APPENDIX E

First Quarter 2018 Analytical Laboratory Reports and Validation Reports

APPENDIX E

TABLE OF CONTENTS

Section No.

- 1 Outfall 002 440-206915-1, March 22, 2018, MECx Data Validation Report
- 2 Outfall 002 440-206915-1, March 22, 2018, TestAmerica Analytical Report
- 3 Outfall 002 SM-8C23022, March 22, 2018, Source Molecular Analytical Report
- 4 Outfall 002 440-206832-1, March 23, 2018, MECx Data Validation Report
- 5 Outfall 002 440-206832-1, March 23, 2018, TestAmerica Analytical Report
- 6 Outfall 002 440-206832-2, March 23, 2018, MECx Data Validation Report
- 7 Outfall 002 440-206832-2, March 23, 2018, TestAmerica Analytical Report
- 8 Outfall 002 440-206832-3; Outfall 009 440-206741-3, May 1, 2018, MECx Data Validation Report
- 9 Outfall 002 440-206832-3, March 23, 2018, TestAmerica Analytical Report
- 10 Outfall 009 440-206580-1, March 21, 2018, MECx Data Validation Report
- 11 Outfall 009 440-206580-1, March 21, 2018, TestAmerica Analytical Report
- 12 Outfall 009 SM-8C23021, March 21, 2018, Source Molecular Analytical Report
- 13 Outfall 009 440-206741-1, March 22, 2018, MECx Data Validation Report
- 14 Outfall 009 440-206741-1, March 22, 2018, TestAmerica Analytical Report
- 15 Outfall 009 440-206741-2, March 22, 2018, MECx Data Validation Report
- 16 Outfall 009 440-206741-2, March 22, 2018, TestAmerica Analytical Report
- 17 Outfall 009 440-206741-3, March 22, 2018, MECx Data Validation Report
- 18 Outfall 009 440-206741-3, March 22, 2018, TestAmerica Analytical Report
- 19 Arroyo Simi 440-206645-1, March 22, 2018, MECx Data Validation Report
- 20 Arroyo Simi 440-206645-1, March 22, 2018, TestAmerica Analytical Report
- 21 Arroyo Simi 440-206645-2, March 22, 2018, MECx Data Validation Report

APPENDIX E

Table of Contents (continued)

Section No.

22	Arroyo Simi – 440-206645-2, March 22, 2018, TestAmerica Analytical Repor
23	Arroyo Simi – 440-206645-4, March 22, 2018, MECx Data Validation Report
24	Arroyo Simi – 440-206645-4, March 22, 2018, TestAmerica Analytical Repor
05	America Circi - 440 007707 4 March 20 0040 MEQu Data Validation Danast
25	Arroyo Simi – 440-207707-1, March 30, 2018, MECx Data Validation Report
26	Arroyo Simi – 440-207707-1, March 30, 2018, TestAmerica Analytical Report
27	Arroyo Simi – 440-208369-1, April 06, 2018, MECx Data Validation Report
28	Arroyo Simi – 440-208369-1, April 06, 2018, TestAmerica Analytical Report
29	Arroyo Simi – 440-208773-1, April 13, 2018, MECx Data Validation Report
30	Arroyo Simi – 440-208773-1, April 13, 2018, TestAmerica Analytical Report
31	Arroyo Simi – 440-209475-1, April 20, 2018, MECx Data Validation Report

32 Arroyo Simi – 440-209475-1, April 20, 2018, TestAmerica Analytical Report

DATA VALIDATION REPORT

Boeing SSFL Outfall 002

SAMPLE DELIVERY GROUP: 440-206915-1

Prepared for

Haley & Aldrich

April 2, 2018







TABLE OF CONTENTS

I.	INTRO	DUCTION	1
II.	Sampl	le Management	2
III.	EPA N	1ETHOD 8015B— Purgeable and Extractable Total Petroleum Hydrocarbons (TPHs)	6
	III.1.	Holding Times	6
	III.2.	Calibration	6
	III.3.	Quality Control Samples	6
		III.3.1. Method Blanks	6
		III.3.2. Laboratory Control Samples	6
		III.3.3. Surrogate Recovery	6
		III.3.4. Matrix Spike/Matrix Spike Duplicate	6
	III.4.	Field QC Samples	6
		III.4.1. Field Blanks and Equipment Blanks	6
		III.4.2. Field Duplicates	6
	III.5.	Compound Identification	7
	III.6.	Compound Quantification and Reported Detection Limits	7
IV.	Metho	ods SM 9221F and EPA 120.1 — <i>E. coli</i> and Specific Conductance	7
	IV.1.	Holding Times	7
	IV.2.	Calibration	7
	IV.3.	Quality Control Samples	7
		IV.3.1. Method Blanks	7
		IV.3.2. Laboratory Control Samples	7
		IV.3.3. Laboratory Duplicates	7
		IV.3.4. Matrix Spike/Matrix Spike Duplicate	7
	IV.4.	Sample Result Verification	8
	IV.5.	Field QC Samples	8
		IV.5.1. Field Blanks and Equipment Blanks	8



N/F 3	E: 1.1.D	Partie	
10.5.2.	rieia Dup	licates	5

TABLES

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



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

	TABLE 3 - REASON CODE	REFERENCE
Reason Code	Organic	Inorganic
Н	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	Not applicable.
С	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r²) 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.
В	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.
Α	Not applicable.	Serial dilution %D was outside control limits.
М	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
Т	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.
Р	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.
*11, *111	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%.

111.3.4. 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:

111.4.1. 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 RLMDL Result Lab Validation Validation Value Units Qualifier Qualifier Notes Specific Conductance 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

Fraction: CAS No Result RLMDL Result **Analyte** Lab Validation Validation Value Units **Qualifier Qualifier** Notes Escherichia coli ECOLI 280 BUBV 1.8 1.8 mpn/100

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

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

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 RL MDL Result Lab Validation Validation Value Qualifier Units Qualifier Notes Total Petroleum Hydrocarbons (C4- N PHC412 0.050 0.025 mg/L C12)

Wednesday, April 4, 2018 Page 1 of 1



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

Ushi Patel

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

Urvashi Patel, Manager of Project Management (949)261-1022

urvashi.patel@testamericainc.com

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

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

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

Urvashi Patel Manager of Project Management

Usli fatel

3/30/2018 4:16:18 PM

Client: Haley & Aldrich, Inc. Project/Site: Annual Outfall 002 Grab TestAmerica Job ID: 440-206915-1

Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	6
Method Summary	9
Lab Chronicle	10
QC Sample Results	11
QC Association Summary	19
Definitions/Glossary	21
Certification Summary	22
Chain of Custody	23
Receint Checklists	24

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 18:0
440-206915-3	TB-20180322	Water	03/22/18 14:00 03/23/18 18:0

Case Narrative

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

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.

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 3.5° 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 Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

Date Collected: 03/22/18 14:00

Date Received: 03/23/18 18:05

Trichloroethene

Cyclohexane

m,p-Xylene

o-Xylene

Naphthalene

Xylenes, Total

cis-1,2-Dichloroethene

Client Sample ID: Outfall002 20180322 Grab

TestAmerica Job ID: 440-206915-1

Lab Sample ID: 440-206915-1

Matrix: Water

Analyte	Result C	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		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		ug/L			03/26/18 12:00	1
Methylene Chloride	ND	2.0		ug/L			03/26/18 12:00	1
Tetrachloroethene	ND	0.50		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		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		ug/L			03/26/18 12:00	1
Vinyl chloride	ND	0.50		ug/L			03/26/18 12:00	1

Surrogoto	%Recovery	Ouglifier	Limits	Prepared	Analyzed	Dil Fac
Surrogate	76Recovery	Qualifier	LIIIIII	Prepareu	Allalyzeu	DII 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

0.50

0.50

2.0

1.0

1.0

0.50

1.0

0.25 ug/L

0.25 ug/L

1.0 ug/L

0.50 ug/L

0.40 ug/L

0.25 ug/L

0.50 ug/L

ND

ND

ND

ND

ND

ND

ND

TestAmerica Irvine

03/26/18 12:00

03/26/18 12:00

03/26/18 12:00

03/26/18 12:00

03/26/18 12:00

03/26/18 12:00

03/26/18 12:00

1

Page 6 of 24 3/30/2018

Client Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Lab Sample ID: 440-206915-1

Client Sample ID: Outfall002_20180322_Grab

Date Collected: 03/22/18 14:00 **Matrix: Water** Date Received: 03/23/18 18:05

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
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
						D			Dil Fac
C13-C28	0.18	J,DX	0.51		mg/L	D	03/26/18 06:24	03/26/18 22:23	Dil Fac
C13-C28 Surrogate	0.18 %Recovery	J,DX	0.51			<u>D</u>	03/26/18 06:24 Prepared	03/26/18 22:23 Analyzed	Dil Fac
Analyte C13-C28 Surrogate n-Octacosane	0.18	J,DX	0.51			<u>D</u>	03/26/18 06:24 Prepared	03/26/18 22:23	1
C13-C28 Surrogate	0.18 %Recovery	J,DX	0.51			<u>D</u>	03/26/18 06:24 Prepared	03/26/18 22:23 Analyzed	1

Analyte	Result	Qualifier	KL	MDL	Unit	U	Prepared	Anaiyzed	DII 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	e Fermentat	tion: EC-M	UG)					

Method: SM 9221F - E.Coli (Multip	le-Tube	: Fermenta	ition; 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

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

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Page 7 of 24 3/30/2018

Client Sample Results

Client: Haley & Aldrich, Inc.

Date Collected: 03/22/18 14:00

Date Received: 03/23/18 18:05

Project/Site: Annual Outfall 002 Grab

Client Sample ID: TB-20180322

TestAmerica Job ID: 440-206915-1

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		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 12:3:	7
Dibromofluoromethane (Surr)	101		76 - 132	03/24/18 12:3:) 1
4-Bromofluorobenzene (Surr)	98		80 - 120	03/24/18 12:3:) 1
4-Bromofluorobenzene (Surr)	93		80 - 120	03/26/18 12:2	,
Dibromofluoromethane (Surr)	98		76 - 132	03/26/18 12:2	, 1
Toluene-d8 (Surr)	104		80 - 128	03/26/18 12:2	' 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

TestAmerica Irvine

Page 9 of 24 3/30/2018

2

3

4

6

3

10

11

Lab Chronicle

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Lab Sample ID: 440-206915-1

Matrix: Water

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

Date Received: 03/23/18 18:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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		

Lab Sample ID: 440-206915-3 Client Sample ID: TB-20180322

Date Collected: 03/22/18 14:00

Date Received: 03/23/18 18:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Matrix: Water

TestAmerica Job ID: 440-206915-1

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

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

, ,	MB MB						
Analyte	Result 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

MB MB

Surrogate	%Recovery	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	

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

Matrix: Water

Analysis Batch: 465795

Lab Sample ID: LCS 440-465795/5

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

LCS LCS

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

Client Sample ID: Outfall002_20180322_Grab

Prep Type: Total/NA

Matrix: Water Analysis Batch, 465705

Lab Sample ID: 440-206915-1 MS

Analysis Batch: 405795	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%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	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							

Surrogate	%Recovery	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 Client Sample ID: Outfall002_20180322_Grab

Analysis Batch: 465795

Matrix: Water

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

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Prep Type: Total/NA

QC Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

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**

MSD MSD

Surrogate	%Recovery	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

Xylenes, Total

Analysis Batch: 465948

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

7 manyolo Zatom 1000 io	МВ	MB							
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 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		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		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		ug/L			03/26/18 08:29	1
Naphthalene	ND		1.0		ug/L			03/26/18 08:29	1
o-Xylene	ND		0.50		ug/L			03/26/18 08:29	1
Vulance Total	ND		1.0	0.50	-			02/26/40 00:20	4

TestAmerica Irvine

03/26/18 08:29

1.0

0.50 ug/L

ND

QC Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Client Sample ID: Method Blank

Lab Sample ID: MB 440-465948/5

Lab Sample ID: LCS 440-465948/6

Matrix: Water

Toluene-d8 (Surr)

Surrogate

Analysis Batch: 465948

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

MR MR

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

%Recovery	Qualifier	Limits
95		80 - 120
98		76 - 132
102		80 - 128

Prep Type: Total/NA

Analyzed

03/26/18 08:29 03/26/18 08:29 1 03/26/18 08:29

Prepared

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

Matrix: Water

Analysis Batch: 465948

	Spike	LCS	LCS		%Rec.
Analyte	Added	Result	Qualifier Unit	D %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

LCS LCS

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

TestAmerica Irvine

Dil Fac

3/30/2018

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

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

LCS LCS

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

Lab Sample ID: 320-37266-C-1 MS

Client Sample ID: Matrix Spike

Matrix: Water Prep Type: Total/NA Analysis Batch: 465948 Spike MS MS %Rec. Sample Sample

Result Qualifier Added Result Qualifier Unit %Rec Limits **Analyte** 1,1,1-Trichloroethane ND 25.0 25.6 102 70 - 130 ug/L 1,1,2,2-Tetrachloroethane ND 25.0 26.5 ug/L 106 63 - 13070 - 130 1.1.2-Trichloroethane ND 25.0 27.9 112 ug/L 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 ND 25.0 25.3 101 69 - 130 1,2-Dichloropropane ug/L 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 - 130Benzene 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 - 150Chlorobenzene 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 - 130Chloromethane ND 25.0 20.9 ug/L 84 39 - 144 cis-1,3-Dichloropropene ND 25.0 26.4 ug/L 106 70 - 133 ND 25.0 25.8 103 Bromodichloromethane ug/L 70 - 138 109 Ethylbenzene ND 25.0 27.4 ug/L 70 - 130 Methylene Chloride ND 25.0 ug/L 85 52 - 13021.3 Tetrachloroethene ND 25.0 27.8 ug/L 111 70 - 137ND 25.0 Toluene 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 92 50 - 137 ug/L 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 108 70 - 133 ND 50.0 53.9 ug/L

MS MS

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

TestAmerica Irvine

TestAmerica Job ID: 440-206915-1

Client Sample ID: Matrix Spike

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

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

Lab Sample ID: 320-37266-C-1 MS

Lab Sample ID: 320-37266-C-1 MSD

Matrix: Water

Analysis Batch: 465948

MS MS

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

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Type: Total/NA

Matrix: Water

Analysis Batch: 465948

Analysis Batch: 465948	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	-	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND	<u> </u>	25.0	25.7		ug/L		103	70 - 130		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

MSD MSD

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

TestAmerica Irvine

3/30/2018

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

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

Lab Sample ID: MB 440-466819/4

Matrix: Water

Analysis Batch: 466819

MB MB

Result Qualifier RL **MDL** Unit D Analyzed Dil Fac **Analyte** Prepared 0.050 GRO (C4-C12) $\overline{\mathsf{ND}}$ 0.025 mg/L 03/29/18 09:51

MB MB

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

Lab Sample ID: LCS 440-466819/3

Matrix: Water

Analysis Batch: 466819

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

LCS LCS

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

Lab Sample ID: 440-206673-A-1 MS

Matrix: Water

Analysis Batch: 466819

MS MS %Rec. Sample Sample Spike Result Qualifier Added Result Qualifier Unit %Rec Limits GRO (C4-C12) $\overline{\mathsf{ND}}$ 0.800 0.800 mg/L 100 65 - 140

MS MS

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

Lab Sample ID: 440-206673-A-1 MSD

Matrix: Water

Analysis Batch: 466819

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

MSD MSD

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

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

Lab Sample ID: MB 440-465947/1-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA **Analysis Batch: 465998 Prep Batch: 465947** MB MB

Result Qualifier RL **MDL** Unit Analyte Prepared C13-C28 $\overline{\mathsf{ND}}$ 0.50 0.10 mg/L 03/26/18 06:24 03/26/18 14:40

MB MB

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

TestAmerica Irvine

Page 16 of 24

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyzed Dil Fac

3/30/2018

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

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

Lab Sample ID: LCS 440-465947/2-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA **Analysis Batch: 465998 Prep Batch: 465947** Spike LCS LCS %Rec.

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

Limits

45 - 120

Spike

Added

1.00

LCS LCS Surrogate %Recovery Qualifier n-Octacosane 73

Lab Sample ID: LCSD 440-465947/3-A

Matrix: Water

Analysis Batch: 465998

Analyte

LCSD LCSD Surrogate **%Recovery Qualifier** Limits n-Octacosane

Method: 120.1 - Conductivity, Specific Conductance

MB MB

Lab Sample ID: MB 440-466554/3

Matrix: Water

C10-C28

Analysis Batch: 466554

Analyte Result Qualifier Specific Conductance $\overline{\mathsf{ND}}$

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

Analysis Batch: 466554

Analyte

Specific Conductance

Lab Sample ID: 440-206662-B-1 DU **Matrix: Water**

Analysis Batch: 466554

Sample Sample Result Qualifier Analyte 130

Specific Conductance

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-466202/1-A **Matrix: Water**

Analysis Batch: 466313

MB MB Result Qualifier Analyte HEM (Oil & Grease) $\overline{\mathsf{ND}}$

Result Qualifier Unit mg/L

0.634

RL Unit

LCS LCS

DU DU

127

Result Qualifier Unit

MDL Unit

1.4 mg/L

1030

Result Qualifier

Unit

umhos/cm

LCSD LCSD

45 - 120

Spike

Added

1010

RL

1.0

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Type: Total/NA **Prep Batch: 465947**

RPD

Analyzed Prepared 1.0 umhos/cm 03/28/18 09:00

Client Sample ID: Lab Control Sample Dup

D %Rec

63

%Rec.

Limits

40 - 115

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

%Rec. D %Rec Limits 90 - 110 umhos/cm 102

Client Sample ID: Duplicate

Prep Type: Total/NA

RPD RPD I imit

Client Sample ID: Method Blank

Prepared

Prep Type: Total/NA Prep Batch: 466202

Analyzed Dil Fac 03/27/18 06:16 03/27/18 11:41

TestAmerica Irvine

3/30/2018

RL

5.0

RPD

Limit

Dil Fac

QC Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

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

	Lab Sample ID: LCS 440-466202/2-A		Client Sample ID: Lab Control Sample					
	Matrix: Water							Prep Type: Total/NA
Analysis Batch: 466313								Prep Batch: 466202
		Spike	LCS	LCS				%Rec.
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
	HEM (Oil & Grease)	40.0	36.3		mg/L		91	78 - 114

Lab Sample ID: LCSD 440-466202/3-A Matrix: Water			(Client S	ample	ID: Lal	Control Prep Ty		
Analysis Batch: 466313 Prep			Prep Ba	•					
Analyte HEM (Oil & Grease)	Added 40.0	Result 37.1	Qualifier	Unit mg/L	D	%Rec 93	Limits 78 - 114	<u>RPD</u> 2	Limit 11

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TestAmerica Job ID: 440-206915-1

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

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 440-206915-1	Client Sample ID Outfall002_20180322_Grab	Prep Type Total/NA	Matrix Water	Method 8015B	Prep Batch 465947
MB 440-465947/1-	A Method Blank	Total/NA	Water	8015B	465947
LCS 440-465947/2	2-A Lab Control Sample	Total/NA	Water	8015B	465947
LCSD 440-465947	7/3-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	

TestAmerica Irvine

3/30/2018

QC Association Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

General Chemistry (Continued)

Prep Batch: 466202

Lab Sam	ple ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-2069	15-1	Outfall002_20180322_Grab	Total/NA	Water	1664A	
MB 440-4	166202/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-	-466202/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 44	0-466202/3-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 440-206915-1	Client Sample ID Outfall002_20180322_Grab	Prep Type Total/NA	Matrix Water	Method 120.1	Prep Batch
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	

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12

Definitions/Glossary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Grab

TestAmerica Job ID: 440-206915-1

Qualifiers

GC Semi VOA

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

Biology

Qualifier **Qualifier Description**

BU Analyzed out of holding time

BVSample 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

Quality Control QC

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

10

TestAmerica Irvine

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.

TestAmerica Job ID: 440-206915-1

Project/Site: Annual Outfall 002 Grab

Laboratory: TestAmerica Irvine

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

ıthority	Program		EPA Region	Identification Number	Expiration Date
alifornia	State Pro	gram	9	CA ELAP 2706	06-30-18
The following analytes	s are included in this repo	rt, but accreditation	/certification is not off	ered by the governing author	ority:
Analysis Method	Prep Method	Matrix	Analyt	e	
624		Water	1,1,2-	Trichloro-1,2,2-trifluoroethar	ne
624		Water	1,2-Di	chloro-1,1,2-trifluoroethane	
624		Water	cis-1,2	2-Dichloroethene	
624		Water	Cycloh	nexane	
624		Water	m,p-X	ylene	
624		Water	Napht	halene	
624		Water	o-Xyle	ne	
624		Water	Xylene	es, Total	
8015B		Water	GRO ((C4-C12)	
8015B	3510C	Water	C13-C	28	

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Haley & Aidrich	Haley & Aldrich			_		Boeing-SSFL NPUES Permit 2018			<								Field Rendings: (Include units)
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Irvine CA 92614 Tel 949-260-3269	.92614 50-3269								<u> </u>			Ett no		(8910			PH 7-16 PH unit
Cell 949-333-9055	333-9055							••	(298 B	((en7,tf					Temp
TestAmerica's 2015-18-TestA	TestAmerica's services under the CoC shall be performed in accordance with the TBCs within Blankal Benkia Agreements 2016-16-1es/america to and DestAmerica Laborationes in 2016-16-1es/america to and DestAmerica Laborationes in	BCs wiftin Blankel Service Agreel Bales, and TestAmerica Laborator	ment#	Proje	X Mana	Project Manager: Katherine Mille	Miller		PENV:	S240L	014)	Freon (P20)					TRO OLOYMAL
Sampler:	Sampler: Roy Barajas Daniel Gar	- Company of the Comp		520.2	99.8606	520.289.8606, 520.904.6944 (cell)	4 (Sel)		s) uzw	WS) 51		lenes, l CE (E					Etald soundlands &
			<u>.</u>	Flek	Menag	Field Menager: Mark Dominick	irick		ul 1 - cols			yx + 99 -2,1-ex					Checked by Autoria
				818.3	50,7312	818.350,7312, 818.598.0702 (cell)	2 (cell)		IZZ6WS) I	bilos side	uctivity (5)	+ VOCs I	+A Vino - £	ORO) esg issesib			Data/Time-3-22-19/1/00
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e 2:			**	125mi. Sterile Poly	6	Ne25203	5	£	Ĥ	×	-						Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions.
3 c		,	XX.	1 L Glass Amber	~	₹	55	ş			×						
of 2	Contract Contract Contract	→ 81000000€	WW	40 mL VOA	8	₹	45	£			H	×					
24	4810,44200144,44001		WW	40 mt, VOA	3	None	SS SS	2		\exists	-		×		1	1	***************************************
Outfall 002		8%.,	×	40 mt. VOA	e	웃	8	ક્ર	+	1	+			×	1	1	
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440-206915 Chain of Custody

Client: Haley & Aldrich, Inc.

Job Number: 440-206915-1

Login Number: 206915 List Source: TestAmerica Irvine

List Number: 1

Creator: Escalante, Maria I

Creator. Escalante, Maria I		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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



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

<u>Limitation of Damages – Repayment of Service Price</u>
It is agreed that in the event of breach of any warranty or breach of contract, or negligence of Source Molecular Corporation, as well as its agents or representatives, the liability of the company shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Source Molecular Corp. The company shall not be liable for any damages, either direct or consequential. Source Molecular Corp. provides analytical services on a PRIME CONTRACT BASIS ONLY. Terms are available upon request. The sample(s) cited in this report may be used for research purposes after an archiving period of 3 months from the date of this report. Research includes, but is not limited to internal validation studies and peer-reviewed research publications. Anonymity of the sample(s), including the exact geographic location will be maintained by assigning an arbitrary internal reference. These anonymous samples will only be gro uped by state / province of origin for research purposes. The client must contact Source Molecular in writing within 10 days from the date of this report if he/she does not wish for their submitted sample(s) to be used for any type of future research.

