mL Poly	1	H_2SO_4	160	No								X					
			WM	1 L Glass Amber	2	None	250	No									X				
			WM	1 L Glass Amber	2	None	175	No										X			
			WM	1 L Poly	1	None	185	No							X						
			~~WM~~	~~Borosilicate vials~~	~~1~~	~~HNO_3~~	~~810~~	~~No~~ MD	Take from bottle										X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp_Extra DB	3/23/2018 16:31	WM	1 L Glass Amber	2	None	110	No		H											Hold
			WM	500 mL Poly	2	None	120	No				H									Hold
			WM	500 mL Poly	2	None	125	No					H								Hold
			WM	1 L Glass Amber	2	None	250	No									H				Hold
			WM	1 L Glass Amber	2	None	175	No										H			Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time	
[signature]	3-23-18 / 1155	Haley & Aldrich	[signature]	3-23-18 1155	Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day _X_ 48 Hour ___ 5 Day ___ Normal ___
[signature]	3-23-18	TA	[signature]		Sample Integrity: (Check) Intact ___ On Ice ___
			[signature]	3/23/18 1810	Store samples for 6 months Data Requirements (Check) No Level IV ___ All Level IV _X_

OO 3/23/18

CHAIN OF CUSTODY FORM

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

Project:
Boeing-SSFL NPDES
Permit 2018
Annual Outfall [001, 002, 011, 018]
Outfall 002
Comp

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

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

Project Manager: Katherine Miller
520.289 8606, 520.904.6944 (cell)

Sampler:

Field Manager: Mark Dominick
978.234 5033, 818 599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R/A: Total Dissolved Metals: (E200 7), As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Tl	R: Cyanide (SM4500-CN-E / E335 2)	R: Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905 0), Total Combined Radium 226 (E903.0 or E903 1) & Radium 228 (E904 0), Uranium (E908.0), K-40, CS-137 (E901 0 or E901.1)	R: Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	A: 1,4-Dioxane (E624 (SW8260M_SIM))	A: Total Organic Carbon (415 2 (SM 5310B))	A: Monomethyl hydrazine (SW8315M/DV-WC-0077)	A: Cr (VI), Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 002	Outfall002_20180323_Comp_F	3/23/2018	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No									X		Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp	3/23/2018	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No											Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No			X								
			WM	1 Gal Cube	5	None	235	No				X							Only test if first or second rain events of the year
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall002_20180323_Comp_Extra	3/23/2018	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time
	3-23-18/1155	Haley & Aldrich		3-23-18 1155
	3-23-18 1810			
				3/23/18 1810

Turn-around time (Check)
24 Hour ______ 72 Hour ______ 10 Day __X__
48 Hour ______ 5 Day ______ Normal ______

Sample Integrity (Check)
Intact ______ On Ice ______

Store samples for 6 months

Data Requirements (Check)
No Level IV ______ All Level IV __X__

12.8 9

440-206832 Chain of Custody

Test America

CHAIN OF CUSTODY FORM

4/18/2018

Client Name/Address:	Project:
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing-SSFL NPDES Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp
Test America Contact. Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Katherine Miller 520.289 8606, 520.904.6944 (cell)
Sampler:	Field Manager: Mark Dominick 978.234 5033, 818 599.0702 (cell)

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

									R/A	R	R	R	A	A	A	A			
									ANALYSIS REQUIRED										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013)	1,4-Dioxane (E624 (SW8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Cr (VI), Total (E218.6)	Total Dissolved Metals Mercury (E245.1)		Comments
Outfall 002	Outfall002_20180323_Comp_F DB	3/23/2018 16:31	WM	1 L Poly	1	None	190	No	X										Filter and preserve w/in 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No										X	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
	Outfall002_20180323_Comp DB	3/23/2018 16:31	WM	500 mL Poly	1	NaOH	220	No		X									
			WM	2.5 Gal Cube	1	None	225	No											Unfiltered and unpreserved analysis, Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No			X								
			WM	1 Gal Cube	5	None	235	No				X							Only test if first or second rain events of the year
			WM	40 mL VOA	3	HCl	240	No					X						
			WM	1 L Glass Amber	1	HCl	245	No						X					
			WM	1 L Glass Amber	2	None	255	No							X				
			WM	500 mL Poly	1	None	260	No								X			
	Outfall002_20180323_Comp_Extra DB	3/23/2018 16:31	WM	40 mL VOA	3	HCl	240	No					H						Hold
			WM	1 L Glass Amber	2	None	255	No							H				Hold

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

Relinquished By	Date/Time	Company	Received By	Date/Time
[signature]	3-23-18/1155	Haley & Aldrich	[signature]	3-22-18 1155
[signature]	3-23-18 1810	TA		
			[signature]	3/23/18 1810

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

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

1289

440-206832 Chain of Custody

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-120495.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 440-206832-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 3/29/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall002_20180323_Comp (440-206832-2)	3/23/18	04:31 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	3/26/18 0710	TAL		3/27/18 855	TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-206832-2

Login Number: 206832
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.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample date and/or time on COC, logged in per container labels.
Is the Field Sampler's name present on COC?	False	The Field Sampler was not listed on the Chain of Custody.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

S

440-206832 Field Sheet

Job:_____

Tracking #4171 2740 8814 SO / PO / FO

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Notes: Sample 5A was recieved broken. MG DH 3/27/18

Therm. ID: AK-2 / AK-3 / AK-4 / AK-5 / HACCP / Other____

Ice Y Wet Y Gel ____ Other ____

Cooler Custody Seal: Seal

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 3.0

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☐
CoC is complete w/o discrepancies?	☐	☐	☐
Samples received within holding time?	☐	☐	☐
Sample preservatives verified?	☐	☐	☐
Cooler compromised/tampered with?	☐	☐	☐
Samples compromised/tampered with?	☐	☐	☐
Samples w/o discrepancies?	☐	☐	☐
Sample containers have legible labels?	☐	☐	☐
Containers are not broken or leaking?	☐	☐	☐
Sample date/times are provided.	☐	☐	☐
Appropriate containers are used?	☐	☐	☐
Sample bottles are completely filled?	☐	☐	☐
Zero headspace?*	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☐	☐	☐
Sample out of temp?	☐	☐	☐

Initials: MG Date: 3/27/18 Time 850

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

W26C