# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 94732 List Number: 1 Croator: Blocker, Kristina M

Creator:	Blocker,	Kristina M	

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

Job Number: 440-94732-1

List Source: TestAmerica Irvine

# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 94934 List Number: 1

Creator: Blocker, Kristina M

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

List Source: TestAmerica Irvine

Job Number: 440-94732-1

Client: Haley & Aldrich, Inc.

### Login Number: 94934 List Number: 2

Creator: Daniels, Brian J

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.	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	7.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 440-94732-1

List Source: TestAmerica St. Louis

List Creation: 12/05/14 01:27 PM

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

Μ	at	rix:	W	ater

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

> 12 13

> > 5

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(40-110)	
440-94733-A-3-B DU	Duplicate	106	
440-94934-1	Outfall009_20141203_Comp	84.7	
440-94934-2	Trip Blank	106	
_CS 160-161419/2-A	Lab Control Sample	103	
MB 160-161419/1-A	Method Blank	101	

Ba = Ba Carrier

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

Matrix: Water

				Percent Yield (Acceptance Lin
		Ва	Y	
Lab Sample ID	Client Sample ID	(40-110)	(40-110)	
440-94733-A-3-D DU	Duplicate	106	88.2	
440-94934-1	Outfall009_20141203_Comp	84.7	88.2	
440-94934-2	Trip Blank	106	85.6	
LCS 160-161424/2-A	Lab Control Sample	103	88.2	
MB 160-161424/1-A	Method Blank	101	90.5	
Tracer/Carrier Legend				
Ba = Ba Carrier				
Y = Y Carrier				

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

Matrix: Water

				Percent Yield (Acceptance Limits)
		Sr (C)	Y	
Lab Sample ID	Client Sample ID	(40-110)	(40-110)	
440-94733-A-3-K DU	Duplicate	85.4	95.3	
440-94934-1	Outfall009_20141203_Comp	82.1	96.8	
440-94934-2	Trip Blank	82.8	98.3	
LCS 160-162945/2-A	Lab Control Sample	85.9	91.6	
MB 160-162945/1-A	Method Blank	87.2	95.3	
Tracer/Carrier Legend				
Sr (C) = Sr Carrier				
Y = Y Carrier				

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

Γ			Percent Yield (Acceptance Limits)
		U-232	
Lab Sample ID	Client Sample ID	(30-110)	
440-94733-A-3-G DU	Duplicate	87.5	
LCS 160-162442/2-A	Lab Control Sample	85.4	
MB 160-162442/1-A	Method Blank	89.0	

Prep Type: Total/NA

Client: Haley & Aldrich, Inc. Project/Site: Routine outfall 009

#### Tracer/Carrier Legend

U-232 = Uranium-232

TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-96486-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

# I. INTRODUCTION

Task Order Title: Contract Task Order: Sample Delivery Group:	Haley & Aldrich Boeing SSFL Stormwater 1272.003H.01 001 440-96486-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

# Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
Outfall_009_20141213 _Comp	440-96605-1	N/A	Water	12/13/2014 3:06:00 PM	E1613B, E200.8, E900, E901.1, E903.0, E904.0, E905.0, E906.0, HASL-300 U MOD, RADUIM, SM2540D

# II. Sample Management

The coolers for the 1613B analysis and a portion of the samples received at TestAmerica-Irvine were below the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ ; however, as the sample containers were not noted to be damaged or frozen, no qualifications were required. The remaining samples were received within the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ . According to the case narrative for this SDG, the sample containers were received intact and properly preserved, as applicable. No COC transferring the samples to TestAmerica-St. Louis was provided. A correction to the sample ID on the COC to TestAmerica-Irvine was not initialed or dated. The COCs were appropriately signed and dated by field and laboratory personnel. Custody seals were intact upon receipt at Test-America-Knoxville and St. Louis. The samples were delivered to TestAmerica-Irvine by courier.

Upon receipt at TestAmerica-Irvine, the laboratory prepared the radionuclide samples and a blank that accompanied the samples to TestAmerica-St. Louis.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

# Data Qualifier Reference Table

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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

# **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

# III. Method Analyses

# A. EPA METHOD 1613B—Dioxin/Furans

Reviewed By: L. Calvin Date Reviewed: January 16, 2015

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

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
  - GC Column Performance: A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.
  - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.
- Calibration: Calibration criteria were met.
  - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.
  - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.
- Blanks: The method blank had a detect below the reporting limit for OCDD at 0.0000276 µg/L. The sample concentration of OCDD exceeded 10× the method blank concentration and required no qualification. The method blank had no other detects above the estimated detection limit (EDL).

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

The results for 1,2,3,4,6,7,8-HpCDF and 1,2,3,6,7,8-HxCDF reported as EMPCs were qualified as estimated nondetects, "UJ," at the level of the EMPC. Totals HpCDF, HxCDF, PeCDF, and TCDF containing one or more EMPC peaks were qualified as estimated, "J."

# B. EPA METHOD 200.8—Metals

Reviewed By: P. Meeks Date Reviewed: January 16, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the  $MEC^{x}$  Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 200.8, and the National Functional Guidelines for Inorganic Data Review (2014).

• Holding Times: The analytical holding time, six months, was met.