> Revision 1.2 Effective Date 11/2/17



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



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

	INTE	RPRETATION
Sample ID	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**TM **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*. 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**TM **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 IDTM 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.

¹Boehm, 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.

²Bakir, 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.

⁴Ahmed, 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







TABLE OF CONTENTS

I.	INTRO	DDUCTION	1
II.	Samp	le Management	2
III.	EPA N	/IETHOD 1613B — Dioxin/Furans	6
	III.1.	Holding Times	6
	III.2.	Instrument Performance	6
		III.2.1. GC Column Performance	6
		III.2.2. Mass Spectrometer Performance	6
	III.3.	Calibration	6
	III.4.	Quality Control Samples	6
		III.4.1. Method Blanks	6
		III.4.2. Laboratory Control Samples	7
	III.5.	Field QC Samples	7
		III.5.1. Field Blanks and Equipment Blanks	7
		III.5.2. Field Duplicates	7
	III.6.	Internal Standards Performance	7
	III.7.	Compound Identification	7
	III.8.	Compound Quantification and Reported Detection Limits	7
IV.	Meth	ods 200.7, 200.8, 245.1 and SM2340B— Metals, Mercury and Hardness	8
	IV.1.	Holding Times	8
	IV.2.	MS Tuning and Calibration	8
	IV.3.	Quality Control Samples	8
		IV.3.1. Method Blanks	8
		IV.3.2. Interference Check Samples:	8
		IV.3.3. Laboratory Control Samples	8
		IV.3.4. Laboratory Duplicates:	8
		IV.3.5. Matrix Spike/Matrix Spike Duplicate	8



	IV.4.	Serial Dilution	9
	IV.5.	Internal Standards Performance	9
	IV.6.	Compound Quantification and Reported Detection Limits	9
	IV.7.	Field QC Samples	9
		IV.7.1. Field Blanks and Equipment Blanks	9
		IV.7.2. Field Duplicates	9
V.	VARIO	US METHODS — GENERAL CHEMISTRY	9
	V.1.	Holding Times	9
	V.2.	Calibration	10
	V.3.	Quality Control Samples	10
		V.3.1. Method Blanks	10
		V.3.2. Laboratory Control Samples	10
		V.3.3. Laboratory Duplicates	10
		V.3.4. Matrix Spike/Matrix Spike Duplicate	10
	V.4.	Sample Result Verification	10
	V.5.	Field QC Samples	10
		V.5.1. Field Blanks and Equipment Blanks	10
		V.5.2. Field Duplicates	10

TABLES

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



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

D	TABLE 5 - REASON CODE	
Reason Code	Organic	Inorganic
Н	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	Not applicable.
С	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r²) 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.
В	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.
l1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
Α	Not applicable.	Serial dilution %D was outside control limits.
М	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
Т	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.
Р	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.
* , *	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 \leq 20% for the 15 native compounds (calibration by isotope dilution) and \leq 35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

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

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 \geq 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 μ g/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 \geq 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 I	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	В
1,2,3,4,6,7,8,9-Octachlorodibenzo-pdioxin (OCDD)	o- 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	В
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	В
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-Hexachlorodibenzofurar (HxCDF)	ı 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	В
1,2,3,6,7,8-Hexachlorodibenzofurar (HxCDF)	n 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-Hexachlorodibenzofurar (HxCDF)	n 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-Hexachlorodibenzofurar (HxCDF)	ı 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-dioxir (TCDD)	n 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	В
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000023	0.000048	0.00000035	ug/L	J,DXMB	U	В
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	В
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4		0.000048	0.00000033	ug/L	U	U	

Wednesday, April 18, 2018

Analysis Method E1613B Total Pentachlorodibenzo-p-dioxin 36088-22-9 0.00000038 ug/L U 0.000048 (PeCDD) Total Tetrachlorodibenzofuran 0.00000950.00000029 ug/L U U N 55722-27-5 (TCDF) Total Tetrachlorodibenzo-p-dioxin N 41903-57-5 0.0000095 0.00000030 ug/L U U (TCDD)

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 RLMDL Result Lab Validation Validation Value Units **Qualifier Qualifier** Notes Turbidity TURBIDITY 54 NTU 1.0 0.40

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	Fractio	on: 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	Fractio	on: 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	

Wednesday, April 18, 2018 Page 2 of 5

Analysis Method	E20	00.7							
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	Fractio	on: 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	Fractio	on: 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	В
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	1: 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	

Wednesday, April 18, 2018 Page 3 of 5

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

Fraction: CAS No RLMDL **Analyte** Result Result Lab Validation Validation Value Units **Qualifier Oualifier** Notes 7439-97-6 Mercury 0.20 0.10 ug/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

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

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

Fraction: CAS No RLMDL Analyte Result Result Lab Validation Validation Value Units **Oualifier** Qualifier Notes Chloride 16887-00-6 12 0.25 N 0.50 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 N Sulfate 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 RLMDL Result Lab Validation Validation Value Units **Qualifier Qualifier Notes** Hardness as CaCO3 HARDNESSCA 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 RLMDL Result Lab Validation Validation Value Units **Oualifier** Qualifier Notes Hardness as CaCO3 D HARDNESSCA 690 0.33 0.17 mg/L CO3

Wednesday, April 18, 2018 Page 4 of 5

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

Fraction: CAS No RLMDL Result **Analyte** Result Lab Validation Validation Value Units **Qualifier Oualifier** Notes Total Dissolved Solids (TDS) 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

Fraction: CAS No RLMDL Result Result Analyte Lab Validation Validation Value Units **Oualifier Oualifier** Notes Total Suspended Solids (TSS) 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 RLMDL Result Lab Validation Validation Value Units Qualifier **Oualifier** 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

Result Analyte Fraction: CAS No Result RL**MDL** Lab Validation Validation Qualifier Value Units **Qualifier** Notes Total Organic Carbon (TOC) 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

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

Wednesday, April 18, 2018 Page 5 of 5



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

.....LINKS

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

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

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

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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.

Ushi fatel

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

3

4

5

-

8

9

11

12

14

1

Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	5
Client Sample Results	8
Method Summary	14
Lab Chronicle	15
QC Sample Results	17
QC Association Summary	45
Definitions/Glossary	52
Certification Summary	54
Chain of Custody	56
Receipt Checklists	65
Isotope Dilution Summary	68
Field Data Sheets	70

10

12

IS

15

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

Case Narrative

Client: Haley & Aldrich, Inc.

TestAmerica Job ID: 440-206832-1 Project/Site: Annual Outfall 002 Comp

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 1.8° C, 2.3° C and 3.9° 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.

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

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

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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.

Case Narrative

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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.

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TestAmerica Job ID: 440-206832-1

Client Sample ID: Outfall002_20180323_Comp_F

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

Lab Sample ID: 440-206832-1

Lab Sample ID: 440-206832-2

Matrix: Water

Matrix: Water

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

Method: 245.1 - Mercury (CVA	A) - 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

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

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

Method: 8260B SIM - Volatile	Organic Con	npounas (GC/NS)					
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) Result Qualifier RL Analyte MDL Unit Prepared Analyzed Dil Fac Acenaphthene $\overline{\mathsf{ND}}$ 0.478 0.191 ug/L 03/27/18 09:48 03/29/18 16:50 Acenaphthylene ND 0.478 0.191 ug/L 03/27/18 09:48 03/29/18 16:50 0.191 ug/L Anthracene ND 0.478 03/27/18 09:48 03/29/18 16:50 ND

Benzidine 9.57 4.78 ug/L 03/27/18 09:48 03/29/18 16:50 Benzo[a]anthracene ND 1.91 ug/L 03/27/18 09:48 03/29/18 16:50 4.78 ND Benzo[b]fluoranthene 1.91 0.957 ug/L 03/27/18 09:48 03/29/18 16:50 Benzo[k]fluoranthene ND 0.478 0.239 ug/L 03/27/18 09:48 03/29/18 16:50 Benzo[a]pyrene ND 0.478 ug/L 03/27/18 09:48 03/29/18 16:50 1.91

TestAmerica Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Lab Sample ID: 440-206832-2

Matrix: Water

Client Sample ID: Outfall002_20180323_Comp

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

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

TestAmerica Irvine

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND 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)		29 - 115				03/27/18 06:02	03/27/18 15:43	1

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	

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, Io	n 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

TestAmerica Irvine

Client Sample Results

Client: Haley & Aldrich, Inc.

Date Collected: 03/23/18 10:00

Date Received: 03/23/18 18:10

Project/Site: Annual Outfall 002 Comp

Client Sample ID: Outfall002_20180323_Comp

TestAmerica Job ID: 440-206832-1

Lab Sample ID: 440-206832-2

Motrice ID. 440-200032-2

Matrix: Water

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND ND	4.0	0.95	ug/L			03/27/18 12:53	1
Method: NO3NO2 Calc - N	Nitrogen, Nitrate-Nitrite							
Method: NO3NO2 Calc - N	Nitrogen, Nitrate-Nitrite Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Allalyte	Kesuit	Qualifier	NL.	MIDL	Ullit	U	Fiepaieu	Allalyzeu	DIIFac
Nitrate Nitrite as N	0.70		0.15	0.070	mg/L			03/30/18 15:03	1
Method: 1613B - Dioxins and)						
Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000003	ug/L		03/29/18 07:29	03/30/18 20:20	1
2,3,7,8-TCDF	ND		0.0000095	0.0000002	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000003	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000003	ug/L		03/29/18 07:29	03/30/18 20:20	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000003	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	0.0000003 9	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,6,7,8-HxCDD	ND		0.000048	0.0000003 5	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,7,8,9-HxCDD	ND		0.000048	0.0000003 5	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000005 6	ug/L		03/29/18 07:29	03/30/18 20:20	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000005 6	ug/L			03/30/18 20:20	1
1,2,3,7,8,9-HxCDF	ND		0.000048	0.0000003 3				03/30/18 20:20	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000004 0				03/30/18 20:20	1
1,2,3,4,6,7,8-HpCDD		J,DX MB	0.000048	0.0000003 5	-			03/30/18 20:20	1
1,2,3,4,6,7,8-HpCDF	0.0000033	J,DX MB	0.000048	0.0000002 9				03/30/18 20:20	1
1,2,3,4,7,8,9-HpCDF	ND	. <u></u>	0.000048	0.0000003			03/29/18 07:29		
OCDD	0.00015		0.000095	0.0000003			03/29/18 07:29		1
OCDF	0.000013 ND	J,DX MB	0.000095	0.0000003				03/30/18 20:20	1
Total TCDD Total TCDF	ND ND		0.0000095	0.0000003				03/30/18 20:20 03/30/18 20:20	1
Total PeCDD	ND		0.0000093	0.0000002 9 0.0000003			03/29/18 07:29		1
Total PeCDF	ND ND		0.000048	8				03/30/18 20:20	1
	0.000021	I DY MP	0.000048	0.0000003			03/29/18 07:29		1
Total HxCDD Total HxCDF	0.0000021 ND	J,UA IVID	0.000048	0.0000003				03/30/18 20:20	1
Total HpCDD		J,DX MB	0.000048	0.0000003 3 0.0000003	_			03/30/18 20:20	1
. Gui Tipobb	3.300023	0,5X III5	3.3000.10	5	~g/ =		23.20.1007.20	23.00020.20	•

TestAmerica Irvine

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Project/Site: Annual Outfall 002 Comp

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDF	0.0000071	J,DX MB	0.000048	0.0000003	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
37CI4-2,3,7,8-TCDD	105		35 - 197				03/29/18 07:29	03/30/18 20:20	1

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

Analyte	Result Q	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	I,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 (CVA	A)						
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

TestAmerica Irvine

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Client Sample Results

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Lab Sample ID: 440-206832-2

Client Sample ID: Outfall002_20180323_Comp

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

Method: SM 2340B - Total Hard Analyte	•	Qualifier	RL		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

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

25 Semivolatile Organic Compounds (GC/MS) EPA TAL IRV 28 PCBL L. Polychlorinated Biphenyls (PCBs) Low level 40CFR136A TAL IRV 28 Pesticides Organochlorine Pesticides Low level 40CFR136A TAL IRV 28 Chromium, Hexavalent (Ion Chromatography) EPA TAL IRV 20 Anions, Ion Chromatography MCAWW TAL IRV 20 Anions, Ion Chromatography MCAWW TAL IRV 20 O. Anions, Ion Chromatography MCAWW TAL IRV 20 O. Perchlorate (IC) EPA TAL IRV 20 McCall (IC) EPA TAL IRV 20 McCall (IC) EPA TAL IRV 20 McSatol Tal IRV TAL IRV 24 McSatol <	Method	Method Description	Protocol	Laboratory
88 PCB LL Polychlorinated Biphenyls (PCBs) Low level 40CFR136A TAL IRV 88 Pesticides Organochlorine Pesticides Low level 40CFR136A TAL IRV 180 Chromium, Hexavalent (Ino Chromatography) EPA TAL IRV 180 On Anions, Ion Chromatography MCAWW TAL IRV 180 ONO2 Calc Nitrogen, Nitrate-Nitrite EPA TAL IRV 180 Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL IRV 180 Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL IRV 181 Metals (ICP) EPA TAL IRV 182 Malas (ICP/MS) EPA TAL IRV 183 Metals (ICP/MS) EPA TAL IRV 184 Malas (ICP/MS) EPA TAL IRV 185 Malas (ICP/MS) MCAWW TAL IRV 185 Malas (ICP/MS) SM TAL IRV 185 Malas (ICP/MS) SM	8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
88 Pesticides Organochlorine Pesticides Low level 40CFR136A TAL IRV 18.6 Chromium, Hexavalent (Ion Chromatography) EPA TAL IRV 10.0 Anions, Ion Chromatography MCAWW TAL IRV 14.0 Perchlorate (IC) EPA TAL IRV 03NO2 Calc Nitrogen, Nitrate-Nitrite EPA TAL IRV 613B Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL IRV 10.07 Rev 4.4 Metals (ICP) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 10.1 Mercury (CVAA) EPA TAL IRV 10.1 Turbidity, Nephelometric MCAWW TAL IRV 10.2 Solids, Total Dissolved (TDS) SM TAL IRV 10.2 Solids, Total Suspended (TSS) SM TAL IRV 10.2 Solids, Total	325	Semivolatile Organic Compounds (GC/MS)	EPA	TAL IRV
18.6 Chromium, Hexavalent (Ion Chromatography) EPA TAL IRV 19.0 Anions, Ion Chromatography MCAWW TAL IRV 19.0 Perchlorate (IC) EPA TAL IRV 10.0 Perchlorate (IC) EPA TAL IRV 10.3 Nitrogen, Nitrate-Nitrite EPA TAL IRV 10.7 Rev 4.4 Metals (ICP) EPA TAL IRV 10.8 Metals (ICP)MS) EPA TAL IRV 10.1 Meroury (CVAA) EPA TAL IRV 10.1 Turbidity, Nephelometric MCAWW	08 PCB LL	Polychlorinated Biphenyls (PCBs) Low level	40CFR136A	TAL IRV
00.0 Anions, Ion Chromatography MCAWW TAL IRV 14.0 Perchlorate (IC) EPA TAL IRV 03NO2 Calc Nitrogen, Nitrate-Nitrite EPA TAL IRV 813B Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL IRV 10.7 Rev 4.4 Metals (ICP) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 10.1 Mercury (CWAA) EPA TAL IRV 10.1 Turbidity, Nephelometric MCAWW TAL IRV 10.2 Solids, Total Dissolved (TDS) SM TAL IRV 10.2 Solids, Total Suspended (TSS) SM	08 Pesticides	Organochlorine Pesticides Low level	40CFR136A	TAL IRV
14.0 Perchlorate (IC) EPA TAL IRV O3NO2 Calc Nitrogen, Nitrate-Nitrite EPA TAL IRV 1513B Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL SAC 10.7 Rev 4.4 Metals (ICP) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 15.1 Mercury (CVAA) EPA TAL IRV 15.1 Mercury (CVAA) EPA TAL IRV 10.1 Turbidity, Nephelometric MCAWW TAL IRV 10.2 Solids, Total Dissolved (TDS) SM TAL IRV 10.2 Solids, Total Suspended (TSS) SM TAL IRV 10.4 M500 NH3 G Ammonia SM TAL IRV 10.5 M510B Organic Carbon, Total (TOC) SM	18.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
OSNO2 Calc Nitrogen, Nitrate-Nitrite EPA TAL IRV 613B Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL SAC 10.7 Rev 4.4 Metals (ICP) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 10.8 Metals (ICP/MS) EPA TAL IRV 10.1 Mercury (CVAA) EPA TAL IRV 10.1 Turbidity, Nephelometric MCAWW TAL IRV 10.1 Tal IRV MCAWW TAL IRV 10.2 Oilds, Total Dissolved (TDS) SM TAL IRV	00.0	Anions, Ion Chromatography	MCAWW	TAL IRV
313B Dioxins and Furans (HRGC/HRMS) 40CFR136A TAL SAC 20.7 Rev 4.4 Metals (ICP) EPA TAL IRV 30.8 Metals (ICP/MS) EPA TAL IRV 45.1 Mercury (CVAA) EPA TAL IRV 45.1 Total Hardness (as CaCO3) by calculation SM TAL IRV 40.1 Turbidity, Nephelometric MCAWW TAL IRV 40.4 Hydrazine, Ion Chromatography TAL-DEN TAL-DEN 40.2 Solids, Total Dissolved (TDS) SM TAL IRV 40.2540D Solids, Total Suspended (TSS) SM TAL IRV 40.2540D Solids, Total (Low Level) SM TAL IRV 40.4500 NH3 G Ammonia SM TAL IRV 40.5310B Organic Carbon, Total (TOC) SM TAL IRV 40.5310B Organic Carbon, Total (MBAS) SM TAL IRV 40.5310B BOD, 5 Day SM TAL IRV 40.5310B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL IRV <td< td=""><td>14.0</td><td>Perchlorate (IC)</td><td>EPA</td><td>TAL IRV</td></td<>	14.0	Perchlorate (IC)	EPA	TAL IRV
20.7 Rev 4.4 Metals (ICP) EPA TAL IRV 20.8 Metals (ICP/MS) EPA TAL IRV 45.1 Mercury (CVAA) EPA TAL IRV 45.1 Mercury (CVAA) EPA TAL IRV 40.1 Turbidity, Nephelometric MCAWW TAL IRV 40.2 Hydrazine, Ion Chromatography TAL DEN TAL IRV 40.2 Solids, Total Dissolved (TDS) SM TAL IRV 40.2 Solids, Total Suspended (TSS) SM TAL IRV 40.2 M 4500 CN E Cyanide, Total (Low Level) SM TAL IRV 40.2 M 4500 NH3 G Ammonia SM TAL IRV 40.2 M 45310B Organic Carbon, Total (TOC) SM TAL IRV 40.2 M	IO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
20.0.8 Metals (ICP/MS) EPA TAL IRV 45.1 Mercury (CVAA) EPA TAL IRV 45.2 Total Hardness (as CaCO3) by calculation SM TAL IRV 40.1.1 Turbidity, Nephelometric MCAWW TAL IRV 60.1.1 Turbidity, Nephelometric MCAWW TAL IRV 60.1.1 Hydrazine, Ion Chromatography TAL-DEN TAL DEN 60.2 Solids, Total Dissolved (TDS) SM TAL IRV 60.2 Solids, Total Suspended (TSS) SM TAL IRV 60.1 SM TAL IRV TAL IRV 60.1 SM TAL IRV TAL IRV 60.1 SM TAL IRV TAL IRV 60.1 Methylene Blue Active Substances (MBAS) SM TAL IRV 60.2 Methylene Blue Active Substances (MBAS) SM TAL IRV 613B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL IRV 613B Separation, Mercury EPA TAL IRV 615.1 Preparatio	613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
HEAL TAL IRV M2340B Total Hardness (as CaCO3) by calculation SM TAL IRV M2340B Turbidity, Nephelometric MCAWW TAL IRV M250.1 Turbidity, Nephelometric MCAWW TAL IRV M2540C Hydrazine, Ion Chromatography TAL-DEN TAL DEN M2540C Solids, Total Dissolved (TDS) SM TAL IRV M2540D Solids, Total Suspended (TSS) SM TAL IRV M4500 CN E Cyanide, Total (Low Level) SM TAL IRV M4500 NH3 G Ammonia SM TAL IRV M5310B Organic Carbon, Total (TOC) SM TAL IRV M5210B BOD, 5 Day SM TAL IRV M5210B BOD, 5 Day SM TAL IRV M5210B Preparation, Total Recoverable Metals Extraction of Dioxin and Furans 40CFR136A TAL IRV M5310B Purge and Trap SW846 TAL IRV M530B Purge and Trap SW846 TAL IRV M530B Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M540 Liquid-Liquid Extraction (Separatory Funnel) A0CFR136A TAL IRV M5510D Distillation, Cyanide None TAL IRV M5510D Distillation, Cyanide None TAL IRV M5510D Distillation, Cyanide None TAL IRV M5510D Distillation, Cyanide Tat DEN	00.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
M 2340B Total Hardness (as CaCO3) by calculation SM TAL IRV 30.1 Turbidity, Nephelometric MCAWW TAL IRV 30.1 Turbidity, Nephelometric MCAWW TAL IRV 30.1 Turbidity, Nephelometric MCAWW TAL IRV 30.1 TAL-DEN T	8.00	Metals (ICP/MS)	EPA	TAL IRV
Turbidity, Nephelometric MCAWW TAL IRV V-WC-0077 Hydrazine, Ion Chromatography TAL-DEN TAL-DEN TAL-DEN M 2540C Solids, Total Dissolved (TDS) SM TAL IRV M 2540D Solids, Total Suspended (TSS) SM TAL IRV M 4500 CN E Cyanide, Total (Low Level) SM TAL IRV M 4500 NH3 G Ammonia SM TAL IRV M 45010 M 2540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5313B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC DO.2 Preparation, Total Recoverable Metals EPA TAL IRV M 5310B Purge and Trap SW846 TAL IRV M 530B Purge and Trap SW846 TAL IRV M 530B Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M 545C Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M 545C Liquid-Liquid Extraction (Separatory Funnel) None TAL IRV M 545C Liquid-Liquid Extraction (Separatory Funnel) None TAL IRV M 545C Liquid-Liquid Extraction (Separatory Funnel) None TAL IRV M 545C Liquid-Liquid Extraction Sample Filtration TestAmerica SOP TAL DEN	45.1	Mercury (CVAA)	EPA	TAL IRV
W-WC-0077 Hydrazine, Ion Chromatography M 2540C Solids, Total Dissolved (TDS) M 2540D Solids, Total Suspended (TSS) M 4500 CN E Cyanide, Total (Low Level) M 4500 NH3 G M 5310B Organic Carbon, Total (TOC) M 5540C Methylene Blue Active Substances (MBAS) M 5540C Methylene Blue Active Substances (MBAS) M 500.2 Preparation, Total Recoverable Metals M 50.2 Preparation, Total Recoverable Metals M 50.2 Preparation, Mercury M 50.30B Purge and Trap M 508 Liquid-Liquid Extraction (Separatory Funnel) M 509 Liquid-Liquid Extraction M 500 Liquid-Liquid Extraction M	M 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
M 2540C Solids, Total Dissolved (TDS) SM TAL IRV M 2540D Solids, Total Suspended (TSS) SM TAL IRV M 4500 CN E Cyanide, Total (Low Level) SM TAL IRV M 4500 NH3 G Ammonia SM TAL IRV M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 513B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC DO.2 Preparation, Total Recoverable Metals EPA TAL IRV M 513 Preparation, Mercury EPA TAL IRV M 514 Preparation, Mercury EPA TAL IRV M 515 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M 515 Liquid-Liquid Extraction Separatory Funnel) 40CFR136A TAL IRV M 515 Liquid-Liquid Extraction Separatory Funnel) None TAL IRV M 515 Liquid-Liquid Extraction TAL IRV M 516 Liquid-Li	80.1	Turbidity, Nephelometric	MCAWW	TAL IRV
M 2540D Solids, Total Suspended (TSS) SM TAL IRV M 4500 CN E Cyanide, Total (Low Level) SM TAL IRV M 4500 NH3 G Ammonia SM TAL IRV M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5210B BOD, 5 Day SM TAL IRV S133B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC D0.2 Preparation, Total Recoverable Metals EPA TAL IRV M 15.1 Preparation, Mercury EPA TAL IRV M 15.1 Preparation,	V-WC-0077	Hydrazine, Ion Chromatography	TAL-DEN	TAL DEN
M 4500 CN E Cyanide, Total (Low Level) M 4500 NH3 G Ammonia SM TAL IRV M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5210B BOD, 5 Day SM TAL IRV M 513B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC M 5.1 Preparation, Total Recoverable Metals EPA TAL IRV M 5.1 Preparation, Mercury EPA TAL IRV M 5.1 Preparation, Mercury EPA TAL IRV M 5.1 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M 5.2 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV M 5.2 Liquid-Liquid Extraction Separatory Funnel) Tal IRV M 5.2 Sample Filtration Sample Filtration TestAmerica SOP TAL DEN	M 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
M 4500 NH3 G Ammonia SM TAL IRV M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5210B BOD, 5 Day SM TAL IRV S13B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC DO.2 Preparation, Total Recoverable Metals EPA TAL IRV S15.1 Preparation, Mercury EPA TAL IRV D30B Purge and Trap SW846 TAL IRV D30B Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV D30B Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV D30B Distillation, Cyanide None TAL IRV D30B Sample Filtration TestAmerica SOP TAL DEN	M 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
M 5310B Organic Carbon, Total (TOC) SM TAL IRV M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV M 5210B BOD, 5 Day SM TAL IRV 813B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC 80.2 Preparation, Total Recoverable Metals EPA TAL IRV 85.1 Preparation, Mercury EPA TAL IRV 8030B Purge and Trap SW846 TAL IRV 8030B Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV 825 Liquid-Liquid Extraction 40CFR136A TAL IRV 825 Liquid-Liquid Extraction 50P TAL IRV 826 Sample Filtration Sample Filtration TestAmerica SOP TAL DEN	M 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
M 5540C Methylene Blue Active Substances (MBAS) SM TAL IRV SM TAL IRV SM TAL IRV 40CFR136A TAL SAC 10.2 Preparation, Total Recoverable Metals EPA TAL IRV 15.1 Preparation, Mercury EPA TAL IRV 16.1 Purge and Trap SW846 TAL IRV 16.1 Riquid-Liquid Extraction (Separatory Funnel) 16.1 Liquid-Liquid Extraction (Separatory Funnel) 17.1 Riquid-Liquid Extraction 18.1 Riquid-Liquid Extraction 18.2 Liquid-Liquid Extraction 18.3 Liquid-Liquid Extraction 18.4 None 18.4 IRV 18.5 Liquid-Liquid Extraction 18.5 Liquid-Liquid E	M 4500 NH3 G	Ammonia	SM	TAL IRV
M5210B BOD, 5 Day SM TAL IRV S13B Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC D0.2 Preparation, Total Recoverable Metals EPA TAL IRV D15.1 Preparation, Mercury EPA TAL IRV D15.1 Preparation, Mercury SW846 TAL IRV D15.1 Purge and Trap SW846 TAL IRV D15.1 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV D15.1 Liquid-Liquid Extraction 40CFR136A TAL IRV D15.1 Distillation, Cyanide None TAL IRV D15.1 Preparation, Mercury Funnel TAL IRV D15.1 Preparation TAL IRV D	M 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans 40CFR136A TAL SAC DO.2 Preparation, Total Recoverable Metals EPA TAL IRV 15.1 Preparation, Mercury EPA TAL IRV 1030B Purge and Trap SW846 TAL IRV 108 Liquid-Liquid Extraction (Separatory Funnel) EFA TAL IRV 109 DESTRUCTION OF TAL IRV 109	M 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL IRV
Preparation, Total Recoverable Metals EPA TAL IRV Preparation, Mercury EPA TAL IRV Substitution EPA TAL IRV	M5210B	BOD, 5 Day	SM	TAL IRV
45.1 Preparation, Mercury EPA TAL IRV 030B Purge and Trap SW846 TAL IRV 08 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV 25 Liquid-Liquid Extraction 40CFR136A TAL IRV istill/CN Distillation, Cyanide None TAL IRV Itration Sample Filtration TestAmerica SOP TAL DEN	613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	40CFR136A	TAL SAC
Purge and Trap SW846 TAL IRV D8 Liquid-Liquid Extraction (Separatory Funnel) 40CFR136A TAL IRV D5 Liquid-Liquid Extraction 40CFR136A TAL IRV Distill/CN Distillation, Cyanide None TAL IRV Ultration Sample Filtration TestAmerica SOP TAL DEN	00.2	Preparation, Total Recoverable Metals	EPA	TAL IRV
Liquid-Liquid Extraction (Separatory Funnel) Liquid-Liquid Extraction (Separatory Funnel) Liquid-Liquid Extraction Liquid-Liquid Extraction 40CFR136A TAL IRV 40CFR136A TAL IRV None TAL IRV Itration Sample Filtration TestAmerica SOP TAL DEN	45.1	Preparation, Mercury	EPA	TAL IRV
25 Liquid-Liquid Extraction 40CFR136A TAL IRV istill/CN Distillation, Cyanide None TAL IRV Itration Sample Filtration TestAmerica SOP TAL DEN	030B	Purge and Trap	SW846	TAL IRV
istill/CN Distillation, Cyanide None TAL IRV Itration Sample Filtration TestAmerica SOP TAL DEN	08	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL IRV
Itration Sample Filtration TestAmerica SOP TAL DEN	25	Liquid-Liquid Extraction	40CFR136A	TAL IRV
	istill/CN	Distillation, Cyanide	None	TAL IRV
LTRATION Sample Filtration None TAL IRV	iltration	Sample Filtration	TestAmerica SOP	TAL DEN
	ILTRATION	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

Project/Site: Annual Outfall 002 Comp

Client Sample ID: Outfall002_20180323_Comp_F Lab Sample ID: 440-206832-1

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

Matrix: Water

Lab Sample ID: 440-206832-2

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 03/23/18 10:00

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 IR\
Total/NA Total/NA	Prep Analysis	625 625		1	1045 mL	2.0 mL	466272 466864	03/27/18 09:48 03/29/18 16:50		TAL IR\
Total/NA Total/NA	Prep Analysis	608 608 PCB LL		1	1030 mL	2 mL	466200 466278	03/27/18 06:02 03/27/18 15:43		TAL IR\
Total/NA Total/NA	Prep Analysis	608 608 Pesticides		1	1030 mL	2 mL	466200 466528	03/27/18 06:02 03/28/18 12:10		TAL IR\
Total/NA	Analysis	218.6		1			465493	03/23/18 20:42	RW	TAL IR
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	465567	03/23/18 21:29	NTN	TAL IR
Total/NA	Analysis	300.0		1	5 mL	1.0 mL	465568	03/23/18 21:29	NTN	TAL IR
Total/NA	Analysis	300.0		5			465568	03/23/18 21:43	NTN	TAL IR
Total/NA	Analysis	314.0		1			466225	03/27/18 12:53	PS	TAL IR
Total/NA	Analysis	NO3NO2 Calc		1			467223	03/30/18 15:03	TLN	TAL IR
Total/NA Total/NA	Prep Analysis	1613B 1613B		1	1048.5 mL	20.0 uL	215317 215705	03/29/18 07:29 03/30/18 20:20		TAL SA
Total Recoverable Total Recoverable	Prep Analysis	200.2 200.7 Rev 4.4		1	25 mL	25 mL	466869 467000	03/29/18 11:29 03/29/18 17:58		TAL IR
Total Recoverable Total Recoverable	Prep Analysis	200.2 200.8		1	25 mL	25 mL	466364 466637	03/27/18 14:25 03/28/18 12:56		TAL IR
Total/NA Total/NA	Prep Analysis	245.1 245.1		1	20 mL	20 mL	466172 466984	03/26/18 22:24 03/27/18 19:45		TAL IR
Total Recoverable	Analysis	SM 2340B		1			468757	04/06/18 16:45	LH	TAL IR
Total/NA	Analysis	180.1		10			465750	03/23/18 21:10	CMM	TAL IR
Total/NA	Prep	Filtration			30 mL	30 mL	409571	03/29/18 18:58	MPS	TAL DI

Lab Chronicle

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Lab Sample ID: 440-206832-2

Matrix: Water

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

Client Sample ID: Outfall002_20180323_Comp

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

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

Lab Sample ID: MB 440-465923/3

Matrix: Water

Analyte

1,4-Dioxane

Analysis Batch: 465923

MB MB

Result Qualifier RL **MDL** Unit Analyzed Dil Fac **Prepared** 2.0 0.50 ug/L 03/25/18 13:52 ND

MB MB

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

Lab Sample ID: LCS 440-465923/4

Matrix: Water

Analysis Batch: 465923

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

LCS LCS

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

Lab Sample ID: 720-85328-F-2 MS

Matrix: Water

Analysis Batch: 465923

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

MS MS

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

Lab Sample ID: 720-85328-F-2 MSD

Matrix: Water

Analysis Batch: 465923

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

MSD MSD

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

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

Client Sample ID: Method Blank Lab Sample ID: MB 440-466272/1-A **Matrix: Water** Prep Type: Total/NA Analysis Batch: 466864 **Prep Batch: 466272**

	MB	MB							
Analyte	Result	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

TestAmerica Irvine

4/19/2018 (Rev. 2)

Page 17 of 70

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: MB 440-466272/1-A **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA**

Matrix: Water								Tiep Type. I	
Analysis Batch: 466864	МВ	МВ						Prep Batch:	466272
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		2.02		ug/L		•	03/29/18 12:03	1
Benzo[k]fluoranthene	ND		0.505	0.253	-		03/27/18 09:48	03/29/18 12:03	1
Benzo[a]pyrene	ND		2.02	0.505	-		03/27/18 09:48	03/29/18 12:03	1
Bis(2-chloroethoxy)methane	ND		0.505	0.202	_			03/29/18 12:03	1
Bis(2-chloroethyl)ether	ND		0.505	0.202	-			03/29/18 12:03	1
Bis(2-ethylhexyl) phthalate	ND		5.05		ug/L			03/29/18 12:03	1
4-Bromophenyl phenyl ether	ND		1.01	0.505	-			03/29/18 12:03	1
Butyl benzyl phthalate	ND		5.05		ug/L			03/29/18 12:03	· · · · · · · · · · · · · · · · · · ·
4-Chloro-3-methylphenol	ND		2.02	0.202	_			03/29/18 12:03	1
2-Chloronaphthalene	ND ND		0.505	0.202	•			03/29/18 12:03	1
					ū				
2-Chlorophenol	ND		1.01	0.505	-			03/29/18 12:03	1
4-Chlorophenyl phenyl ether	ND		0.505	0.202	•			03/29/18 12:03	1
Chrysene	ND		0.505	0.202	-			03/29/18 12:03	1
Dibenz(a,h)anthracene	ND		0.505	0.253	-			03/29/18 12:03	1
Di-n-butyl phthalate	ND		2.02		ug/L			03/29/18 12:03	1
1,2-Dichlorobenzene	ND		0.505	0.202	•			03/29/18 12:03	1
1,3-Dichlorobenzene	ND		0.505	0.202	-			03/29/18 12:03	1
1,4-Dichlorobenzene	ND		0.505	0.202	-		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	ND		1.01	0.505			03/27/18 09:48	03/29/18 12:03	1
Azobenzene)					Ü				
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		ug/L		03/27/18 09:48	03/29/18 12:03	1
Indeno[1,2,3-cd]pyrene	ND		2.02		ug/L			03/29/18 12:03	1
Isophorone	ND		1.01	0.505				03/29/18 12:03	1
Naphthalene	ND		1.01	0.505				03/29/18 12:03	1
Nitrobenzene	ND		1.01	0.505	_			03/29/18 12:03	1
2-Nitrophenol	ND		2.02		ug/L			03/29/18 12:03	1
4-Nitrophenol	ND		5.05		ug/L			03/29/18 12:03	
N-Nitrosodimethylamine	ND ND		2.02		ug/L ug/L			03/29/18 12:03	1
N-Nitrosodiphenylamine	ND ND		1.01		-			03/29/18 12:03	1
·				0.505	.			03/29/18 12:03	
N-Nitrosodi-n-propylamine	ND		2.02		ug/L				1
Pentachlorophenol	ND		2.02		ug/L			03/29/18 12:03	1
Phenanthrene	ND		0.505	0.202				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

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: MB 440-466272/1-A **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA Prep Batch: 466272 Analysis Batch: 466864**

		IVID	IVID							
	Analyte	Result	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
ı										

	MB	MB				
Surrogate	%Recovery	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

M

Lab Sample ID. LCS 440-4662/2/2-A				CII	ienii Sai	libie in	. Lab Control Sample
Matrix: Water							Prep Type: Total/NA
Analysis Batch: 466864							Prep Batch: 466272
•	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Acenaphthene	10.2	8.031	-	ua/L		79	47 - 145

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

Client Sample ID: Lab Control Sample

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

Lab Sample ID: LCS 440-466272/2-A

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

Matrix: Water Prep Type: Total/NA **Analysis Batch: 466864 Prep Batch: 466272** LCS LCS Spike %Rec. Added Result Qualifier Analyte Unit %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 79 50 - 150 ug/L Di-n-octyl phthalate 10.2 8.989 ug/L 89 10 - 146 10.3 7.646 ug/L 75 47 - 116 1,2-Diphenylhydrazine(as Azobenzene) Fluoranthene 10.2 8.634 ug/L 85 26 - 137 79 Fluorene 10.2 7.974 ug/L 59 - 121 Hexachlorobenzene 80 10.2 8.139 ug/L 10 - 150 Hexachlorobutadiene 10.2 6.205 ug/L 61 24 - 116 Hexachloroethane 61 40 - 113 10.2 6.210 ug/L 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 10.2 84 21 - 150 Isophorone 8.559 ug/L Naphthalene 10.2 7.377 ug/L 73 21 - 133 Nitrobenzene 10.2 7.602 75 ug/L 35 - 150 2-Nitrophenol 10.2 7.443 ug/L 73 29 - 150 4-Nitrophenol 20.3 71 10 - 132 14.35 ug/L N-Nitrosodimethylamine 10.2 8.272 ug/L 81 26 - 117 N-Nitrosodiphenylamine 10.2 7.673 ug/L 76 54 - 110 10.2 81 10 - 150 N-Nitrosodi-n-propylamine 8.247 ug/L Pentachlorophenol 20.3 14.13 ug/L 70 14 - 150 Phenanthrene 80 10.2 8.169 ug/L 54 - 120 Phenol 10.2 7.026 ug/L 69 10 - 112 10.2 8.160 80 52 - 115 Pyrene ug/L 1,2,4-Trichlorobenzene 10.2 7.170 ug/L 71 44 - 142 82 37 - 1442,4,6-Trichlorophenol 10.2 8.278 ug/L 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	%Recovery	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									Prep Ba	itch: 46	66272
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

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Page 20 of 70

Prep Type: Total/NA

Client Sample ID: Matrix Spike Duplicate

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

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

Lab Sample ID: 440-206741 Matrix: Water Analysis Batch: 466864							p		latrix Spi Prep Ty Prep B	pe: Tot	tal/N
Analysis Batch. 400004	Sample	Sample	Spike	MSD	MSD				%Rec.	atcii. 4	RPI
Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Lim
Benzo[b]fluoranthene	ND		9.62	8.092		ug/L		84	24 - 150	17	2
Benzo[k]fluoranthene	ND		9.62	7.614		ug/L		79	11 - 150	20	3
Benzo[a]pyrene	ND		9.62	4.242	ВА	ug/L		44	17 - 150	33	2
Bis(2-chloroethoxy)methane	ND		9.62	0.3898	J,DX LN BA	ug/L		4	33 - 150	64	2
Bis(2-chloroethyl)ether	ND		9.62	7.190	.=	ug/L		75	12 - 150	5	2
Bis(2-ethylhexyl) phthalate	ND		9.62	7.671		ug/L		80	10 - 150	17	2
4-Bromophenyl phenyl ether	ND		9.62	7.247		ug/L		75	53 - 127	11	2
Butyl benzyl phthalate	ND		9.62	4.422	J,DX BA	ug/L		46	10 - 150	59	2
4-Chloro-3-methylphenol	ND		9.62	7.766		ug/L		81	22 - 147	12	2
2-Chloronaphthalene	ND		9.62	7.116		ug/L		74	60 - 118	7	2
2-Chlorophenol	ND		9.62	6.505		ug/L		68	23 - 134	10	2
4-Chlorophenyl phenyl ether	ND		9.62	7.711		ug/L		80	25 - 150	7	2
Chrysene	ND		9.62	6.961		ug/L		72	17 - 150	14	2
Dibenz(a,h)anthracene	ND		9.62	6.106		ug/L		64	10 - 150	17	<u>.</u>
Di-n-butyl phthalate	ND		9.62	7.834		ug/L		81	10 - 118	12	2
1,2-Dichlorobenzene	ND		9.62	6.506		ug/L		68	32 - 129	3	2
1,3-Dichlorobenzene	ND		9.62	6.199		ug/L		64	10 - 150	4	
1,4-Dichlorobenzene	ND		9.62	6.276		ug/L		65	20 - 124	5	2
3,3'-Dichlorobenzidine	ND		9.62		LN	ug/L		0	10 - 150	NC	2
2,4-Dichlorophenol	ND		9.62	6.908		ug/L		72	39 - 135	12	<u>.</u> 2
Diethyl phthalate	ND		9.62	7.616		ug/L		79	10 - 114	11	3
2,4-Dimethylphenol	ND		9.62	6.869		ug/L		71	32 - 119	10	2
Dimethyl phthalate	ND		9.62	7.357		ug/L		77	10 - 112	9	-
4,6-Dinitro-2-methylphenol	ND		19.2	14.18		ug/L		74	10 - 112	10	2
2,4-Dinitrophenol	ND		19.2	13.45		ug/L		70	50 - 150	13	2
2,4-Dinitrotoluene	ND		9.62	7.447		ug/L		77	39 - 139	12	2
2,6-Dinitrotoluene	ND		9.62	7.602		ug/L ug/L		79	50 - 150	9	2
	ND ND		9.62	8.001		-		83	10 - 146	13	2
Di-n-octyl phthalate					LN BA	ug/L					
1,2-Diphenylhydrazine(as Azobenzene) Fluoranthene	ND ND		9.71 9.62	7.797	LIN BA	ug/L ug/L		12 81	60 ₋ 120 26 ₋ 137	32 12	2
	ND		9.62	7.485		-		78	59 - 121	8	2
Fluorene			<u></u>	7.465		ug/L		77	10 - 150		
Hexachlorobenzene	ND		9.62			ug/L				9	
Hexachlorobutadiene	ND		9.62	6.376		ug/L		66	24 - 116	3	2
Hexachloroethane	ND		9.62	5.922		ug/L		62	40 - 113	1	
Hexachlorocyclopentadiene	ND		9.62		J,DX	ug/L		39	25 - 120	4	3
ndeno[1,2,3-cd]pyrene	ND		9.62	5.768		ug/L		60	10 - 150	22	3
sophorone	ND		9.62	7.567		ug/L		79	21 - 150	9	
Naphthalene	ND		9.62	6.580		ug/L		68	21 - 133	8	2
Nitrobenzene	ND		9.62	6.635		ug/L		69	35 - 150	8	2
2-Nitrophenol	ND		9.62	6.629		ug/L		69	29 - 150	10	
4-Nitrophenol	ND		19.2	13.71		ug/L		71	10 - 132	13	3
N-Nitrosodimethylamine	ND		9.62	7.451		ug/L		77	12 - 123	0	3
N-Nitrosodiphenylamine	ND		9.62		LN BA	ug/L		28	60 - 120	32	
N-Nitrosodi-n-propylamine	ND		9.62	7.129		ug/L		74	10 - 150	7	2
Pentachlorophenol	ND		19.2	13.48		ug/L		70	14 - 150	13	2
Phenanthrene	ND		9.62	7.313		ug/L		76	54 - 120	10	2

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Client Sample ID: Matrix Spike Duplicate

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

Lab Sample ID: 440-206741-L-1-B MSD

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

Matrix: Water Prep Type: Total/NA Analysis Batch: 466864 **Prep Batch: 466272** MSD MSD Sample Sample Spike %Rec. **RPD** Result Qualifier Added Result Qualifier Limits RPD Analyte Unit D %Rec Limit Pyrene $\overline{\mathsf{ND}}$ 9.62 6.399 ug/L 67 52 - 115 25 20 1,2,4-Trichlorobenzene ND 9.62 6.552 ug/L 68 44 - 142 7 20 ND 2,4,6-Trichlorophenol 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 ND bis (2-chloroisopropyl) ether 9.62 6.165 ug/L 64 45 - 120 7 25

	MSD	MSD	
Surrogate	%Recovery	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	Sample S	Sample	Spike	MS	MS				Prep Batch: 46627 %Rec.
Analyte	Result (Qualifier	Added	Result	Qualifier	Unit	D	%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

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: 440-206741-M-1-M MS **Client Sample ID: Matrix Spike Matrix: Water** Prep Type: Total/NA **Prep Batch: 466272**

Analysis Batch: 466864

MS MS Sample Sample Spike %Rec. Result Qualifier Analyte Added Result Qualifier Unit %Rec Limits 2,4-Dinitrophenol ND 19.4 15.33 79 50 - 150 ug/L 2,4-Dinitrotoluene ND 9.71 8.376 ug/L 86 39 - 139 2,6-Dinitrotoluene ND 9.71 8.322 86 50 - 150 ug/L Di-n-octyl phthalate ND 9.71 9.142 ug/L 94 10 - 146 ND 9.81 0.8200 J,DX LN ug/L 8 60 - 120 1,2-Diphenylhydrazine(as Azobenzene) Fluoranthene ND 9.71 8.754 ug/L 90 26 - 137 ND 9.71 8.131 84 Fluorene ug/L 59 - 121 Hexachlorobenzene ND 83 10 - 150 9.71 8.042 ug/L Hexachlorobutadiene ND 9.71 6.583 ug/L 68 24 - 116 62 Hexachloroethane ND 9.71 6.006 ug/L 40 - 113 ND 37 Hexachlorocyclopentadiene 9.71 3.630 J,DX ug/L 25 - 120 Indeno[1,2,3-cd]pyrene ND 9.71 7.167 ug/L 74 10 - 150 Isophorone NΠ 85 21 - 150 9.71 8.242 ug/L Naphthalene ND 9.71 7.147 ug/L 74 21 - 133 Nitrobenzene ND 9.71 7.179 ug/L 74 35 - 1502-Nitrophenol ND 9.71 7.337 ug/L 76 29 - 150 4-Nitrophenol ND 19.4 80 10 - 132 15.54 ug/L 77 N-Nitrosodimethylamine ND 9.71 7.460 ug/L 12 - 123 3.731 LN N-Nitrosodiphenylamine ND 9.71 ug/L 38 60 - 1209.71 79 ND 10 - 150 N-Nitrosodi-n-propylamine 7.681 ug/L Pentachlorophenol 79 ND 19.4 15.29 ug/L 14 - 150 Phenanthrene 83 ND 9.71 8.076 ug/L 54 - 120 Phenol ND 9.71 6.438 ug/L 66 10 - 112 ND 9.71 7.844 81 52 - 115 Pyrene ug/L 1,2,4-Trichlorobenzene ND 9.71 7.041 ug/L 73 44 - 142 2,4,6-Trichlorophenol ND 85 37 - 144 9.71 8.235 ug/L 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

	MS	MS	
Surrogate	%Recovery	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								Prep Batch:	466200
_	MB	MB						•	
Analyte	Result	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

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Page 23 of 70

Prep Type: Total/NA

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: Matrix Spike

100

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: MB 440-466200/1-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA **Analysis Batch: 466278 Prep Batch: 466200**

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

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

Lab Sample ID: LCS 440-466200/5-A **Matrix: Water**

Analysis Batch: 466278

Prep Batch: 466200 Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Aroclor 1016 4.00 3.94 ug/L 99 10 - 127 Aroclor 1260 4.00 4.05 ug/L 101 50 - 115

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

Lab Sample ID: 440-206741-K-1-B MSD

Matrix: Water

Analysis Batch: 466278

Prep Batch: 466200 MSD MSD Sample Sample Spike %Rec. **RPD** Result Qualifier Added Result Qualifier Limits RPD Limit Analyte Unit D %Rec Aroclor 1016 ND 3.86 3.49 ug/L 90 45 - 120 30 Aroclor 1260 ND 3.86 3.76 ug/L 97 55 - 125 2 25

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

Lab Sample ID: 440-206741-L-1-A MS

Matrix: Water

Prep Type: Total/NA Prep Batch: 466200 **Analysis Batch: 466278** Sample Sample Spike MS MS %Rec. **Analyte** Result Qualifier Added Result Qualifier Unit %Rec Limits Aroclor 1016 ND 3.81 3.74 ug/L 98 45 - 120 Aroclor 1260 55 - 125

3.82

ug/L

3 81

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

ND

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

Method: 608 Pesticides - Organochlorine Pesticides Low level

Lab Sample ID: MB 440-466200/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA Analysis Batch: 466528 **Prep Batch: 466200**

MB	MB							
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.0050	0.0015	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0025	ug/L		03/27/18 06:02	03/28/18 09:42	•
ND		0.010	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	•
ND		0.10	0.080	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0035	ug/L		03/27/18 06:02	03/28/18 09:42	•
ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	•
ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.010	0.0020	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.010	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0025	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.50	0.25	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.0050	0.0030	ug/L		03/27/18 06:02	03/28/18 09:42	
ND		0.010	0.0040	ug/L		03/27/18 06:02	03/28/18 09:42	•
	Result ND	Result Qualifier ND ND ND ND ND ND ND ND ND N	Result Qualifier RL ND 0.0050 ND 0.0050 ND 0.010 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.010 ND 0.010 ND 0.010 ND 0.010 ND 0.010 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050 ND 0.0050	Result Qualifier RL MDL ND 0.0050 0.0015 ND 0.0050 0.0025 ND 0.010 0.0040 ND 0.10 0.080 ND 0.0050 0.0035 ND 0.0050 0.0020 ND 0.0050 0.0020 ND 0.0050 0.0020 ND 0.010 0.0030 ND 0.010 0.0020 ND 0.010 0.0030 ND 0.010 0.0030 ND 0.010 0.0030 ND 0.0050 0.0025 ND 0.0050 0.0025 ND 0.0050 0.0025 ND 0.0050 0.0025 ND 0.0050 0.0040 ND 0.0050 0.0040 ND 0.0050 0.0040 ND 0.0050 0.0040	Result Qualifier RL MDL unit ND 0.0050 0.0015 ug/L ND 0.0050 0.0025 ug/L ND 0.010 0.0040 ug/L ND 0.10 0.080 ug/L ND 0.0050 0.0035 ug/L ND 0.0050 0.0020 ug/L ND 0.0050 0.0020 ug/L ND 0.0050 0.0020 ug/L ND 0.010 0.0030 ug/L ND 0.010 0.0020 ug/L ND 0.010 0.0020 ug/L ND 0.010 0.0030 ug/L ND 0.010 0.0030 ug/L ND 0.0050 0.0025 ug/L ND 0.0050 0.0025 ug/L ND 0.0050 0.0040 ug/L ND 0.0050 0.0040 ug/L ND 0.0050 0.0040 ug/L	Result Qualifier RL MDL Unit D ND 0.0050 0.0015 ug/L ug/L ND 0.0050 0.0025 ug/L ND 0.010 0.0040 ug/L ND 0.010 0.0080 ug/L ND 0.0050 0.0035 ug/L ND 0.0050 0.0020 ug/L ND 0.0050 0.0020 ug/L ND 0.0050 0.0020 ug/L ND 0.0050 0.0020 ug/L ND 0.0010 0.0020 ug/L ND 0.010 0.0030 ug/L ND 0.010 0.0030 ug/L ND 0.0050 0.0025 ug/L ND 0.050 0.0025 ug/L ND 0.050 0.0040 ug/L ND 0.0050 0.0040 ug/L ND 0.0050 0.0040 ug/L ND	Result Qualifier RL MDL unit D Prepared ND 0.0050 0.0015 ug/L 03/27/18 06:02 ND 0.0050 0.0025 ug/L 03/27/18 06:02 ND 0.010 0.0040 ug/L 03/27/18 06:02 ND 0.10 0.080 ug/L 03/27/18 06:02 ND 0.0050 0.0035 ug/L 03/27/18 06:02 ND 0.0050 0.0020 ug/L 03/27/18 06:02 ND 0.0050 0.0030 ug/L 03/27/18 06:02 ND 0.0050 0.0020 ug/L 03/27/18 06:02 ND 0.0050 0.0020 ug/L 03/27/18 06:02 ND 0.0050 0.0020 ug/L 03/27/18 06:02 ND 0.010 0.0020 ug/L 03/27/18 06:02 ND 0.010 0.0030 ug/L 03/27/18 06:02 ND 0.010 0.0030 ug/L 03/27/18 06:02 ND 0.0050	Result Qualifier RL MDL Unit D Prepared Analyzed ND 0.0050 0.0015 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.0050 0.0025 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.010 0.0040 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.10 0.080 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.0050 0.0035 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.0050 0.0020 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.0050 0.0030 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.0050 0.0020 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.010 0.0030 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.010 0.0020 ug/L 03/27/18 06:02 03/28/18 09:42 ND 0.010 0.0030 ug/L 03/27/

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

Lab Sample ID: LCS 440-466200/2-A

Matrix: Water

4,4'-DDT

Analysis Batch: 466528	Spike	LCS	LCS				Prep Batch: 466200 %Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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

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

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25 - 150

0.141

ug/L

0.200

Client Sample ID: Matrix Spike Duplicate

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: 440-206741-K-1-A MS **Client Sample ID: Matrix Spike Matrix: Water Prep Type: Total/NA Analysis Batch: 466528** Prep Batch: 466200 Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Aldrin 35 - 120 ND 0.193 0.147 ug/L 76 alpha-BHC ND 0.138 0.193 ug/L 71 40 - 120 ND beta-BHC 0.193 0.132 68 ug/L 50 - 120delta-BHC ND 81 0.193 0.156 ug/L 50 - 120Dieldrin 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 72 0.193 0.140 ug/L 50 - 125 Endosulfan sulfate ND 0.193 0.151 78 55 - 125 ug/L Endrin 76 ND 0.193 0.147 ug/L 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 73 ND 0.193 0.140 ug/L 50 - 125 4,4'-DDE ND 0.193 0.142 ug/L 73 45 - 125 4,4'-DDT 64 50 - 125 ND 0.193 0.124 ug/L MS MS Surrogate %Recovery Qualifier Limits

10 - 150

Lab Sample ID: 440-206741-M-1-C MSD

62

%Recovery Qualifier

58

Surrogate

Tetrachloro-m-xylene

Tetrachloro-m-xylene

Matrix: Water							•		Prep Ty	pe: Tot	al/NA
Analysis Batch: 466528									Prep Ba	atch: 40	
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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
	MSD	MSD									

Limits

10 - 150

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-465493/6 Client Sample ID: Method Blank **Prep Type: Total/NA Matrix: Water**

Analysis Batch: 465493

MB MB Analyte Result Qualifier RL **MDL** Unit Analyzed Dil Fac D Prepared 1.0 Chromium, hexavalent $\overline{\mathsf{ND}}$ 0.25 ug/L 03/23/18 07:28

Lab Sample ID: LCS 440-465493/5 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465493

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

Lab Sample ID: MRL 440-465493/4 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465493

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

Lab Sample ID: 440-206864-D-6 MS **Client Sample ID: Matrix Spike Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465493

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

Lab Sample ID: 440-206864-D-6 MSD Client Sample ID: Matrix Spike Duplicate **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465493

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

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-465567/6 **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465567

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

Lab Sample ID: LCS 440-465567/5 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465567

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

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

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

Lab Sample ID: 440-206819-G-4 MSD

Matrix: Water

Analysis Batch: 465567

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Type: Total/NA

•	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

Client Sample ID: Lab Control Sample

90 - 110

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

MB MB

	Analyte	Result	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
l	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								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	5.00	4.61		mg/L		92	90 - 110	
Fluoride	5.00	4.68		mg/L		94	90 - 110	

5.00

Sulfate

Analysis Batch: 465568

= =	
Lab Sample ID: 440-206819-G-4 MS	Client Sample ID: Matrix Spike
Matrix: Water	Prep Type: Total/NA

4.89

mq/L

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%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

Allalysis Datell. 400000											
_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

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Prep Type: Total/NA

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample

Client Sample ID: Outfall002_20180323_Comp

Client Sample ID: Outfall002_20180323_Comp

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-466225/6

Matrix: Water

Analysis Batch: 466225

MB MB

Analyte Result Qualifier RL **MDL** Unit Analyzed Dil Fac **Prepared** 4.0 Perchlorate $\overline{\mathsf{ND}}$ 0.95 ug/L 03/27/18 09:05

Lab Sample ID: LCS 440-466225/5

Matrix: Water

Analysis Batch: 466225

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

Lab Sample ID: MRL 440-466225/4

Matrix: Water

Analysis Batch: 466225

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

Lab Sample ID: 440-206832-2 MS

Matrix: Water

Analysis Batch: 466225

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

Lab Sample ID: 440-206832-2 MSD

Matrix: Water

Analysis Batch: 466225

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

Alialysis Balcii. 215705								Prep Batch.	215317
	MB	MB							
Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.00000274	J,DX	0.000010	0.0000005	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	0.0000005	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	0.0000004	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	0.0000004	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	6 0.0000004	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	0.0000004	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	0.0000003	ug/L		03/29/18 07:29	03/30/18 15:44	1

TestAmerica Irvine

Page 29 of 70

4/19/2018 (Rev. 2)

QC Sample Results

Client: Haley & Aldrich, Inc.

13C-1,2,3,6,7,8-HxCDF

13C-1,2,3,7,8,9-HxCDF

13C-2,3,4,6,7,8-HxCDF

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

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

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

13C-OCDD

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

Lab Sample ID: MB 320-215317/1-A **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA Analysis Batch: 215705 Prep Batch: 215317** MB MB

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8-HxCDF	0.00000255	J,DX	0.000050	0.0000007	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	0.0000007	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	0.0000004	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	0.0000005	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	0.0000004	ug/L		03/29/18 07:29	03/30/18 15:44	1
1,2,3,4,6,7,8-HpCDF	0.0000290	J,DX	0.000050	0.0000003	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	0.0000003 9	ug/L		03/29/18 07:29	03/30/18 15:44	1
OCDD	0.0000211	J,DX	0.00010	0.0000004	ug/L		03/29/18 07:29	03/30/18 15:44	1
OCDF	0.00000629	J,DX	0.00010	0.0000005	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total TCDD	0.00000274	J,DX	0.000010	0.0000005	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total TCDF	0.00000168	J,DX	0.000010	0.0000003	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total PeCDD	0.00000397	J,DX	0.000050	0.0000005	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total PeCDF	0.00000564	J,DX q	0.000050	0.0000004	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HxCDD	0.00000943	J,DX q	0.000050	0.0000004	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HxCDF	0.0000963	J,DX	0.000050	0.0000006	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HpCDD	0.00000711	J,DX	0.000050	0.0000004	ug/L		03/29/18 07:29	03/30/18 15:44	1
Total HpCDF	0.00000559	J,DX q	0.000050	0.0000003	ug/L		03/29/18 07:29	03/30/18 15:44	1
	MB	MB		3					
Isotope Dilution	%Recovery	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

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03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

03/29/18 07:29 03/30/18 15:44

Page 30 of 70

26 - 123

29 - 147

28 - 136

23 - 140

28 - 143

26 - 138

17 - 157

76

75

73

72

74

72

65

4/19/2018 (Rev. 2)

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: MB 320-215317/1-A

Lab Sample ID: LCS 320-215317/2-A

Matrix: Water

Matrix: Water

Surrogate

37CI4-2,3,7,8-TCDD

Analysis Batch: 215705

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

Prep Batch: 215317

MB MB

%Recovery Qualifier Surrogate Limits Prepared Analyzed Dil Fac 37CI4-2,3,7,8-TCDD 35 - 197 03/29/18 07:29 03/30/18 15:44 104

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 215317

Analysis Batch: 215705	Spike	LCS	LCS				Prep Batch: 215317 %Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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

%Recovery Qualifier

104

Isotope Dilution	%Recovery C	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
	LCS L	.cs	

TestAmerica Irvine

Limits

31 - 191

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: LCSD 320-215317/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 215705** Prep Batch: 215317 Spike LCSD LCSD %Rec. **RPD** Added Result Qualifier D %Rec Limits RPD Limit **Analyte** Unit 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 50 1 108 50 1,2,3,7,8-PeCDD 0.00100 0.00108 MB ug/L 70 - 142 1,2,3,7,8-PeCDF 0.00100 0.000964 MB ug/L 96 80 - 1340 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 50 91 76 - 134 2 0.000905 MB ug/L 50 1,2,3,6,7,8-HxCDD 0.00100 0.000831 MB 64 - 162 50 1,2,3,7,8,9-HxCDD 0.00100 ug/L 83 72 - 134 0.00100 0.000969 MB ug/L 97 50 1,2,3,4,7,8-HxCDF 1 1,2,3,6,7,8-HxCDF 0.00100 0.000982 MB ug/L 98 84 - 130 50 1,2,3,7,8,9-HxCDF 0.00100 0.000954 MB ug/L 95 78 - 130 50 2,3,4,6,7,8-HxCDF 0.00100 0.000976 MB ug/L 98 70 - 156 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 50 OCDD 98 78 - 144 5 50 0.00200 0.00195 MB ug/L **OCDF** 0.00200 0.00168 MB 63 - 170 ug/L

_005	-005	
%Recovery	Qualifier	Limits
81		20 - 175
79		22 - 152
78		21 - 227
79		21 - 192
81		13 - 328
95		21 - 193
98		25 - 163
92		19 - 202
95		21 - 159
65		17 - 205
90		22 - 176
78		26 - 166
61		21 - 158
76		20 - 186
78		13 - 199
LCSD	LCSD	
%Recovery	Qualifier	Limits
	81 79 78 79 81 95 98 92 95 65 90 78 61 76 78	79 78 79 81 95 98 92 95 65 90 78 61

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

104

37CI4-2,3,7,8-TCDD

Lab Sample ID: MB 320-215317/1-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

31 - 191

Analysis Batch: 215889 Prep Batch: 215317 MB MB

Result Qualifier RL **EDL Unit** D Analyte **Prepared** Analyzed Dil Fac 2,3,7,8-TCDF - RA 0.00000285 J,DX 0.000010 0.0000004 ug/L 03/29/18 07:29 04/02/18 12:53 8

Project/Site: Annual Outfall 002 Comp

MB MB

 Isotope Dilution
 %Recovery
 Qualifier
 Limits

 13C-2,3,7,8-TCDF - RA
 74
 24 - 169

 Prepared
 Analyzed
 Dil Fac

 03/29/18 07:29
 04/02/18 12:53
 1

MB MB

 Surrogate
 %Recovery
 Qualifier
 Limits

 37CI4-2,3,7,8-TCDD - RA
 92
 35 - 197

 Prepared
 Analyzed
 Dil Factoria

 03/29/18 07:29
 04/02/18 12:53
 1

TestAmerica Job ID: 440-206832-1

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

МВ	МВ						•	
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		10	8.9	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		0.050	0.025	mg/L		03/29/18 11:29	03/29/18 17:14	1
ND		0.010	0.0050	mg/L		03/29/18 11:29	03/29/18 17:14	1
ND		2.0	1.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		5.0	2.5	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		0.10	0.050	mg/L		03/29/18 11:29	03/29/18 17:14	1
ND		20	15	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		10	5.0	ug/L		03/29/18 11:29	03/29/18 17:14	1
ND		20	12	ug/L		03/29/18 11:29	03/29/18 17:14	1
	Result ND	ND N	Result Qualifier RL ND 10 ND 0.050 ND 0.010 ND 2.0 ND 10 ND 5.0 ND 0.10 ND 20 ND 10 ND 10 ND 10	Result Qualifier RL MDL ND 10 8.9 ND 0.050 0.025 ND 0.010 0.0050 ND 2.0 1.0 ND 10 5.0 ND 5.0 2.5 ND 0.10 0.050 ND 20 15 ND 10 5.0 ND 10 5.0 ND 10 5.0	Result Qualifier RL MDL Unit ND 10 8.9 ug/L ND 0.050 0.025 mg/L ND 0.010 0.0050 mg/L ND 2.0 1.0 ug/L ND 10 5.0 ug/L ND 5.0 2.5 ug/L ND 0.10 0.050 mg/L ND 10 5.0 ug/L ND 10 5.0 ug/L ND 10 5.0 ug/L	Result Qualifier RL MDL Unit D ND 10 8.9 ug/L ug/L ND 0.050 0.025 mg/L ND 0.010 0.0050 mg/L ND 10 5.0 ug/L ND 5.0 2.5 ug/L ND 0.10 0.050 mg/L ND 20 15 ug/L ND 10 5.0 ug/L ND 10 5.0 ug/L	Result Qualifier RL MDL Unit D Prepared ND 10 8.9 ug/L 03/29/18 11:29 ND 0.050 0.025 mg/L 03/29/18 11:29 ND 0.010 0.0050 mg/L 03/29/18 11:29 ND 2.0 1.0 ug/L 03/29/18 11:29 ND 10 5.0 ug/L 03/29/18 11:29 ND 5.0 2.5 ug/L 03/29/18 11:29 ND 0.10 0.050 mg/L 03/29/18 11:29 ND 20 15 ug/L 03/29/18 11:29 ND 10 5.0 ug/L 03/29/18 11:29 ND 10 5.0 ug/L 03/29/18 11:29	Result Qualifier RL MDL Unit D Prepared Analyzed ND 10 8.9 ug/L 03/29/18 11:29 03/29/18 17:14 ND 0.050 0.025 mg/L 03/29/18 11:29 03/29/18 17:14 ND 0.010 0.0050 mg/L 03/29/18 11:29 03/29/18 17:14 ND 2.0 1.0 ug/L 03/29/18 11:29 03/29/18 17:14 ND 10 5.0 ug/L 03/29/18 11:29 03/29/18 17:14 ND 5.0 2.5 ug/L 03/29/18 11:29 03/29/18 17:14 ND 0.10 0.050 mg/L 03/29/18 11:29 03/29/18 17:14 ND 0.10 0.050 mg/L 03/29/18 11:29 03/29/18 17:14 ND 20 15 ug/L 03/29/18 11:29 03/29/18 17:14 ND 10 5.0 ug/L 03/29/18 11:29 03/29/18 17:14 ND 10 5.0 ug/L 03/29/18 11:29 03/29/18 17:14

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

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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

s
30
30
30
30
30
30
1 1 1

Spike

Added

500

0.500

2.50

500

500

500

500

MS MS

510

1.39

5.17

567

507

523

605

Result Qualifier

Unit

ug/L

mg/L

mg/L

ug/L

ug/L

ug/L

ug/L

TestAmerica Job ID: 440-206832-1

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Sample Sample

5.1

0.80

2.6

52

5.0 J,DX

15

97

Result Qualifier

Lab Sample ID: 440-206673-E-1-C MS

Matrix: Water

Analyte

Iron

Nickel

Zinc

Chromium

Magnesium

Manganese

Vanadium

Analysis Batch: 467000

Client Sample ID: Matrix Spike Prep Type: Total Recoverable

Prep Batch: 466869 %Rec. D %Rec Limits 70 - 130 101 116 70 - 130 104 70 - 130 103 70 - 130 100 70 - 130

70 - 130

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

102

101

Prep Batch: 466869 iit 20

, , , , , , , , , , , , , , , , , , , ,	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

Fac
1
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1
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1
<u> </u>

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: LCS 440-465710/2-I **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Dissolved** Prep Batch: 467183 Analysis Batch: 467258

Allalysis Batch. 407250	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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 Client Sample ID: Outfall002_20180323_Comp_F

Matrix: Water

Prep Type: Dissolved

Analysis Batch: 467258	Sample	Sample	Spike	MS	MS				Prep Batch: 46718 %Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%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 Client Sample ID: Outfall002_20180323_Comp_F

Matrix: Water

Analysis Batch: 467258

Prep Type: Dissolved

Prep Batch: 467183 Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier **Analyte** Added Result Qualifier Unit D %Rec Limits RPD Limit Arsenic ND 70 - 130 500 512 ug/L 102 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 ND 503 20 Beryllium 500 ug/L 101 70 - 130 2 Calcium 34 2.50 35.7 BB 60 70 - 130 20 mg/L 0 ND Cobalt 500 498 ug/L 100 70 - 130 20 Chromium ND 500 499 ug/L 100 70 - 130 20 0.500 Iron 0.14 0.626 mg/L 98 70 - 130 20 Magnesium 9.2 2.50 11.4 mg/L 89 70 - 130 20 Manganese ND 500 507 ug/L 101 70 - 130 20

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

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

Lab Sample ID: 440-206832-1 MSD Client Sample ID: Outfall002_20180323_Comp_F **Matrix: Water Prep Type: Dissolved Analysis Batch: 467258 Prep Batch: 467183**

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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)

Thallium

Silver

Client Sample ID: Method Blank Lab Sample ID: MB 440-466364/1-A **Matrix: Water Prep Type: Total Recoverable** Analysis Batch: 466637 **Prep Batch: 466364**

	MB	МВ							
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 12:41	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 **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total Recoverable Analysis Batch: 466637 Prep Batch: 466364** Spike LCS LCS %Rec.

Analyte	Added	Result	Qualifier	Unit	D	%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 Matrix: Water Analysis Batch: 466637			2.11	•••		nt Samp			oe: Total R Prep Bat	0323_Comp ecoverable tch: 466364
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%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	

81.1

79.1

ug/L

ug/L

101

99

70 - 130

70 - 130

80.0

80.0

ND

ND

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Lab Sample ID: 440-206832-2 MSD Client Sample ID: Outfall002_20180323_Comp **Matrix: Water Prep Type: Total Recoverable**

Analysis Batch: 466637 Prep Batch: 466364

	Sample Sample	Spike	MSD N	MSD				%Rec.		RPD
Analyte	Result Qualifier	Added	Result (Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND 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 **Client Sample ID: Method Blank**

Matrix: Water Prep Type: Dissolved Analysis Batch: 467247 Prep Batch: 467182

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 03/30/18 13:15 03/30/18 16:28 Cadmium $\overline{\mathsf{ND}}$ 1.0 0.25 ug/L Copper ND 2.0 03/30/18 13:15 03/30/18 16:28 0.50 ug/L Lead ND 1.0 0.50 ug/L 03/30/18 13:15 03/30/18 16:28 Antimony ND 2.0 0.50 ug/L 03/30/18 13:15 03/30/18 16:28 Selenium ND 2.0 0.50 ug/L 03/30/18 13:15 03/30/18 16:28 Thallium ND 1.0 0.50 ug/L 03/30/18 13:15 03/30/18 16:28

Lab Sample ID: LCS 440-465710/2-H **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Dissolved** Analysis Batch: 467247 **Prep Batch: 467182**

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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 Client Sample ID: Outfall002 20180323 Comp F **Matrix: Water Prep Type: Dissolved**

Analysis Batch: 467247 **Prep Batch: 467182**

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%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	

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Client Sample ID: Outfall002_20180323_Comp_F Lab Sample ID: 440-206832-1 MSD **Prep Type: Dissolved**

Matrix: Water

Analysis Batch: 467247									Prep Ba	atch: 40	67182
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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		ua/l		91	70 - 130	3	20

Lab Sample ID: MB 440-466085/1-G **Client Sample ID: Method Blank**

ND

Matrix: Water

Mercury

Analysis Batch: 468455

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

Lab Sample ID: LCSD 440-466085/23-D			(Client Sa	ample	ID: Lal	o Control	Sample	Dup
Matrix: Water							Prep Type	e: Diss	olved
Analysis Batch: 468455							Prep Ba	atch: 46	8327
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Silver	80.0	74.2		ua/L		93	85 - 115		20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-466172/1- Matrix: Water	A						Client Sam	ple ID: Metho	
Analysis Batch: 466984								Prep Batch:	
•	MB	MB						•	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

0.20

0.10 ug/L

Lab Sample ID: LCS 440-466172/2-A Matrix: Water Analysis Batch: 466984				Clie	ent Sar	nple ID	: Lab Control Sample Prep Type: Total/NA Prep Batch: 466172
Analysis Batch. 400004	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Mercury	8.00	8.59		ug/L		107	85 - 115

Prep Type: Dissolved

03/26/18 22:23 03/27/18 18:58

Prep Batch: 468327

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 440-206802-A-1-B MS

Matrix: Water

Analyte

Mercury

Mercury

Analyte

Mercury

Analysis Batch: 466984

Sample Sample Result Qualifier ND

Spike MS MS Added

Result Qualifier 8.68

Unit ug/L

D %Rec 70 - 130 109

Client Sample ID: Matrix Spike Duplicate

%Rec. Limits

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 466172

Prep Type: Total/NA

Prep Batch: 466172

RPD

20

Lab Sample ID: 440-206802-A-1-C MSD

Matrix: Water

Analysis Batch: 466984

Analyte

Sample Sample Result Qualifier $\overline{\mathsf{ND}}$

Spike Added 8.00

8.00

MSD MSD Result Qualifier 8.50

Unit ug/L

%Rec 106

RPD Limits Limit 70 - 130

Prep Type: Dissolved

Prep Batch: 467200

Lab Sample ID: MB 440-465710/1-J

Matrix: Water

Analysis Batch: 467289

MB MB

Result Qualifier $\overline{\mathsf{ND}}$

RL 0.20

MDL Unit 0.10 ug/L

Prepared

Analyzed 03/30/18 13:52 03/30/18 23:35

Client Sample ID: Lab Control Sample

%Rec.

Client Sample ID: Method Blank

Dil Fac

Lab Sample ID: LCS 440-465710/2-J

Matrix: Water

Analysis Batch: 467289

Analyte Mercury

Spike Added 8.00

LCS LCS Result Qualifier 7.71

LCSD LCSD

7.54

Result Qualifier

MDL Unit

0.040 NTU

Unit ug/L

Unit

ug/L

%Rec 96

%Rec

Prepared

94

Prep Batch: 467200 %Rec. Limits

Prep Type: Dissolved

85 - 115

Lab Sample ID: LCSD 440-465710/17-B

Matrix: Water

Mercury

Analysis Batch: 467289

Analyte

Client Sample ID: Lab Control Sample Dup

D

D

Prep Type: Dissolved Prep Batch: 467200 %Rec. RPD

Prep Type: Total/NA

Limits RPD Limit 85 - 115 20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 440-465750/5

Matrix: Water

Analysis Batch: 465750

MB MB

Analyte Result Qualifier Turbidity ND

Lab Sample ID: 440-206764-A-4 DU

Matrix: Water

Analysis Batch: 465750

Sample Sample Analyte Result Qualifier Turbidity 9.6

DU DU

RL

0.10

Spike

Added

8.00

Result Qualifier 9.82

Unit NTU Prep Type: Total/NA

Analyzed

03/23/18 21:10

Client Sample ID: Duplicate

Client Sample ID: Method Blank

RPD Limit

Dil Fac

RPD

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

Lab Sample ID: MB 280-409571/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA Analysis Batch: 409566 **Prep Batch: 409571**

MB MB

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

Lab Sample ID: LCS 280-409571/2-A Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 409566 Prep Batch: 409571** Spike LCS LCS %Rec. Added Limits Result Qualifier Analyte Unit %Rec 82 - 122 Monomethyl Hydrazine 49.6 49.6 ug/L 100

Lab Sample ID: 440-206832-2 MS Client Sample ID: Outfall002_20180323_Comp **Matrix: Water** Prep Type: Total/NA Analysis Batch: 409566 **Prep Batch: 409571** Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Limits Analyte Unit D %Rec Monomethyl Hydrazine ND BU 49.6 50.6 ug/L 102 81 - 121

Client Sample ID: Outfall002_20180323_Comp Lab Sample ID: 440-206832-2 MSD **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 409566** Prep Batch: 409571 Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit Monomethyl Hydrazine ND BU 49.6 50.1 101 81 - 121 ug/L

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

Lab Sample ID: MB 440-466028/1 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 466028

MB MB Result Qualifier RL **MDL** Unit Dil Fac Analyte Prepared Analyzed 10 **Total Dissolved Solids** $\overline{\mathsf{ND}}$ 5.0 mg/L 03/26/18 12:09

Lab Sample ID: LCS 440-466028/2 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 466028

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

Lab Sample ID: 440-206741-N-1 DU **Client Sample ID: Duplicate Matrix: Water** Prep Type: Total/NA

Analysis Batch: 466028

Sample Sample DU DU **RPD** Analyte Result Qualifier Result Qualifier Unit D **RPD** Limit **Total Dissolved Solids** 75 76.0 mg/L

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 466573

Prep Type: Total/NA

Prep Batch: 466573

Prep Type: Dissolved

Prep Type: Dissolved

Client Sample ID: Duplicate

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike Duplicate

%Rec.

Client Sample ID: Matrix Spike

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

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

Analysis Batch: 466101

MB MB

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

Lab Sample ID: LCS 440-466101/2

Matrix: Water

Analysis Batch: 466101

Spike LCS LCS %Rec. Added Limits Analyte Result Qualifier Unit %Rec **Total Suspended Solids** 1000 960 mg/L 96 85 - 115

Lab Sample ID: 440-206741-T-1 DU

Matrix: Water

Analysis Batch: 466101

Sample Sample DU DU **RPD** Result Qualifier Result Qualifier RPD Limit Analyte Unit D **Total Suspended Solids** 9.0 9.60 mg/L

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

Lab Sample ID: MB 440-466573/1-A

Matrix: Water

Analysis Batch: 466913

MB MB

Result Qualifier RL **MDL** Unit Analyte Prepared Analyzed Cyanide, Total ND 5.0 2.5 ua/L 03/28/18 10:17 03/29/18 13:33

LCS LCS

Lab Sample ID: LCS 440-466573/2-A

Matrix: Water

Analysis Batch: 466913

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

Spike

Lab Sample ID: 440-207020-H-4-B MS

Matrix: Water

Analysis Batch: 466913

Prep Batch: 466573 Spike MS MS %Rec. Sample Sample Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits Cyanide, Total 100 ND 91.5 ug/L 92 70 - 115

Lab Sample ID: 440-207020-H-4-C MSD

Matrix: Water

Analysis Batch: 466913

Prep Batch: 466573 Sample Sample Spike MSD MSD %Rec. **RPD** Added Analyte Result Qualifier Result Qualifier Unit D %Rec Limits RPD Limit Cyanide, Total ND 100 91.6 ug/L 92 70 - 115 0

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Matrix Spike

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 440-467971/12

Matrix: Water

Analysis Batch: 467971

MB MB

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

Lab Sample ID: LCS 440-467971/13

Matrix: Water

Analysis Batch: 467971

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

Lab Sample ID: MRL 440-467971/11

Matrix: Water

Analysis Batch: 467971

Spike MRL MRL %Rec. Added Result Qualifier Limits Analyte Unit D %Rec 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

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

Lab Sample ID: 440-207627-H-1 MSD

Matrix: Water

Analysis Batch: 467971

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

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

Lab Sample ID: MB 440-466199/10

Matrix: Water

Analysis Batch: 466199

MB MB

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

Lab Sample ID: LCS 440-466199/9

Matrix: Water

Analysis Batch: 466199

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

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Lab Control Sample

Client Sample ID: Outfall002_20180323_Comp

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

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

Lab Sample ID: 440-206871-L-1 MS **Client Sample ID: Matrix Spike Matrix: Water Prep Type: Total/NA**

Analysis Batch: 466199

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

Lab Sample ID: 440-206871-L-1 MSD

Matrix: Water

Analysis Batch: 466199

7 maryolo Batom 400100	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 465838

MR MR

Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Methylene Blue Active Substances 0.10 0.050 mg/L 03/24/18 10:45 $\overline{\mathsf{ND}}$

Lab Sample ID: LCS 440-465838/4

Matrix: Water

Analysis Batch: 465838

		Spike	LCS	LCS				%Rec.	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methylene Blue Active		0.250	0.272		mg/L		109	90 - 110	
Substances									

Lab Sample ID: 440-206832-2 MS

Matrix: Water

Analysis Batch: 465838

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methylene Blue Active	0.087	J,DX	0.250	0.313		mg/L		91	50 - 125	
Substances										

Lab Sample ID: 440-206832-2 MSD Client Sample ID: Outfall002_20180323_Comp Prep Type: Total/NA

Matrix: Water

Analysis Batch: 465838											
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Methylene Blue Active	0.087	J,DX	0.250	0.333		mg/L		99	50 - 125	6	20

Substances

QC Sample Results

RL

2.0

Client: Haley & Aldrich, Inc.

Matrix: Water

Analyte

Analyte

Project/Site: Annual Outfall 002 Comp

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-465841/1

TestAmerica Job ID: 440-206832-1

RPD

	_	ole ID: Metho Prep Type: T	
D	Prepared	Analyzed	Dil Fac

Client Sample ID: Lab Control Sample

%Rec.

Limits

85 - 115

%Rec.

03/24/18 10:56

Prep Type: Total/NA

Lab Sample ID: LCS 440-465841/4 **Matrix: Water**

Analysis Batch: 465841

Analysis Batch: 465841

Biochemical Oxygen Demand

Biochemical Oxygen Demand Lab Sample ID: LCSD 440-465841/5

Matrix: Water

Analysis Batch: 465841

Analyte

Biochemical Oxygen Demand

USB USB

ND

Result Qualifier

Spike Added 199

Spike

Added

199

LCSD LCSD Result Qualifier 212

LCS LCS

210

Result Qualifier

Unit mg/L

Unit

mg/L

MDL Unit

0.50 mg/L

D %Rec

%Rec

106

Client Sample ID: Lab Control Sample Dup

Limits 107

Limit RPD

Prep Type: Total/NA

QC Association Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

TestAmerica Irvine

Page 45 of 70

5

6

6

4 4

11

13

14

15

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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	

TestAmerica Irvine

Page 46 of 70

QC Association Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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	FII TRATION	

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	

TestAmerica Irvine

Page 47 of 70

QC Association Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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

TestAmerica Irvine

Page 48 of 70

3

4

6

7

9

10

12

13

TestAmerica Job ID: 440-206832-1

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

Metals (Continued)

Prep	o Bat	ch: 4	1672	200
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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	

TestAmerica Irvine

4/19/2018 (Rev. 2)

TestAmerica Job ID: 440-206832-1

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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 440-206832-2	Client Sample ID Outfall002_20180323_Comp	Prep Type Total/NA	Matrix Water	Method 180.1	Prep Batch
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 Batc	h
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	

QC Association Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

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	

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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

Qualifier Description

Qualifier Description

TestAmerica Job ID: 440-206832-1

Qualifiers

GC/MS Semi VOA

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

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		
Concret Chemistry			

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

These commonly used abbreviations may or may not be present in this report.

Glossary Abbreviation

Listed under the "D" column to designate that the result is reported on a dry weight basis
Percent Recovery
Contains Free Liquid
Contains No Free Liquid
Duplicate Error Ratio (normalized absolute difference)
Dilution Factor
Detection Limit (DoD/DOE)
Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
Decision Level Concentration (Radiochemistry)
Estimated Detection Limit (Dioxin)
Limit of Detection (DoD/DOE)
Limit of Quantitation (DoD/DOE)
Minimum Detectable Activity (Radiochemistry)
Minimum Detectable Concentration (Radiochemistry)
Method Detection Limit
Minimum Level (Dioxin)
Not Calculated
Not Detected at the reporting limit (or MDL or EDL if shown)
Practical Quantitation Limit
Quality Control
Relative Error Ratio (Radiochemistry)
Reporting Limit or Requested Limit (Radiochemistry)
Relative Percent Difference, a measure of the relative difference between two points

TestAmerica Irvine

Definitions/Glossary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

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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 California	Program State Prog		EPA Region	CA ELAP 2706	Expiration Date 06-30-18
The following analytes are	included in this repo	rt, but accreditation/c	certification is not off	ered by the governing auth	ority:
Analysis Method	Prep Method	Matrix	Analyt	te	
625	625	Water	1.2-Di	phenylhydrazine(as Azobei	nzene)

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		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.

TestAmerica Irvine

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Accreditation/Certification Summary

TestAmerica Job ID: 440-206832-1 Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

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

Patel, Urvashi To: 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 < <u>Urvashi.Patel@testamericainc.com</u>>

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

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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

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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 AMTo:Patel, Urvashi; Marshall, LeandraSubject: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

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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-

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4.0

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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

440-206832 Chain of Custody

10 10 10 10 10 10 10 10	Common	Client Nan	Client Name/Address				-	Project	,							NALYSK	ANALYSIS REQUIRED	RED		
10 10 10 10 10 10 10 10	10 10 10 10 10 10 10 10	Haley & A 5333 Missi San Diego,	viorich ion Center Rd Suite 300 CA 92108			Annus	Scends Pa Scouffall Ouffall	SSPL NPUR imit 2018 [001, 002, 1 utfall 002 Comp	31, 018]				(1	'N-ZON+6		19093	-	() 962		
Common C	The company	Test Ameri 17461 Deri Irvine CA 9 Tei 949-33 Cell 949-33	rca Contact: Urvashi Patei Ian Ave Sulle #100 22514 2-2259 33-9055	Total/unerion's services under this is performed in accordance with the within Blanket Service Agreements in sectionaries and behaves hidey inc. As autodictries and diffisce a Tetal/unerical_tatorations inc.	CoC shall be T&Cs 2015-19- & Actrich, and	Proj	act Mana 289 8606	iger Kather	ine Mille 944 (cell		, Be, Co, Cr, Fe, I	enera) (E1613B) C) (E4061						J) yuzneM zleteň		Comments
Secretary Secr	Secretary Committee Commit	Sampler				Fig	ld Mana	ger Mark D	omineck		<i>la</i> , Ba, B as CaCO	t all cong		(E300)				versible i		
Outside 2, 2016 222 Comp. Outside 2, 2016	OMERGY 2016021, Carp	Sample Description		Sampking Date/Time	Sample	Container Type	Com	Preservative	/uz (cell	_	(7 00SE	CDD (8w		erchlorate				019 Keco		
Outside 22 Complete 2 - Novo 115 Novo 1	Ocidition 2, 2016/02/2, Comp. 2017. No. 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,				M.	500 mL Poly	-	HNO	8	£	<u>'</u>	l		3	+					
Outside 622 Outsi	Octobroco, 20100202, Comp. Ears 11 Comp. 10 11 Comp. 1				×	1 L Glass Amber	è	None	‡ \$	ž		×	L	L				-	‡	
Outside 923 Outsi	OMBROZ 2018023 Comp. Easy 2 1900 125 100 100 100 100 100 100 100 100 100 10		-		W.	1 L Puty	-	None	115	ž		×		$oxed{T}$		\vdash	\perp	_	-	
Outside 222 2016 2023 Comp. East 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Outside 22 1900 190				WM	500 mt. Poly	~	None	ŝ	ž			×			-		-		
Outside 22, 2016 1022, Comp. Esta	OMB 902 2016020_Comp				WM	\$00 mL Poty	2	None	125	£				×		-		-	-	8 hours Holding Time NO3 & NO2
Outside 5022 Ou	Outside 22 Note 2 1 14,504 15 15 15 15 15 15 15 1				WE	500 ml. Poly	-	None	ŧ.	£		_			J	-			**	8 hour holding time for turbidity
Wind 1 Clame Annier 2 Note 775 No No No No No No No N	WAY 1 (Close Andre 2 Nove 175 No No No No No No No No		Ounsecut_comp	3/27/2018	WM	\$00 mL Pαty	-	H ₂ SO ₄	180	£						×				
WM 1 Lebey 1 Non 178 No	WM 11 Early 1 None 12 None 13 No				MM	1 L Glassa Amber	2	None	82	ž				<u> </u>	L	×	<u> </u>			
With 1, Diese Anther 1, Ones Anthe	Wild 1 Company Wild W	Sufferi 902			WW	11, Glass Amber		None	175	£						-	×	-		
WM 1 C Gimes Armber 2 Norm 175 N	Vivil 1 Close Antiber 2 Nove 1/20 No				WW	1 L Poly	-	None	ž	£					×					
NWH 1 Clase Amber 2 None 110 No No No No No No No No	Wild Company				ANIA		F	FDAIL	-		六年							×	တိုင်	ample receiving DO NOT OPEN
NAM 1 Cabes Amber 2 Nore 10 No 10 No No No No No No No N	WM 1 Gass Anther 2 Nore 15 No Hod Ho									- 1	111					\dashv			کَ هٔ	Als bag to be opened in Mercury rep sang dean procedures
Octivition 2.216020_2 Comp_Edits WMM 500 mL Pay 2 / None 125 No No 125 No No 125 No No 1464 Head Head WMM 1 Li Clases Anther 2 None 175 No No 175 No Head Head Head Desertime Company Lagend: Received Synthasis And Annual, Caparitime Annual Annual Annual Annual Annual Annual Annual Company Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Company Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Company Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annual Annua	Outherior_2018003_Comp_Ede		·		M.	1 C Glass Amber		None	2	- 1		. [_			£	Djo
Company Comp	1 Class Antibut 2 None 175 No No 175 No No No No No No No N				***	500 mi. Poly		\perp	휸	£			I						Ĭ	pło
With 1 Clase Arther 2 None 175 No Hodd	WM 11 Glass Anthor 2 None 175 No		OutheRU02_20180323, Comp_Extra	3232018	N.	500 mt. Poly	_	None	125	£			\neg	Ŧ		-			ř	plo
DeterTime	Desertine Company Lagend: Received by Conform Desertine Company Compan				XX	1 L Glass Amber	4	None	ន	ž		1	1	+	1	Ĭ	-	_	Î,	old.
Desertine Desertine Company	Date/Time Company Lagend: Received By Montaline Company (Check) 2.3 1 4 1 4 1 7 1 4 10 Day Received By Date/Time Sample Integry, (Check) Integrated Company Received By Date/Time Sample Integry, (Check) Integrated Company Received By Date/Time Sample integry, (Check) Integrated Company Received By Date/Time Sample for Gnorths Sample Integry, (Check) Integrated Company All Level IV All Level IV					The second of the		PION	2	2		1	-	+	-	+	F	+	#	Pio
inqualed by Date/Time Company Company Received By Machine 2254 Not To Hour 10 Day Normal Inqualed By Detertine Company Company Received By Detertine Company Received By Detertine Company Received By Received By Detertine Company Received By Detertine Company Received By Received By Detertine Company Received By Recei	Administration of the Company Company (Check) Secreted By Company Comp																			
Detertine Company C	Semple By Detertine Company (Check) Secreted By Detertine (Check) Secreted By No Level IV Al Level IV						Legel	rd: R=Rout	ne, A=A	unual, O=	Ogarteriy	1								
Inquired By Detertines Sample Integrity. (Check) Company Received By Detertine Sample Integrity. (Check) Intact Control Intact Control Cont	Sample Integrity. (Check) Sample Integrity. (Check) Intact Date/Time Company Co	elmqueshed E	Date/Time	11/81	-f	146	H	1/2/2/2	Receiv			Oderfilm	5.	12		区	Turn-an 24 Hour 48 Hour	and time:	Check) 72 Hour 5 Dery	10 Day X
Received By CL DaterTime Company Received By A DaterTime Store samples for 6 months Check) Store samples for 6 months Check Che	Someonic By Cl. (Content) Second By Cl. (Cont	Palanchus		18	Modul	A			Receiv	d By	1	Derte/Tim					Sample	ntegnty. (I	Yeak)	On ice
		The female of the second of th	sy of // U Date/Time	රි 	mpany				Receiv))))	A	DateTim	25	\$1	×	015	Store si Data Re No Leve	mples for 6 quirements I IV	(Check)	- 1

Test America

Test America

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

Test America Contact: Urvashi P 17461 Dertan Ave Sulls #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-8055

Sample

Sample I.D

Sampling Date/Time

Sample

Container Type

Cont

978 234.5033, 818.599.0702 (cell)

Field Manager Mark Dominick

s as CaCO3 (E200 8) Ag. Cd. Cu, Pb. Sb, Se, Tl

BOD5 (20 degrees C) (E405 1 (SM5210B_BODCalc))

erchlorate (E300)

TCDD (and all congeners) (E1613B)

Turbidity, TDS (SM2540C/E180.1) TSS (160.2 (SM2540D))

rfactants (MBAS) (SM5540C/E425 1) Cl-, F-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N,

Prionty Pollutants-Pesticides+PC8s (E608)

Comments

Priority Pollutants-SVOCs (E625)

Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn,

roject Manager

Katherine Miller

* WW MM WM

500 mt Poly 500 mt. Poly

126 120

공

500 mL Poly

500 mL Poly

H2504

160 150

Š.

×

×

None None None None None

No.

None

8

1 L Glass Amber

20

110 80

×

1 L Poty

118

중 충 8 N

500 mL Paly

HNO3

Outfall 002

Outfatio02_20180323_Comp

Outrali002_20180323_Comp_Extra

MW W

1 C Glass Amber

500 mi. Poly

None

120

N.

N

30

Part, ただ

×

Sample receiving DO NOT OPEN BAG Bag to be opened in Meroury Prepresent clean procedures

MM

500 mL Poly

None

128

3

r

Hold Hotel Hotel

Hod Hod

M MW WW × WW ×

1 L Poly

None None

185

Z S.

175 250

1 L Glass Arthber 1 L Glass Amber

NA NA

1 L Glass Amber 1 L Glass Amber

None

176 250

공

8

9

81/52/5

0181

Data Requirements (Check) Store samples for 6 months intact

G

Sample Integrity. (Check)

No Level IV

All Level IV X

323-18

24 Hour

Jum-around time: (Check)

48 Hour

5 Day 72 Hour

10 Day Normal

Sampler

Project
Boeing-SiStL NPDES
Permit 2018
Annual Cutfall (001, 002, 011, 018)
Outfall 002
Comp R/A

NALYSIS REQUIRED

CHAIN OF CUSTODY FORM

-206832 Chain of Custody	440-2068		
	32 Chain		
A		The state of the s	
	dy		

3/23/10

48 hour holding time for turbidity 48 hours Halding Time NO3 & NO2

Page 1 of 2

CHAIN OF CUSTODY FORM

		Comments			Filter and preserve w/in 24hrs of receipt at lab	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures		Unfiltered and unpreserved analysis,	Separate RAD onto another workorder Analyze duplicate, not MS/MSD.	Only test if first or second rain events of									×	Normal		On (38		Alt Level IV X
q	(E.245.1)	Metels Mercury	pevioss	Total Di		X Sam to by		iliun Orași	Sep 4	(InO					PIOH	Plot			me (Check) 72 Hair		Clarent Control	ny. (Crieck)	for 6 months	_
A A A A A A A A A A A A A A A A A A A		(9:812	(E) IstoT	Cr (VI).										×					1 um-around time (Check)	48 Hour	Complete Section	Intect	Store samples for 6 months	Data Requirements (Check) No Level IV
NALYS			ethyl hyc	monow			L						×			Ξ		Î	U	~				
A A		S_MO828W8) 45; MS) S (5M9 MS) S (5M9) modhs						-	<u>-</u> .		 -	×			I	\dashv		-						0
œ		- Selenastrum (Eto	Toxicity 102-1-102-	Chronic (EPA-8:				<u> </u>		×					1				<u>\\ \</u>	≘				00
æ	muffn, (Triflum Beridmo Dato R Radium SSS CS-137	St-90 (E908.0), K-40 103.0 or E903.1), 171	5000°0)°3	(H-3) (E Kadium (E904 0					×										一つつつ	5.6	emi		me	323/18 1810
œ	(2	00-CM-E \ E332 S	GPWS)	Cyanide			×											No.			Date/Time		Date/Time	_ \
R/A	Fe, Mn, Ni, V, Zn,	a, 8, 8e, Co, Cr, I	es se ca	(E200 7	×															H		(B
	<u>(8</u>	Mer ()	* (1)	te # MS/MSD	190 No	g g	2	2	₹	8	ON No	S No	_	-	4	S2		Legend: Karoutine, A-Annual, Carutather			Received By 6		Received By	
	o11, 01	rrine Mi 6944 (c	Jominic 0702 (c	ve Bottle #	6	8	82	\$22	230	235	240	245	255	泉	245	255		OUTING	-	1	<u> </u>		Rece	
Project:	ing-SSFL NPDES Permit 2018 Iffell (001, 002, 011, 018) Outfall 002 Comp	Project Manager Katherine Miller 520,289 8606, 520.904.6944 (cell)	Field Manager: Mark Dominick 978.234 5033, 818 599.0702 (cell)	Preservative	None	Aone	Na FOR	None	None	None	, HC	Ę	None	None	₽	None		gend: Kar	111	1/4				
	Boeing Pe Couffel O	ct Man: 189 860	d Mans 34 503	# S	1	4	-	-	1.	5	3	-	2,	-	~	2	-	3	ŀ	1				
	Boe Amruel Ou	Project N 520.289	Fie 978.2	Container Type	1 L. Poly	borosijicase vials	500 mt. Poly	2.5 Gal Cube	1 L Glass Amber	1 Gal Curbe	40 mL VOA	1 L Glass Amber	1 L Glass Amber	500 mL Poly	40 mL VOA	1 L Glass Amber				1 tr 6	1			
		CoC with the mentit		Sample	WW	WW	MM	¥	WM	₹	×	WW	¥	¥.	N.	MIN.		Composito	r de la company	71-1	Company		Company:	
		TestAmener's services under this COC shall be performed in exocidence with the TACs within Blanket Service Agreement 2015-18 TestAmenca by and between Heley & Addrich, inc. it's subsidiaries and TestAmener Laborationes ind	Andreas establishment of the second of the s	Sampling Date/Time		3/23/2018		I I		3/23/2018					3/23/2018				\	2-23-15/11	07 K 16115	0/8/ 0-17-5		
98;	er Rd Suite 300 08	act. Urvashi Patel Sufte #100		Sample I.D.		Ouffallo02_20180323_Comp_F				Outfati002_20160323_Comp					Outfall002_20180323_Comp_Extra			Date/Time	\ \ \	1	Darsonne	7	Date/Time	
Client Name/Address:	Haley & Aldrich 5333 Mission Certer Rd Suite 300 San Diego, CA 92108	Test America Contact. Urvashi Patel 17461 Derian Ave Sutte #100 Irvine CA 92614 Tel 949-233-9055 Cell 949-333-9055	Sampler:	Semple Description		— Pa	g€	- 6	200 Portugal 002		0							Refinanished By	1	mi	Relinquished By		Refinquished By	

440-206832 Chain of Custody

-4/19/2018 (Rev. 2)

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Test America Conflact. Urvashi Patel 17461 Derlan Ave Suite #100 Irvine CA 52614 Tel 949-260-3269 Cell 949-333-9055	Sampler		Sample		Out	Annual Constitution of the Park		Outfall 002						Cata		Relinquished By	Relinquished By			Rollinguished By
Suite 300	Jrvash Patel #100	and the second s		Sample (.D.		Outfall002_20180323_Comp_F	and the second s			Outfall002_20180323_Comp)	6		In antenasa Como Evina	Canalina Arian Constant Comment		Date/Time	Supplied S	Date/Time:	Date/Time	
	Tetchmence's services under this CoC ahall be performed in accordance with the coordance of	The state of the s		Sampling Date/Time		3/23/2018 [6:3]				3/23/2018		10,01		910015678	18:31		1/81.52	7-22-1X XII-			
	this CoC nos with the tyreement# between diaries and boratones			Sample Matrix	NW	MVV	MA	MW	WW.	WW	WW	WW	MW	MW	WW		Company	Company		Company	
Annua	Proje 520.2	Fiel	978.2	Container Type	1 L Poly	borosilicate viats	500 mt. Poly	2.5 Gal Cube	1 L Glass Amber	1 Gal Cube		1 L Glass Amber	600 mL Paly	40 mL VOA	1 L Glass Amber	Total Control of the	tub	H	1		
Boeing-S Perr Perr Outfall [ct Manag 89 8606,	d Manag	34 5033,	# of Cont.		•	-	-	11	5	69	2,	-,	3	2	Leg	110	1	-		
Project Boeing-SSFL NPDES Permit 2018 Permit 2019 Annual Cutfall [001, 002, 011, 018] Cutfall 002 Comp	Project Manager Katherine Miller 520.289 8606, 520.904.6944 (cell)	Field Manager: Mark Dominick	978.234 5033, 818 599,0702 (cell)	Preservative	None	None	HOBN	None	None	None		None	None	HQ.	None	end: R=R	7				
35 011, 018]	ine Miller 944 (cell)	ominick	702 (cell)	e Botte #	190	320	220	225	230	235	240	255	280	240	265	outine. A	Received By	Received By	Saceiva	Received By	
	*			DSW/SW	8	No	7	No	*	₹	No	8	No	No	No	-Annual.		1By 6	2	, By	California of Contraction
	Metals' a, 8, 8e, Co, Cr, Fe aCO3 d, Cu, Pb, Sb, Se,	s, Ba s Cat	7). A	(E200 Hardne	×		-					- de la constante de la consta				Legend: R⊯Routine, A≕Annual, Q⊯Quertécty)	1	a a	XX
	00-CN-E / E335 2)	M450	le (S	Cyanid			×					1		1		Q.	Date/Time	Date/Time	Detail	Date/Time	
al Combined Radium 228	000.0), Gross Beta(8 Sr-90 (E905.0), Tot 903.0 or E903.1) & um (E908.0), K-40, 1.1)	(E96 (E96 (E96	E906 n 22(0), U	(H-3) (i Radiun				<	>								2-22-	ime		3023 X	1 1
		1-02-0	321-F	(EPA-E						×		1		1			8			0 181	
	524 (SW8260M_SIA arbon (415 2 (SM 5						+			-	×	×	-	I	H		_			>	1
NALYS	drazine -WC-0077)	l hyd	nethy	Monon			1		-10			×			I		5				
ANALYSIS REQUIRED	218.6)	al (E2	, Tot	Cr (VI)									×	-			Turn-arou	Sample In	intact _	Store sample Data Require No Level IV	
	Metals Mercury (E	ved I	Disso	Total D		×						1	1				Turn-around time (Check) 24 Hour 72 Hou 48 Hour 5 Day	Sample Integrity, (Check)		Store samples for 6 months Data Requirements (Check) No Level IV	
	Congression of the				E I	पुर छ	1	, C	≥ 9	\$ O		1		3	I		(Check) 72 Hour 5 Day	eck)	and he	_	
	Comments				Filter and preserve with 24hrs of receipt at lab	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures	The second secon	Unfiltered and unpreserved analysis,	Analyze duplicate, not MS/MSD.	Only test if first or second rain events of the year	The second secon	- Segundaria de Caración de Ca	The second secon	Hold	Hold		10 Day X		Unice	All Level IV X	Personal de la constant de la consta

Job Number: 440-206832-1

Login Number: 206832 List Source: TestAmerica Irvine

List Number: 1

Creator: Soderblom, Tim

Answer	Comment
True	
N/A	Not present
N/A	Not Present
True	
False	No sample date and/or time on COC, logged in per container labels.
False	The Field Sampler was not listed on the Chain of Custody.
True	
N/A	
True	
True	
True	
True	
N/A	
	True N/A N/A True True True True True False False True True True True True True True Tru

List Source: TestAmerica Denver List Creation: 03/28/18 04:30 PM

Job Number: 440-206832-1

List So List Number: 4 List So List C

Creator: Burtness, Benjamin W

, •		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	

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

orcator. Hor, bavia A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	
s 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	

TestAmerica Irvine

TestAmerica Job ID: 440-206832-1 Project/Site: Annual Outfall 002 Comp

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

Matrix: Water Prep Type: Total/NA

		Perc	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
	TCDD	TCDF	PeCDD	PeCDF	PeCF	HxCDD	HxDD	HxCDF
Client Sample ID	(25-164)	(24-169)	(25-181)	(24-185)	(21-178)	(32-141)	(28-130)	(26-152
Outfall002_20180323_Comp	79	78	72	74	75	75	76	71
Method Blank	78	78	79	78	81	80	85	73
Method Blank		74						
		Perc	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
	HxDF	HxCF	13CHxCF	HpCDD	HpCDF	HpCDF2	OCDD	
Client Sample ID	(26-123)	(29-147)	(28-136)	(23-140)	(28-143)	(26-138)	(17-157)	
Outfall002_20180323_Comp	72	71	69	70	72	71	63	
Method Blank	76	75	73	72	74	72	65	
Method Blank								
	Outfall002_20180323_Comp Method Blank Method Blank Client Sample ID Outfall002_20180323_Comp Method Blank	Client Sample ID (25-164) Outfall002_20180323_Comp 79 Method Blank 78 Method Blank HxDF Client Sample ID (26-123) Outfall002_20180323_Comp 72 Method Blank 76	Client Sample ID (25-164) (24-169) Outfall002_20180323_Comp 79 78 Method Blank 78 74 Method Blank 74 Percongramment Lient Sample ID (26-123) (29-147) Outfall002_20180323_Comp 72 71 Method Blank 76 75	Client Sample ID (25-164) (24-169) (25-181) Outfall002_20180323_Comp 79 78 72 Method Blank 78 78 79 Method Blank 74 74 Percur Isotope HxDF HxCF 13CHxCF 26-123) (29-147) (28-136) Outfall002_20180323_Comp 72 71 69 Method Blank 76 75 73	Client Sample ID (25-164) (24-169) (25-181) (24-185) Outfall002_20180323_Comp 79 78 72 74 Method Blank 78 78 79 78 Method Blank 74 74 74 Client Sample ID (26-123) (29-147) (28-136) (23-140) Outfall002_20180323_Comp 72 71 69 70 Method Blank 76 75 73 72	Client Sample ID (25-164) (24-169) (25-181) (24-185) (21-178) Outfall002_20180323_Comp 79 78 72 74 75 Method Blank 78 78 79 78 81 Method Blank 74 Percur Isotope Dilution Recovery (Accomplete Isotope Dilution Recovery) Lamber In International Inter	Client Sample ID (25-164) (24-169) (25-181) (24-185) (21-178) (32-141) Outfall002_20180323_Comp 79 78 72 74 75 75 Method Blank 78 78 79 78 81 80 Method Blank 74 Percur Isotope Dilution Recovery (Acceptance Language Language) HxDF HxCF 13CHxCF HpCDD HpCDF HpCDF2 Client Sample ID (26-123) (29-147) (28-136) (23-140) (28-143) (26-138) Outfall002_20180323_Comp 72 71 69 70 72 71 Method Blank 76 75 73 72 74 72	Client Sample ID (25-164) (24-169) (25-181) (24-185) (21-178) (32-141) (28-130) Outfall002_20180323_Comp 79 78 72 74 75 75 76 Method Blank 78 78 79 78 81 80 85 Method Blank 74 Perc t Isotope Dilution Recovery (Acceptance Limits) HxDF HxDF 13CHxCF HpCDD HpCDF HpCDF2 OCDD Client Sample ID (26-123) (29-147) (28-136) (23-140) (28-143) (26-138) (17-157) Outfall002_20180323_Comp 72 71 69 70 72 71 63 Method Blank 76 75 73 72 74 72 65

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

			Perc	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		TCDD	TCDF	PeCDD	PeCDF	PeCF	HxCDD	HxDD	HxCDF
Lab Sample ID	Client Sample ID	(20-175)	(22-152)	(21-227)	(21-192)	(13-328)	(21-193)	(25-163)	(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
			Perc	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		HxDF	HxCF	13CHxCF	HpCDD	HpCDF	HpCDF2	OCDD	
Lab Sample ID	Client Sample ID	(21-159)	(17-205)	(22-176)	(26-166)	(21-158)	(20-186)	(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

TestAmerica Irvine

Page 68 of 70

4/19/2018 (Rev. 2)

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

HxCDF = 13C-1,2,3,4,7,8-HxCDFHxDF = 13C-1,2,3,6,7,8-HxCDFHxCF = 13C-1,2,3,7,8,9-HxCDF13CHxCF = 13C-2,3,4,6,7,8-HxCDF HpCDD = 13C-1,2,3,4,6,7,8-HpCDDHpCDF = 13C-1,2,3,4,6,7,8-HpCDF HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF OCDD = 13C-OCDD

TestAmerica Job ID: 440-206832-1





Job:					
			_	_	

Tracking #41719 2740 8814

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

recieved broken My	Ice Wet Gel	Othe	r	
DH 8/27/18	Cooler Custody Seal: Seal			
	Sample Custody Seal:			
	Cooler ID:			
	Temp: Observed_ 3.Q			
	From: Temp Blank Sample	(d)		
	NCM Filed: Yes □ No			
		Yes	No	NA
	Perchlorate has headspace?			P
	CoC is complete w/o discrepancies?	5		
	Samples received within holding time?	P		
	Sample preservatives verified?			P
	Cooler compromised/tampered with?		8	
	Samples compromised/tampered with?		500	
	Samples w/o discrepancies?	D	OC	D
	Sample containers have legible labels?	YO	ο,	D
	Containers are not broken or leaking?	b	Jan Y	
-	Sample date/times are provided.	4		
	Appropriate containers are used?	Bo		D
	Sample bottles are completely filled?	S	D	
	Zero headspace?*	6		P
	Multiphasic samples are not present?	D	D	T
	Sample temp OK?	8	D	
	Sample out of temp?	D	DO	
	1111 01 100		1	
	Initials: Mg Date: 3/27/18 Ti *Containers requiring zero headspace have no headspace,	me 9)

DATA VALIDATION REPORT

Boeing SSFL Outfall 002

SAMPLE DELIVERY GROUP: 440-206832-2

Prepared for

Haley & Aldrich

April 20, 2018







TABLE OF CONTENTS

l.	INTRO	DUCTION	. 1
II.	Sample	Management	. 2
III.	EPA Me	ethod EPA-821-R-02-013 — Chronic Toxicity - Selenastrum	. 6
	III.1.	Holding Times	. 6
	III.2.	Calibration	. 6
	III.3.	Quality Control Samples	. 6
		III.3.1. Method Blanks	. 6
		III.3.2. Laboratory Control Samples	. 6
		III.3.3. Laboratory Duplicates	. 6
		III.3.4. Matrix Spike/Matrix Spike Duplicate	. 6
	III.4.	Sample Result Verification	. 6
	III.5.	Field QC Samples	. 6
		III.5.1. Field Blanks and Equipment Blanks	. 6
		III.5.2. Field Duplicates	. 6

TABLES

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



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

TABLE 5 - REAGON CODE REFERENCE				
Reason Code	Organic	Inorganic		
Н	Holding time was exceeded.	Holding time was exceeded.		
S	Surrogate recovery was outside control limits.	Not applicable.		
С	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r²) 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.		
В	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.		
А	Not applicable.	Serial dilution %D was outside control limits.		
М	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.		
Т	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.
Р	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.
* , *	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.

111.3.4. 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 RL MDL Result Lab Validation Validation Value Units Qualifier Qualifier Notes

Chronic Toxicity, Selenastrum N CHRTOXSELEN 14.38 % effect

Tuesday, April 24, 2018 Page 1 of 1



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

Ushi Patel

Authorized for release by: 4/18/2018 6:37:43 PM

Urvashi Patel, Manager of Project Management (949)261-1022

urvashi.patel@testamericainc.com

.....LINKS

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Total Access

Have a Question?



Visit us at: www.testamericainc.com

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

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

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

Usli fatel

4/18/2018 6:37:43 PM

Manager of Project Management

Urvashi Patel

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.

4/18/2018

Client: Haley & Aldrich, Inc. Project/Site: Annual Outfall 002 Comp TestAmerica Job ID: 440-206832-2

Table of Contents

Cover Page	1
Table of Contents	3
Sample Summary	4
Case Narrative	
Method Summary	6
Definitions/Glossary	7
Certification Summary	
Subcontract Data	9
Chain of Custody	24
Receipt Checklists	
Field Data Sheets	32

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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

Case Narrative

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

TestAmerica Job ID: 440-206832-2

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 1.8° C, 2.3° C and 3.9° 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.

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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

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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Project/Site: Annual Outfall 002 Comp

Minimum Level (Dioxin)

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

Not Detected at the reporting limit (or MDL or EDL if shown)

Relative Percent Difference, a measure of the relative difference between two points

Reporting Limit or Requested Limit (Radiochemistry)

Not Calculated

Quality Control

TestAmerica Job ID: 440-206832-2

Glossary

ML

NC

ND

PQL

QC

RER

RPD TEF

TEQ

RL

Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.

TestAmerica Job ID: 440-206832-2

Project/Site: Annual Outfall 002 Comp

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

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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

Ν

100

Report Date:

17 Apr-18 14:20 (p 1 of 1)

							Test	Code:	TAM0138	.264sel 1	6-1883-2193
Selenastrum	Growth Test							Aquatic Bi	ioassay & C	onsulting	Labs, Inc.
Batch ID:	12-8723-4494	Test Type	e; Cell	Growth			Analy	/st:			
Start Date:	23 Mar-18 14:31	Protocol	: EPA	V/821/R-02-0	013 (2002)		Dilue	nt: Labo	ratory Wate	er	
Ending Date:	27 Mar-18 13:18	Species:	Sele	enastrum ca	pricornutum	l	Brine	Brine: Not Applicable			
Duration:	95h	Source:	Aqu	atic Biosyst	ems, CO		Age:				
Sample ID:	18-6810-6156	Code:	TAN	//0318.264se	əl		Clien	t: Test	st America Irvine		
Sample Date:	23 Mar-18 10:00	Material:	Sam	nple Water			Proje	ect: Boeing-SSFL NPDES			
Receipt Date:	23 Mar-18 13:44	Source:	Bioa	assay Repor	t						
Sample Age:	5h (2.6 °C)	Station:	Out	fall 002							
Single Compa	arison Summary										
Analysis ID	Endpoint	Coi	mparis	on Method			P-Value	Comparis	on Result		
02-8577-1748	Cell Density	TS	T-Welch	n's t Test			2.9E-04	100% pas:	sed cell den	sity	
Test Acceptal	bility					TAC L	imits				
Analysis ID	Endpoint	Att	ribute		Test Stat	Lower	Upper	Overlap	Decision		
02-8577-1748	Cell Density	Coi	ntrol CV	/	0.04485	<<	0.2	Yes	Passes Cr	iteria	
02-8577-1748	Cell Density	Cor	ntrol Re	sp	1.69E+6	1000000	>>	Yes	Passes Cr	riteria	
Cell Density S	Summary										
Conc-%	Code	Count Me	an	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8 1.6	95E+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 1.4	51E+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	p 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8		

1.693E+6 1.730E+6 1.749E+6 1.772E+6 1.751E+6 1.703E+6 1.561E+6 1.599E+6

1.565E+6 1.447E+6 1.362E+6 1.582E+6 1.355E+6 1.383E+6 1.506E+6 1.408E+6

Report Date:

17 Apr-18 14:20 (p 1 of 2)

Test Code:

TAM0138.264sel | 16-1883-2193

Selenastrum Grow	th Test							Aquatic Bi	oassay & C	onsulting	Labs, Inc	
Analysis ID: 02-8	8577-1748	Endp	oint: Ce	ell Density			CETIS	Version:	CETISv1.9	9.2		
Analyzed: 15	Apr-18 19:14	Analy	ysis: Pa	rametric Bioe	quivalence-	Two Sample	Offici	al Results:	Yes			
Batch ID: 12-8	723-4494	Test	Type: Ce	ell Growth			Analy	Analyst:				
Start Date: 23 M	1ar-18 14:31	Proto	ocol: EF	PA/821/R-02-0)13 (2002)		Dilue	nt: Labo	ratory Wate	r		
Ending Date: 27 M	1ar-18 13:18	Spec	i es: Se	elenastrum ca	pricornutum		Brine	: Not A	Applicable			
Duration: 95h		Sour	ce: Ac	uatic Biosyst	ems, CO		Age:					
Sample ID: 18-6	810-6156	Code	e: TA	M0318.264se	el		Clien	t: Test	America Irvi	ine		
Sample Date: 23 M	1ar-18 10:00	Mate	rial: Sa	imple Water			Proje	ct: Boeir	ng-SSFL NF	DES		
Receipt Date: 23 M	1ar-18 13:44	Sour	ce: Bi	oassay Repor	t							
Sample Age: 5h (2	2.6 °C)	Stati	on: O	utfall 002								
Data Transform		Alt Hyp			TST_b		Comparis	on Result				
Untransformed		C*b < T			0.75		100% pass	ed cell dens	sity			
TST-Welch's t Tes	t											
Control vs	Control II			t Critical	DF	P-Type	P-Value	Decision(c				
Negative Control	100*		4.774	0.6974	11	CDF	2.9E-04	Non-Signifi	cant Effect			
Test Acceptability	Criteria	TAC Li	mits									
Attribute	Test Stat	Lower	Upper	Overlap	Decision							
Control CV	0.04485	<<	0.2	Yes	Passes Cr	iteria						
Control Resp	1.69E+6	1000000	>>	Yes	Passes Cr	iteria						
	1.69E+6	1000000	>>	Yes	Passes Cr	iteria						
ANOVA Table	1.69E+6 Sum Squa		>> Mean Sc	_	Passes Cr	iteria F Stat	P-Value	Decision(c	a:5%)			
	Sum Squa 2.377E+11	res		juare			P-Value 4.2E-05	Decision(c				
ANOVA Table Source Between Error	Sum Squa 2.377E+11 9.725E+10	res	Mean Sc	juare 11	DF 1 14	F Stat						
ANOVA Table Source Between Error	Sum Squa 2.377E+11	res	Mean Sc 2.377E+	juare 11	DF 1	F Stat						
ANOVA Table Source Between Error Total	Sum Squa 2.377E+11 9.725E+10 3.349E+11	res	Mean Sc 2.377E+	juare 11	DF 1 14	F Stat						
ANOVA Table Source Between Error Total Distributional Test	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts	res	Mean So 2.377E+ 6.947E+	guare 111 09	DF 1 14 15	F Stat 34.21 Critical	4.2E-05 P-Value	Significant Decision(c	Effect			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq	uality of Var	Mean Sc 2.377E+ 6.947E+	guare 11 09	DF 1 14 15 Test Stat 0.6484	F Stat 34.21 Critical 8.862	4.2E-05 P-Value 0.4342	Significant Decision(continuous)	Effect a:1%) ances			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven	uality of Var e Equality c	Mean Sc 2.377E+ 6.947E+	guare 11 09	DF 1 14 15 Test Stat 0.6484 0.5071	F Stat 34.21 Critical 8.862 8.862	P-Value 0.4342 0.4881	Decision(o Equal Varia Equal Varia	x:1%) ances ances			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R	uality of Var e Equality c	Mean So 2.377E+ 6.947E+ friance Tes	guare 11 09 t	DF 1 14 15 Test Stat 0.6484 0.5071 1.405	F Stat 34.21 Critical 8.862 8.862 8.862 8.885	P-Value 0.4342 0.4881 0.6652	Decision(decomposition Equal Variation Equal V	Effect a:1%) ances ances ances ances			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I	uality of Var ne Equality of tatio F Test Darling A2 N	Mean So 2.377E+ 6.947E+ ciance Tes	guare 11 09 t	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342	F Stat 34.21 Critical 8.862 8.862 8.885 3.878	P-Value 0.4342 0.4881 0.6652 0.4966	Decision(decision) Equal Variate Equal Variate Equal Variate Normal Dis	Effect a:1%) ances ances ances ances stribution			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino	uality of Var te Equality of tatio F Test Darling A2 N Skewness	Mean So 2.377E+ 6.947E+ riance Tes of Variance Normality	guare 11 09 t	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878	Decision(O Equal Varia Equal Varia Equal Varia Normal Dis Normal Dis	Effect a:1%) ances ances ances stribution stribution			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro	uality of Var ne Equality of tatio F Test Darling A2 N	Mean So 2.377E+ 6.947E+ riance Tes f Variance Normality Test D Test	guare 11 09 t	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342	F Stat 34.21 Critical 8.862 8.862 8.885 3.878	P-Value 0.4342 0.4881 0.6652 0.4966	Decision(decision) Equal Variate Equal Variate Equal Variate Normal Dis	Effect a:1%) ances ances ances stribution stribution			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W	uality of Var te Equality of tatio F Test Darling A2 N Skewness v-Smirnov I	Mean So 2.377E+ 6.947E+ riance Tes f Variance Normality Test D Test	guare 11 09 t	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158	Decision(O Equal Varia Equal Varia Equal Varia Normal Dis Normal Dis Normal Dis	Effect a:1%) ances ances ances stribution stribution			
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Cell Density Summ	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W	uality of Var ne Equality of tatio F Test Darling A2 N Skewness v-Smirnov I ilk W Norma	Mean So 2.377E+ 6.947E+ riance Test of Variance Normality Test D Test ality Test	guare 11 09 t t = Test	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248 0.9555	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812	Decision(of Equal Variation Normal Dis Norma	Effect a:1%) ances ances ances stribution stribution stribution	CV%	%Effec:	
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Cell Density Summ	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W	uality of Var ne Equality of tatio F Test Darling A2 N Skewness v-Smirnov I ilk W Norma	Mean So 2.377E+ 6.947E+ riance Tes f Variance Normality Test D Test	guare 111 09 t e Test Fest 95% LCL	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812	Decision(of Equal Variation Normal Distribution Normal Distributio	Effect a:1%) ances ances ances stribution stribution	CV% 4.49%	%Effec	
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Cell Density Summ	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W	uality of Var ne Equality of tatio F Test Darling A2 N Skewness v-Smirnov I ilk W Norma	Mean So 2.377E+ 6.947E+ riance Tes of Variance Normality Test D Test ality Test Mean 1.695E+	guare 111 09 t e Test Fest 95% LCL	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248 0.9555 95% UCL 1.758E+6	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408 Median 1.716E+6	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812 Min 1.561E+6	Decision(dec	Effect a:1%) ances ances ances arribution stribution Stribution Std Err 2.687E+4	4.49%	0.00%	
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Cell Density Summ Conc-% 0	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W mary Code N	uality of Var ne Equality of datio F Test Darling A2 N Skewness v-Smirnov D ilk W Norma	Mean So 2.377E+ 6.947E+ riance Tes of Variance Normality Test D Test ality Test Mean 1.695E+	guare 11 09 t a Test Fest 95% LCL 6 1.631E+6	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248 0.9555 95% UCL 1.758E+6	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408 Median 1.716E+6	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812 Min 1.561E+6	Decision(dec	Effect a:1%) ances ances ances arribution stribution Stribution Std Err 2.687E+4	4.49%	0.00%	
ANOVA Table Source Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Cell Density Summ Conc-% 0 100 Cell Density Detail	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W mary Code N	uality of Var ne Equality of Satio F Test Darling A2 N Skewness v-Smirnov Dilk W Norma Count 8	Mean So 2.377E+ 6.947E+ fiance Tes of Variance Normality Test D Test ality Test Mean 1.695E+ 1.451E+	guare 11 09 t t a Test Fest 95% LCL 6 1.631E+6 6 1.376E+6	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248 0.9555 95% UCL 1.758E+6 1.526E+6	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408 Median 1.716E+6 1.428E+6	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812 Min 1.561E+6 1.355E+6	Decision(decision) Decision(decision) Decision(decision) Decision	Effect a:1%) ances ances ances stribution stribution Std Err 2.687E+4 3.185E+4	4.49%	%Effect 0.00% 14.38%	
Between Error Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Cell Density Summ Conc-% 0 100	Sum Squa 2.377E+11 9.725E+10 3.349E+11 ts Test Levene Eq Mod Leven Variance R Anderson-I D'Agostino Kolmogoro Shapiro-W mary Code N	uality of Var ne Equality of datio F Test Darling A2 N Skewness v-Smirnov D ilk W Norma	Mean So 2.377E+ 6.947E+ riance Tes of Variance Normality Test D Test ality Test Mean 1.695E+	guare 111 09 t 5 Test Fest 95% LCL 6 1.631E+6 6 1.376E+6 Rep 3	DF 1 14 15 Test Stat 0.6484 0.5071 1.405 0.342 0.1411 0.1248 0.9555 95% UCL 1.758E+6 1.526E+6 Rep 4	F Stat 34.21 Critical 8.862 8.862 8.885 3.878 2.576 0.2471 0.8408 Median 1.716E+6	P-Value 0.4342 0.4881 0.6652 0.4966 0.8878 0.8158 0.5812 Min 1.561E+6	Decision(dec	Effect a:1%) ances ances ances stribution stribution stribution Std Err 2.687E+4 3.185E+4 Rep 8	4.49%	0.00%	

Analyst:_____QA:____

Report Date:

17 Apr-18 14:20 (p 2 of 2)

Test Code: TAM0138.264sel | 16-1883-2193

Aquatic Bioassay & Consulting Labs, Inc.

Selenastrum Growth Test

02-8577-1748 **Endpoint:** Cell Density **CETIS Version:**

Analysis ID: Analyzed:

15 Apr-18 19:14

Analysis:

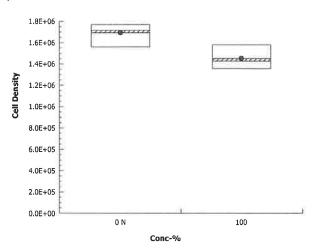
Parametric Bioequivalence-Two Sample

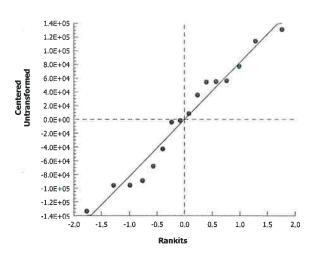
Official Results:

CETISv1.9.2

Yes

Graphics





4/18/2018

17 Apr-18 14:20 (p 1 of 2)

Report Date: Test Code: TAM0138.264sel | 16-1883-2193

onsu	lting	Labs	, Inc.		
				_	

								est coue.	1711101010	0.204301 1	0-1000-2195		
Selenastrum	Growth Test							Aquatic	Bioassay &	Consulting	Labs, Inc.		
Batch ID:	12-8723-4494		Test Type:	Cell Growth			A	nalyst:					
Start Date:	23 Mar-18 14:31	1	Protocol:	EPA/821/R-02	-013 (2002)		D	iluent: La	boratory Wa	ter			
Ending Date:	27 Mar-18 13:18	3 :	Species:	Selenastrum c	apricornutur	n	В	Brine: No	t Applicable				
Duration:	95h		Source:	Aquatic Biosys	tems, CO		A	Age:					
Sample ID:	18-6810-6156		Code:	TAM0318.264	sel		C	Client: Test America Irvine					
Sample Date:	23 Mar-18 10:00)	Material:	Sample Water			Р	roject: Bo	eing-SSFL N	IPDES			
Receipt Date:	: 23 Mar-18 13:44	. :	Source:	Bioassay Repo	ort								
Sample Age:	5h (2.6 °C)		Station:	Outfall 002									
Alkalinity (Ca	CO3)-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 (Ca	aCO3)-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		

24.3

24.61

24.8

0.05735

0.1814

0.74%

0 (0%)

Overall

10

24.48

24.35

Report Date:

17 Apr-18 14:20 (p 2 of 2)

Test Code:

TAM0138.264sel | 16-1883-2193

							rest Code:	1AM0130.204861 10-1003-2193
Selenastrum (Growth Test						Aquatic	Bioassay & Consulting Labs, Inc.
Alkalinity (Ca	CO3)-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 (Ca	CO3)-mg/L							
Conc-%	Code	1						
0	N	101						
100		144						
pH-Units						7.)		
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		

Analyst: QA:

Relinquished By Date/Time: Relinquished By Date/Time: Collection: Date/Time:	Outfali002_20180323_Comp_Extra 3/23/2018	+			Outfall002_20180323_Comp 3/23/2018	Outfall 002		Outfall002_20180323_Comp_F 3/23/2018		Sample Description Sample LD. Sampling Date/Time	Sampler:	Test America e Sontact: Urvashi Patel TestAmerica services under ins Coc stall be performed in accordance with the Invine CA 92614 TaCs within Blanket Service Agreements TaCs within Blanket Service Agreements Tel 949-260-3269 Hally & Aldrich, Inc., its subsidiaries and Cell 949-333-9055 Inc.	Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	
Company,	MW	WW	MW	MAA	MW	MW	MW	MW	MAA	me Sample Matrix		under this GoC coordance with the vice Agreement y and between subsidiaries and cal Laboratories		
The state of the s	=	40 mL VOA	-	1 L Glass Amber	+	1 L Glass Amber	H	borosilicate vials	1 L Poly	ix Container Type	978.		Annı	
7 7 5		ω _1	2	٦ ١		1.	1		-	# of Cont.	.234.5033	Project Manager. 520,289.8606, 520	Boeing- Per val Outfall Ou	
end: R=Rc	None	None HCI	None	표 전		None	None	None	None	Preservative	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	Boeing-SSFL NPDES Permit 2018 Permit 2018 Annual Outfall [001, 002, 011, 018] Outfall 002 Comp	
Received By Received By Received By Received By	255	260	255	245	235	230	225	320	190	ve Bottle #)702 (cell)	Katherine Miller D.904.6944 (cell))ES 011, 018]	
Annual, Q	Z ₀	8 8	No	No 8	중	N _o	No	8 8	No.	MS/MSD				
Legend: R=Routine, A=Annual, Q=Quartety Received By Received By Received By Received By									×	(E200 Hardn	.7): As, I	d Metals: Ba, B, Be, Co, Cr, CaCO3 Cd, Cu, Pb, Sb, S	Fe, Mn, Ni, V, Zn, e, Tl	
Date/Time:					-			×		Cyani	de (SM4	500-CN-E / E335.	2)	
37378						×				(H-3) Radiu (E904	(E906.0) m 226 (8	, Sr-90 (E905.0), E903.0 or E903.1) nium (E908.0), K-4	& Radium 228	
8 -8					×					Chron (EPA-	ic Toxici 821-R-0	ty - Selenastrum 2-013)	13	
nhej SVI		I	H	×		-			-	100		624 (SW8260M_ Carbon (415.2 (SI	4 5340DW	
5	I		×							Monor	methyl h	ydrazine /-WC-0077)	(1 03 lub))	
Turn-around time: (Check) 24 Hour. 72 Hour. 48 Hour. 5 Day: Sample Integrity: (Check) Intact: Store samples for 6 months		×								Cr (VI), Total (E218.6)	100	
Turn-around time: (Check) 24 Hour. 72 Hour. 48 Hour. 5 Day: Sample Integrity: (Check) Intact: Check Store samples for 6 months.								×		Total !	Dissolve	d Metals: Mercury	(E245.1) [
Check) Check) 72 Hour: 5 Day: heck) months		_											0	
10 Day:XNomal:	Hold	Hold			Only test if first or second rain events of the year	Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	Unfiltered and unpreserved analys	Sample receiving DO NOT OPEN BAG. Boto be opened in Mercury Prep using clean procedures.	lab			Comments		



CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE:

aquatic bloassay & consulting laboratories, inc

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

Report Date: Test Code:

22 Mar-18 08:34 (p 1 of 1) SEL030818 | 06-7676-7890

							lest	Code:	SEL	030818 06-	-/6/6-	7890
Selenastrum	Growth Test							Aquatic E	lioassay & 0	Consulting I	_abs,	Inc.
Batch ID:	04-5085-2596	Test Type:	Cell	Growth			Analy	/st:				
Start Date:	08 Mar-18 12:36	Protocol:	EP/	A/821/R-02-0	13 (2002)		Dilue	nt: Lab	oratory Wate	er		
Ending Date:	12 Mar-18 11:30	Species:	Sele	enastrum ca	pricornutum		Brine	: Not	Applicable			
Duration:	95h	Source:	Aqu	atic Biosyste	ems, CO		Age:					
Sample ID:	01-7924-9043	Code:	SEL	.030818s			Clien	t: Inte	rnal Lab	=		
Sample Date:	08 Mar-18 12:36	Material:	Cad	lmium chlori	de		Proje	ct: RE	TOX			
Receipt Date:		Source:	Ref	erence Toxic	cant							
Sample Age:	n/a	Station:										
Multiple Com	parison Summar	гу										
Analysis ID	Endpoint	Com	paris	on Method			NOEL	LOEL	TOEL	TU	PMS	D 🗸
08-5786-6342	Cell Density	Dunn	ett M	ultiple Comp	arison Test		40	80	56.57		6.04	%
Point Estimat	te Summary											
Analysis ID	Endpoint	Poin	Point Estimate Method					μg/L	95% LCL	95% UCL	TU	✓
05-0330-6571	Cell Density	Linea	r Inte	rpolation (IC	PIN)		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		
	_						1C50	113.4	110.6	116.8		
Test Accepta	bility					TAC L	imits					
Analysis ID	Endpoint	Attril	bute		Test Stat	Lower	Upper	Overlap	Decision			
05-0330-6571	Cell Density	Cont	rol C\	/	0.02162	<<	0.2	Yes	Passes C	riteria		
08-5786-6342	Cell Density	Cont	rol Ç\	/	0.02162	<<	0.2	Yes	Passes Criteria			
05-0330-6571	Cell Density	Cont	Control Resp 1.06E+6 1000000						Passes C	riteria		
08-5786-6342	Cell Density	Cont	roi Re	esp	1.06E+6	1000000	>>	Yes	Passes C	riteria		
08-5786-6342	Cell Density	PMS	D		0.0604	0.091	0.29	Yes	Below Cri	teria		
Cell Density	Summary											
Conc-µg/L	Code	Count Mean	n	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Ef	fect
^		4 4 000	25.0	4 0005 . 0	4 0005 .0	4 000 - 0	4 0005 . 0	4 4 40 5	0.0045.4	0.400/	0.00	07

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	

Report Date: Test Code: 22 Mar-18 08:33 (p 1 of 2) SEL030818 I 06-7676-7890

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								Test Code: SEL030818 06-76				
Selenastrum (Growt	th Test							Aquatic B	ioassay &	Consul	ting Labs, Inc
Analysis ID:	08-5	786-6342	End	point: Ce	ell Density			CETI	S Version:	CETISv1	.9.2	
Analyzed:	19 N	//ar-18 13:50	3 Anal	ysis: Pa	arametric-Co	ntrol vs Treat	ments	Offici	ial Results:	Yes		
Batch ID:	04-50	085-2596	Test	Type: Co	ell Growth			Analy	/st:			
Start Date:	08 M	ar-18 12:36			PA/821/R-02-	013 (2002)		Dilue		oratory Wat	er	
Ending Date:					elenastrum ca	, ,		Brine		Applicable		
Duration:	95h	ai 10 11.00	Sou		quatic Biosys	•		Age:	. 1100	тррпоавіо		
		204.0040	0 - 1			,			4 (-4	1 1 f-		
Sample ID:		924-9043	Cod		EL030818s	2.1		Clien		rnal Lab		
Sample Date:		ar-18 12:36			admium chloi			Proje	ct: KEF	TOX		
Receipt Date:			Sou		eference Tox	icant						
Sample Age:	n/a		Stat	ion:								
Data Transfor	m		Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed	ł		C > T					40	80	56.57		6.04%
Dunnett Multi	ple C	omparison	Test									
	vs	Conc-µg/		Test Sta	t Critical	MSD DF	P-Type	P-Value	Decision(α:5%)		
Negative Cont		20		-2.764	2,407	64010 6	CDF	0.9999	· ·	ficant Effec	t	
		40		0.3667	2.407	64010 6	CDF	0.7037	-	ficant Effec		
		80*		6.722	2.407	64010 6	CDF	3.3E-05	Significant		•	
		140*		29.2	2.407	64010 6	CDF	2.7E-05	Significant			
		180*		31.47	2.407	64010 6	CDF	2.7E-05	Significan			
Test Accental	hility (2.407	01010 0			- Organican	Liloot		
•	bility (Criteria	TAC L	imits					- Grannoun			
Attribute	bility (Criteria Test Stat	Lower	imits Upper	Overlap	Decision			- Organical,	Lincot		
Attribute Control CV	bility (Criteria Test Stat 0.02162	Lower <<	imits Upper 0.2	Overlap Yes	Decision Passes Cr	iteria		- Giginnoun,	Lincot		
Attribute Control CV Control Resp	bility (Criteria Test Stat 0.02162 1.06E+6	<> 1000000	imits Upper 0.2 >>	Overlap Yes Yes	Decision Passes Cr Passes Cr	iteria iteria		C g	LENGOL		
Attribute Control CV Control Resp PMSD		Criteria Test Stat 0.02162	Lower <<	imits Upper 0.2	Overlap Yes	Decision Passes Cr	iteria iteria			Linost		
Attribute Control CV Control Resp PMSD		Criteria Test Stat 0.02162 1.06E+6	<> 1000000	imits Upper 0.2 >> 0.29	Overlap Yes Yes Yes	Decision Passes Cr Passes Cr	iteria iteria eria	-	- Gg moan	Linost		
Attribute Control CV Control Resp PMSD ANOVA Table Source		Test Stat 0.02162 1.06E+6 0.0604	<pre>cower compared c</pre>	imits Upper 0.2 >> 0.29	Overlap Yes Yes Yes	Decision Passes Cr Passes Cr Below Crit	iteria iteria eria F Stat	P-Value	Decision((α:5%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source		Test Stat 0.02162 1.06E+6 0.0604	<pre>cower compared c</pre>	imits Upper 0.2 >> 0.29	Overlap Yes Yes Yes	Decision Passes Cr Passes Cr Below Crit	iteria iteria eria			(α:5%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10	Lower	imits Upper 0.2 >> 0.29	Overlap Yes Yes Yes Yes	Decision Passes Cr Passes Cr Below Crit DF 5 18	iteria iteria eria F Stat	P-Value	Decision((α:5%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12	Lower	imits Upper 0.2 >> 0.29 Mean Se 6.742E+	Overlap Yes Yes Yes Yes	Decision Passes Cr Passes Cr Below Crit DF 5	iteria iteria eria F Stat	P-Value	Decision((α:5%)		
Test Acceptal Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributiona		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12	Lower	imits Upper 0.2 >> 0.29 Mean Se 6.742E+	Overlap Yes Yes Yes Yes	Decision Passes Cr Passes Cr Below Crit DF 5 18	iteria iteria eria F Stat	P-Value	Decision((α:5%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test	Lower	imits Upper 0.2 >> 0.29 Mean Sc 6.742E+ 1.414E+	Overlap Yes Yes Yes Tes Tes Tes Tes Tes Tes Tes Tes Tes T	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat	iteria iteria eria F Stat 476.7	P-Value <1.0E-37	Decision(Significan	(α:5%) t Effect (α:1%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test	Lower	imits Upper 0.2 >> 0.29 Mean Sc 6.742E+ 1.414E+	Overlap Yes Yes Yes Tes Tes Tes Tes Tes Tes Tes Tes Tes T	Decision Passes Cr Passes Cr Below Crit DF 5 18 23	iteria iteria eria F Stat 476.7	P-Value <1.0E-37	Decision (Significan	(α:5%) t Effect (α:1%)		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq	Lower	imits Upper 0.2 >> 0.29 Mean Sc 6.742E+ 1.414E+	Overlap Yes Yes Yes Yes 11 09	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat	iteria iteria eria F Stat 476.7	P-Value <1.0E-37	Decision(Significan	(α:5%) t Effect (α:1%) iances		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances Variances		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Equation Levene Education	Lower	imits Upper 0.2 >> 0.29 Mean Sc 6.742E+ 1.414E+ riance Tes riance Tes	Overlap Yes Yes Yes Yes 11 09	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871	iteria iteria eria F Stat 476.7 Critical 15.09	P-Value <1.0E-37 P-Value 0.1635	Decision(Significan Decision(Equal Var	(α:5%) t Effect (α:1%) riances /ariances		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances Variances Variances		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq Levene Ec Mod Levere	Lower << 1000000 0.091 ares 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Mean Son 1.414E+	Overlap Yes Yes Yes 11 09 st st e Test	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871 8.358	iteria riteria eria F Stat 476.7 Critical 15.09 4.248	P-Value <1.0E-37 P-Value 0.1635 3.1E-04	Decision(Significan Decision(Equal Var Unequal V	(α:5%) t Effect (α:1%) riances /ariances		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances Variances Variances Distribution		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq Levene Ec Mod Lever Anderson-	Lower << 1000000 0.091 ares 2 0 2 quality of Valuality of Value Equality	imits Upper 0.2 >> 0.29 Mean Se 6.742E+ 1.414E+ riance Tes riance Tes of Variance Normality	Overlap Yes Yes Yes 11 09 st st e Test	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871 8.358 6.233	iteria iteria eria F Stat 476.7 Critical 15.09 4.248 4.248	P-Value <1.0E-37 P-Value 0.1635 3.1E-04 0.0016	Decision(Significan Decision(Equal Var Unequal V	(α:5%) t Effect (α:1%) riances /ariances /ariances istribution		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances Variances Variances Distribution Distribution		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq Levene Ec Mod Lever Anderson-D'Agostino	Lower << 1000000 0.091 ares 2 0 2 quality of Valuality of Valuality of Valuality of Valuality Darling A2	imits Upper 0.2 >> 0.29 Mean So 6.742E+ 1.414E+ riance Tes riance Tes of Variance Normality est	Overlap Yes Yes Yes 11 09 st st e Test	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871 8.358 6.233 0.2236	iteria iteria eria F Stat 476.7 Critical 15.09 4.248 4.248 3.878	P-Value <1.0E-37 P-Value 0.1635 3.1E-04 0.0016 0.8577	Decision(Significan Decision(Equal Var Unequal Varequal Var	(α:5%) t Effect (α:1%) riances /ariances /ariances istribution istribution		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total Distributional Attribute Variances Variances Variances Distribution Distribution Distribution		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq Levene Ec Mod Lever Anderson- D'Agostino D'Agostino	Lower << 1000000 0.091 ares 2 0 2 quality of Valuality of Value Equality Darling A2 0 Kurtosis T	imits Upper 0.2 >> 0.29 Mean So 6.742E+ 1.414E+ riance Tes riance Tes of Variance Normality est Test	Overlap Yes Yes Yes 11 09 st st st re Test	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871 8.358 6.233 0.2236 0.4399	F Stat 476.7 Critical 15.09 4.248 4.248 3.878 2.576	P-Value <1.0E-37 P-Value 0.1635 3.1E-04 0.0016 0.8577 0.6600	Decision(Significan Decision(Equal Var Unequal V Unequal Normal Di Normal Di Normal Di	(α:5%) t Effect (α:1%) riances /ariances /ariances istribution istribution		
Attribute Control CV Control Resp PMSD ANOVA Table Source Between Error Total		Test Stat 0.02162 1.06E+6 0.0604 Sum Squa 3.371E+12 2.546E+10 3.396E+12 s Test Bartlett Eq Levene Ec Mod Lever Anderson- D'Agostino D'Agostino D'Agostino	Lower << 1000000 0.091 ares 2 0 quality of Valuality of Value Equality Darling A2 0 Kurtosis To Skewness	imits Upper 0.2 >> 0.29 Mean So 6.742E+ 1.414E+ riance Tes of Variance Normality est Test (2 Omnibut	Overlap Yes Yes Yes 11 09 st st st re Test	Decision Passes Cr Passes Cr Below Crit DF 5 18 23 Test Stat 7.871 8.358 6.233 0.2236 0.4399 0.2519	F Stat 476.7 Critical 15.09 4.248 4.248 3.878 2.576 2.576	P-Value <1.0E-37 P-Value 0.1635 3.1E-04 0.0016 0.8577 0.6600 0.8011	Decision(Significan Decision(Equal Var Unequal V Unequal Normal Di Normal Di Normal Di	(α:5%) t Effect (α:1%) riances /ariances /ariances istribution istribution istribution		

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%

CETIS Analytical Report

Report Date: Test Code: 22 Mar-18 08:33 (p 2 of 2) SEL030818 | 06-7676-7890

Aquatic Bioassay & Consulting Labs, Inc.

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Selenastrum Growth Test

08-5786-6342 Endpoint: Cell Density
19 Mar-18 13:53 Analysis: Parametric-0

Parametric-Control vs Treatments Official

CETIS Version: CETISv1.9.2

Official Results: Yes

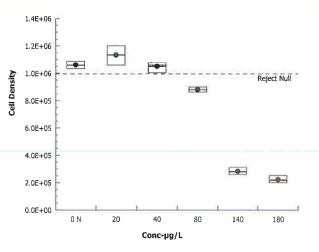
Cell Density Detail

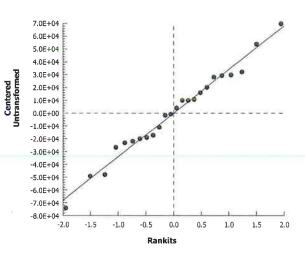
Analysis ID:

Analyzed:

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





Report Date:

22 Mar-18 08:33 (p 1 of 2)

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								Test Code:		SEL0308	18 06-7676-7890
Selena	strum	Growth Test						Aqua	itic Bio	oassay & Cons	ulting Labs, Inc.
Analysi Analyz		05-0330-6571 19 Mar-18 13:5	Endpoi 3 Analysi		Cell Density Linear Interpola	tion (ICPIN)		CETIS Vers		CETISv1.9.2 Yes	
Batch I	ID:	04-5085-2596	Test Ty	/pe:	Cell Growth			Analyst:			
Start D	ate:	08 Mar-18 12:36	Protoco	ol:	EPA/821/R-02-	013 (2002)		Diluent:	Labor	atory Water	
Ending	Date:	12 Mar-18 11:30	Specie	s:	Selenastrum ca	pricornutum		Brine:	Not A	pplicable	
Duratio	on:	: 95h Source: Aquatic Biosystems, CO Age:									
Sample	e ID:	01-7924-9043	Code:		SEL030818s			Client:	Intern	ıal Lab	
Sample	e Date:	08 Mar-18 12:36	Materia	al:	Cadmium chloride			Project:	REF	TOX	
Receip	t Date:		Source) :	Reference Toxi	cant					
Sample	e Age:	n/a	Station	1:							
Linear	Interpo	olation Options									
X Trans	sform	Y Transform	Seed		Resamples	Exp 95% CL	Method				
Linear		Linear	0		280	Yes	Two-Point	Interpolation			
Test Ac	cceptal	bility Criteria	TAC Limi	its							
Attribu	te	Test Stat		pper	Overlap	Decision					
Control	CV	0.02162	<< 0	.2	Yes	Passes Criteria					
Control	Resp	1.06E+6	1000000 >	>	Yes	Passes Criteria					
Point E	Estimat	tes									
Level	μg/L	95% LCL	95% UCL								
IC5	41.9	7 26.31	55.07								
IC10	54.9		67.02								
IC15	67.92		79.69								
IC20	80.38		85.46								
IC25	85.88	81.22	90.52								
IC40	102.4	4 99.08	106								
IC50	113.4	110.6	116.8								
0 " 0											

Cell Density Su	ımmary									
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

CETIS Analytical Report

Report Date:

22 Mar-18 08:34 (p 2 of 2)

Test Code:

SEL030818 | 06-7676-7890

Selenastrum	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

05-0330-6571 19 Mar-18 13:53 Endpoint: Cell Density

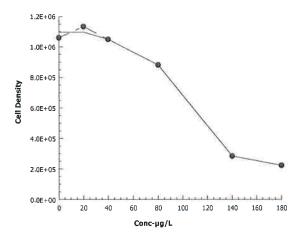
Analysis: Linear Interpolation (ICPIN) **CETIS Version:**

CETISv1.9.2

Official Results:

Yes

Graphics



Report Date: Test Code: 22 Mar-18 08:34 (p 1 of 2) SEL030818 I 06-7676-7890

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								rest Code:	SEI	_03061610	J6-7676-789U
Selenastrum (Growth Test							Aquati	c Bioassay &	Consultin	g 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:	_aboratory Wa	ter	
Ending Date:	12 Mar-18 11:	30	Species:	Selenastrum c	apricornutur	n		Brine:	Not Applicable		
Duration:	95h		Source:	Aquatic Biosys	Aquatic Biosystems, CO			Age:			
Sample ID:	01-7924-9043		Code:	SEL030818s				Client:	nternal Lab		
Sample Date:	08 Mar-18 12:	36	Material:	Cadmium chlo	ride			Project:	REF TOX		
Receipt Date:			Source:	Reference Tox	icant			•			
Sample Age:	n/a		Station:								
Alkalinity (Ca	CO3)-mg/L										
Conc-µg/L	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std Eri	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	Coun	t Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Coun
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

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

7.801

7.834

Analyst:_____ QA:_____

140

180

0

20

40

80

140

180

Overall

Overall

Conc-µg/L

Hardness (CaCO3)-mg/L

5

5

Count

1

1

1

5

30

Code

Ν

393.6

380.8

Mean

103

98

110

111

110

7.8

7.817

431

387.3

375.4

415.2

7.799

7.799

399.9

386.2

446.7

95% LCL 95% UCL

387

377

377

Min

103

110

111

110

7.8

7.7

98

400

388

510

Max

103

98

110

111

110

7.8

7.9

2.272

1.934

7.707

Std Err

0

0

0

0

0

0

0.008419

5.079

4.324

42.21

Std Dev

0

0

0

0

0

0

0.04611

1.29%

1.14%

9.79%

CV%

0.0%

0.0%

0.0%

0.0%

0.0%

0.0%

0.59%

0

0

0

0

0

0

0

0

0 (0%)

0 (0%)

QA Count

40

80 140

180

180

57

62

64 54 Report Date: Test Code: 22 Mar-18 08:34 (p 2 of 2) SEL030818 | 06-7676-7890

Selenastrum G	rowth 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
Overali		30	24.84	24.81	24.87	24.8	25	0.01486	0.08137	0.33%	0 (0%)
Alkalinity (CaC	O3)-mg/L										
Conc-µg/L	Code	1									
0	N	60									
20		53									

Conductivity-µ	onductivity-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						

140		387	391	393	397	400	
180		377	378	381	380	388	
Hardness (Ca	CO3)-mg/L						
Conc-µg/L	Code	1					
0	Ν	103					
20		98					
40		110					
80		111					
140		110					

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-°0							
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	

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-

Patel, Urvashi

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-

1

4/18/2018

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

All Level IV

No Level IV

78

81/52/5

ecerved By

<u>გ</u>

Sample Integnty. (Check)

Infact

Store samples for 6 months Data Requirements (Check)

5 0 0

72 Hour 50

24 Hour ___

48 Hour

48 hours Holding Time NO3 & NO2 Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prepussing dean procedures 48 hour holding time for turbidity Comments 용 Hold 물 물 물 ANALYSIS REQUIRED Total Recoverable Metals Merrury (E245 1) × Priority Pollutants-SVOCs (E625) × youry Hospital Perfection (E006) (£350.2) V-simomin (€350.2) ((COPSZWE) 2.081) SET œ nupiquà' LD2 (8WS240C/E1801) Š. erchlorate (E300) I N-, F-, SO4, Witrate-N, Mutrite-N, NO3+NO2-N, uffactants (MBAS) (SM5540C/E425 1) (2005 (20 degrees C) (E405 1 (2005 1) œ (CDD (sug sij congenera) (E1613B) Total Recoverable Metals (E200 7) As, Ba, B, Be, Co, Cr, Fe, Min, Ni, V, Zn, Hardness as CaCO3 (E200 8) Ag, Cd, Cu, Pb, Sb, Se, Ti Legend: R=Routine, A=Annual, C=Quarterly MS/MSD 3 £ £ £ 운 £ £ £ £ ž £ ŝ £ ₽₽ Project
Boeing-SSFL NPDES
Permit 2018
Annual Outfall (001, 002, 011, 018)
Comp Bottle # Project Manager Katherine Miller 520 289 8606, 520 904 6944 (cell) 978 234.5033, 818.599.0702 (cell) 8 25 27 5 13 ŝ 22 \$ 180 2 175 8 50 125 8 Field Manager Mark Dominick Preservative H₂SO₄ E S S Noge None None None None None None None None None Nose None None None , ₽ Q N 1 L Glass Amber

Container Type

Sample Metrix

Sampling Date/Time

9 Sample !

Sample Description

Total/merca's services under the CoC shall be performed in accordance with the 14cs. within Bernate Service Agreement 2016-16.

Test/merca by and between Heavy & Addrich, five, its autoidatives and efficients and Tillages and Testives for Testivieral Laboratores for

Test America Contact: Urvashi Patei 17461 Derian Ave Sulls #100 Irvine CA 92614 Tel 949-260-3289 Cell 949-333-9055

5333 Mission Center Rd Suite 300 San Diego, CA 92108

Client Name/Address Haley & Aldrich 1 t. Glasa Amber

300 mL Posy

Š Š 500 mL Poly

500 ml. Poly \$00 ml. Poly

3/23/2018

Ouffaito02_20160323_Comp

Page 26 of 32

Outlail 902

500 mt. Poly

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1. Poty

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1 L Glass Amber 1 L. Glassa Amber

1 L Posy

1 L Glass Amber 1 L Glass Amber

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3/23/2018

Outhel 1002_20180323_Comp_Extra

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4/18/2018

500 mi. Poly 500 mt. Poly

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-\$1/E2/E

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody

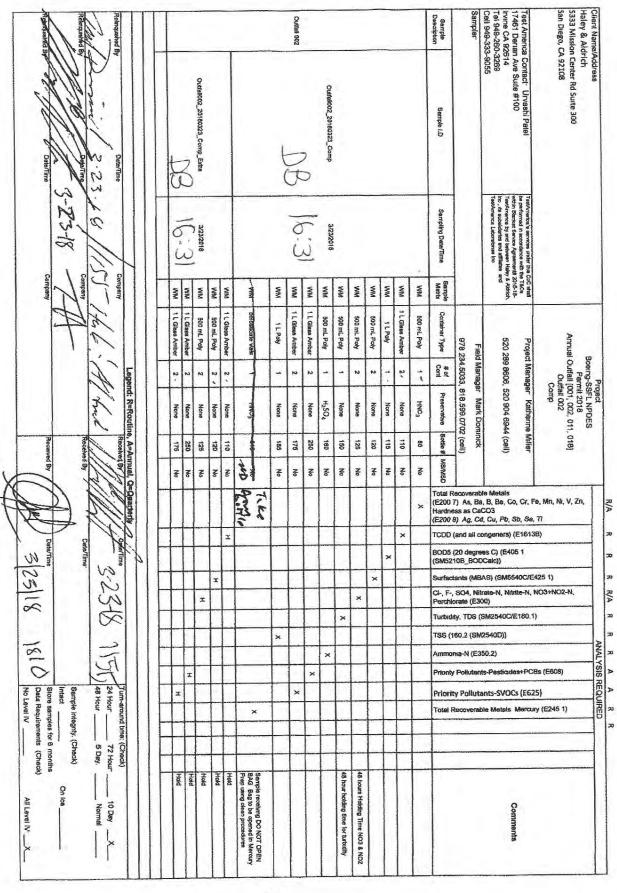
Page 1 of 2

Test America

Test America

CHAIN OF CUSTODY FORM

440-206832 Chain of Custody



3/23/15

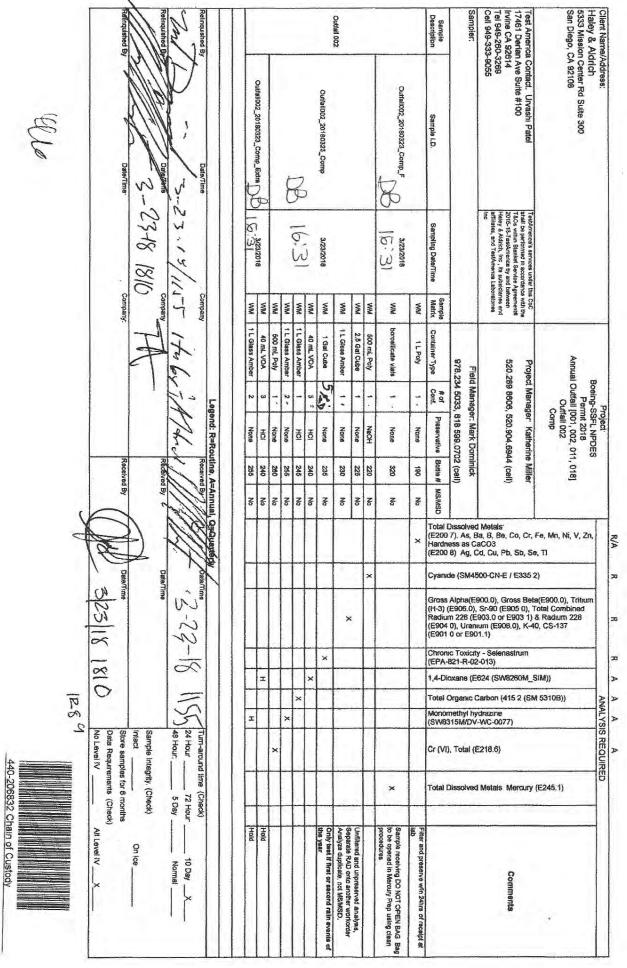
CHAIN OF CUSTODY FORM

Test America

									R/A	æ	8	RA	٧	٧	٧		
Client Name/Address	y/Address:				α.	Project							AN	\LYSIS	ANALYSIS REQUIRED	_	
Haley & Aldrich 5333 Mission Certer F San Diego, CA 92108	Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			Boe Annual Ou	Soeing-S Duffell Outfall	Boeing-SSFI. NPDES Permit 2018 I Ouffall [001, 002, 011, 018] Ouffall 002 Comp	S 11, 018			muifit (0.00e3)	, CS-137	((MI)	((80163			E246.1)	
Test America Cont 17461 Derian Ave Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Test America Contact. Urvashi Patel 17461 Derian Ave Sutte #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	TestAmenca's services under this COC shall be performed in eccordance with the T&Cs within Blanked Service Agreement 2015-16-frestAmenca by and between Heley & Addrich, inc., its subaddance and affiliates, and TestAmenca Laborationes	COC with the wennents meen ries and atones	Project 520,289	4 Manag 39 8606	Project Manager Katherine Miller 520.289 8806, 520.904,6944 (cell)	ne Mille		, 8, 8e, Co, Cr, F 503 , Cu, Pb, Sb, Se,	T (0 8063) 06-3	- Selenastrum 1) 37.0 or E903 1) K-40	K (SW8260M_S	MS) S 2 (5M	AC-0033) strue	(9.81	Aetals Mercury (Comments
Sampler				Field M	- Manag	lanager Mark Dominick	minink		CaC CaC	063 S ((. FOG	0-20	E O:	Λ-Λ ιλqι	Z3)	N P	
				978.234		5033, 818 599.0702 (cell)	102 (cell		,2A .(V 28 22 ,QA (8)shqi/ 0.8063	67), Ura 3 or E9	71-6-	omegn	O/WiSi	stoT	eviossi	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Metrix	Container Type	S a	Preservative	Bottle #	MS/WSD	enbreH 3 0023)	Gross /	(E904 C	8-A93)	O listoT	monoM E8WS	(VI),	Total Di	
			¥	1 L Poly	-	None	8	2	×								Filter and preserve with 24hrs of receipt at
Pa	OuffallOt2_20180323_Comp_F	3232018	MW	borosilicate vials	***	None	ş	g								×	Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures
g€			WW	500 mi. Poly	-	NaOH	8	₽		×		-		-			
. 2			MW	2.5 Gal Cube	÷	None	52	ž				-		-		-	Unfiltered and unpreserved analysis,
0 8:			N.	1 L Glass Amber	-	None	82	2		······································	×						Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
of 3	Outfall002_20180323_Comp	3/23/2018	MAN	1 Gel Curbs	5%.	None	235	£				×		├			Only test if first or second rain events of
2			NA.	40 mL VOA	3 %	Ÿ	8	ş				ľ		-	-	-	
			WW	1 L Glass Amber	-	Ÿ	245	Š				H	×	_	-		
			WW	1 L Glass Amber	2.	None	255	٥N						×			
	and the second s		N/N	500 ml. Poly	<u>-</u>	None	£	Š							×		
	Outfall002_20180323_Comp_Extra	3/23/2018	N.	40 mL VOA	6	Ŷ	8	Ñ				-					ноід
			AVN.	1 L GHBSS Amper	7	None	ĝ	2				-		I I			H0Id
					Į į	end: R=Ro	utine	=Annual	Legend: R=Routine, A=Annual, O=Ouendertu								
Refinquished By	1		Сотрапу		-	,	Received By	CAR	R.	ate/Time	20	2	=	1	Turn-around (time (Check)	ne (Check)	
In		3-23-18/11	1-1	1 tr 6x	17	j.	7		H	S	-69-	<u></u>		₹ 8 8	24 Hour 48 Hour	72 Hour 5 Day	r 10 DayX
Relinquished B	A A	3-23-18 1810	Company	4			Received By	2 Yang	(Date/Time				S 1	Sample Integrity. (Check)	y. (Check)	
Refinquished By	y Date/Time		Company.	2			Received By	d By		Date/Time				Store	Store samples for 6 months	for 8 month	S
	The state of the s	er a post-primer year gay, de calabilitation and ca							B	323	0 181 811S	181	0	Q N	Data Requirements (Check)	ents (Chec	k) All Level IVX
)	+	•	•		12.8	2			

Test America

CHAIN OF CUSTODY FORM Page 2 of 2



TestAmerica Irvine	į					TestAmerico	price
1/401 Defiail Ave Suite 100 Irvine, CA 92614-5817 Phone (949) 261-1022 Fax (949) 260-3297	Chair	n of Cust	Chain of Custody Record			THE LEADING IN ENVIRONM	OMMENTAL TESTING
Client Information (Sub Confract Lab)	Sampler:		Lab PM: Patel, Urvashi		Carrier Tracking No(s):	COC No. 440-120495.1	
	Phone:		E-Mait: urvashi.patel@testamericainc.com	stamericainc.com	State of Origin: California	Page 1 of 1	
Company. TestAmerica Laboratories, Inc.			Accreditations R State Progra	Accreditations Required (See note): State Program - California		Job #: 440-206832-2	
Address: 880 Riverside Parkway,	Due Date Requested: 3/29/2018			Analysis Requested	quested	Ö	
City: West Sacramento	TAT Requested (days):		1			B - NaOH N - Non C - Zn Acetate O - Asn	M - Hexane N - None O - AsNaO2
State, Zlp. CA, 95605			elstoT (-			104S 1SO3
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	#Od					ס	S203 504 Dodecahydrate
	#OM		(0)			I - Ice J - DI Water	tone
Project Name: Rosing NPDES SSEL outfalls	Project #. 44009879		4 10 s			K-EDTA L-EDA	W - pH 4-5 Z - other (specify)
Site:	SSOW#.		D (Ye			Confliction Other:	
Sample Identification - Client ID (Lab ID)	Sample Date Time	Sample Type (C=comp, G=crab)	Matrix (wwwater, Sesonid, Seso			Total Number o	ons/Note:
	1	Preserva	X				
Outfall002_20180323_Comp (440-206832-2)	3/23/18 04:31	1	Water			2 See QAS, Boeing w/u to zero, ug/L; Use	ero, ug/L; Use
	Pacific					Boeing glassware.	
Note: Since laboratory accreditations are subject to change. TestAmerica Laboratories, inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratory accreditation in the State of Origin Isled above for analysis/lests/mainty 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.	Laboratores, Inc. places the cownership alysis/tests/matrix being analyzed, the sam are current to date, return the signed Chair	of method, analyte & aples must be shipped Custody attesting	accreditation compliance upor d back to the TestAmerica lab to said complicance to TestA	n out subconfract laboratories. oratory or other instructions will merica Laboratories, Inc.	This sample shipment is forwarded u	Inder chain-of-custody. If the laboral	itory does not FestAmerica
Possible Hazard Identification			Sample D	isposal (A fee may be a	essed if samples are	retained longer than 1 month) Archive For	ths
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	K 2	Special In	Special Instructions/QC Requirements:			
Empty Att Relinquished by	Date:	(Time:	0	Method of Shipment.		
Reingueffed By	DateTime.	0	Company Received by	d by.	SaterTime: DaterTime:	18 865 Company	1-Sac
Reinquished by:	Date/Time	S	Company Received by	d by:	DateTime	Company	γı
Custody Seals Intact: Custody Seal No.:			Cooler 1	Cooler Temperature(s) °C and Other Remarks:	Smarks: 2,6		

Client: Haley & Aldrich, Inc.

Job Number: 440-206832-2

Login Number: 206832 List Source: TestAmerica Irvine

List Number: 1

Creator: Soderblom, Tim

Crouter Coursell, IIII		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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 Irvine





Tracking #41719	2741	SCALL	SO //PO / FO
I racking # III II W	06 1 10	0011	50 // 07 FO

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.

Job:

lotes: Sample 5A was	Therm. ID: AK-2 / AK-3 / AK-4 / AK-5 / H	ACCP	/ Oth	er
recieved broken. Mb	Ice Wet Gel	Other.		
DH 8/27/18	Cooler Custody Seal: Seal			
	Sample Custody Seal:			
	Cooler ID: 3.42		-	_
	Temp: Observed			
	From: Temp Blank Sample	(d)		
	NCM Filed: Yes □ No			
		Yes	No	NA
	Perchlorate has headspace?			WA .
	CoC is complete w/o discrepancies?	-	ם	D
	Samples received within holding time?	1		
	Sample preservatives verified?		D '	P
	Cooler compromised/tampered with?		B	7
	Samples compromised/tampered with?		(D)	
	Samples w/o discrepancies?	D i	opi	D
	Sample containers have legible labels?	. 0	ο,	D
	Containers are not broken or leaking?	p >	N. Y	
	Sample date/times are provided.	6		
	Appropriate containers are used?	Do 1		
	Sample bottles are completely filled?	Spor 1		ם
	Zero headspace?*	ו ם		P
	Multiphasic samples are not present?	中		D
	Sample temp OK?	1		
	Sample out of temp?	D 1	P	
	111000 21210 -	2	CQ-	3
	Initials: Mg Date: 3/27/18 Tir	me 8	500 56 mm)