- Tuning: Mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.
- Calibration: The initial and continuing calibration recoveries were within 90-110% and the CRI recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Recoveries were within 80-120%. If detected in the ICSA, the interferents were less than the certified trace contaminant concentration.
- Blank Spikes and Laboratory Control Samples: Recoveries and the RPDs were within the method control limits of 85-115% and ≤20%, respectively.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG for the total analytes. The recoveries were within the method control limits of 70-130% and the RPDs were within the laboratory control limit of ≤20%.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards: Sample internal standard recoveries were within 60-125% of the calibration blank.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-"; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

# C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks Date Reviewed: January 16, 2015

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *EPA Methods 900.0, 901.1, 903.0, 904.0, 905.0, and 906.0, HASL-300,* and the *National Functional Guidelines for Inorganic Data Review* (2014).

- Holding Times: The tritium sample was analyzed within 180 days of collection. Aliquots for the remaining analytes were preserved within the five-day holding time.
- Calibration: The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

The gross alpha and radium-226 detector efficiencies were less than 20%; therefore, gross alpha and radium-226 in the sample was qualified as estimated, "J," for detects and, "UJ," for nondetects. The remaining detector efficiencies were greater than 20%.

All initial and annual calibration verifications were acceptable with mean recoveries within 90-110%. All carrier recoveries were within 40-110%. The gamma spectroscopy analytes were determined at the maximum photopeak energy.

- Blanks: There were no analytes detected in the method blanks or the blank prepared by TestAmerica-Irvine.
- Blank Spikes and Laboratory Control Samples: The recoveries and the radium-228 and tritium relative error ratios (RERs) were within laboratory-established control limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on a sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No matrix spike analyses were performed on a sample in this SDG. Method accuracy was evaluated based on LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDCs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Reported nondetects are valid to the MDC.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

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

# D. Standard Method 2540D—Total Suspended Solids (TSS)

Reviewed By: P. Meeks Date Reviewed: January 16, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the  $MEC^{X}$  Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), Standard Method for the Examination of Water and Wastewater Method 2540D, and the National Functional Guidelines for Inorganic Data Review (2014).

- Holding Times: The analytical holding time, seven days, was met.
- Calibration: The balance calibration logs were acceptable.
- Blanks: The method blank had no detect for TSS.
- Blank Spikes and Laboratory Control Samples: The recovery was within the control limits of 85-115%.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on the sample in this SDG. The RPD was within the control limit of ≤10%.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses are not applicable to the TSS analysis.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-," otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

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

# Validated Sample Result Forms: 440964861

Analysis Method	<i>E161</i> .	3B							
Sample Name Out	fall_009_2	20141213_0	C Matrix Typ	e: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014 3:06	5:00 PM	Valid	ation Level:	3					
Lab Sample Name: 440-9	6605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9- Octachlorodibenzofuran (OCDF)	Ν	39001-02-0	0.0000978	0.000101	0.0	ug/L	J	J	DNQ
1,2,3,4,6,7,8,9-Octachlorodibenzo- dioxin (OCDD)	p- N	3268-87-9	0.00180	0.000101	0.0	ug/L	В		
1,2,3,4,6,7,8- Heptachlorodibenzofuran (HpCDF	N )	67562-39-4	0.0000330	0.0000505	0.0	ug/L	QJ	UJ	*Ш
1,2,3,4,6,7,8-Heptachlorodibenzo- <sub>I</sub> dioxin (HpCDD)	p- N	35822-46-9	0.000175	0.0000505	0.0	ug/L			
1,2,3,4,7,8,9- Heptachlorodibenzofuran (HpCDF	N )	55673-89-7		0.0000505	0.0	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofura HxCDF)	n N	70648-26-9		0.0000505	0.0	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	39227-28-6		0.0000505	0.0	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzofura (HxCDF)	n N	57117-44-9	0.00000340	0.0000505	0.0	ug/L	Q1	UJ	*Ш
1,2,3,6,7,8-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	57653-85-7	0.00000957	0.0000505	0.0	ug/L	J	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofura (HxCDF)	n N	72918-21-9		0.0000505	0.0	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	19408-74-3	0.00000801	0.0000505	0.0	ug/L	J	J	DNQ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	Ν	57117-41-6		0.0000505	0.0	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p- dioxin (PeCDD)	Ν	40321-76-4		0.0000505	0.0	ug/L	U	U	
2,3,4,6,7,8-Hexachlorodibenzofura (HxCDF)	n N	60851-34-5		0.0000505	0.0	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	Ν	57117-31-4		0.0000505	0.0	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	Ν	51207-31-9		0.0000101	0.0	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-diox (TCDD)	in N	1746-01-6		0.0000101	0.0	ug/L	U	U	
Total Heptachlorodibenzofuran HpCDF)	Ν	38998-75-3	0.0000881	0.0000505	0.0	ug/L	Q	J	*Ш
Total Heptachlorodibenzo-p-dioxir (HpCDD)	n N	37871-00-4	0.000438	0.0000505	0.0	ug/L			
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000570	0.0000505	0.0	ug/L	JQ	J	DNQ, *III
Total Hexachlorodibenzo-p-dioxin	Ν	34465-46-8	0.0000490	0.0000505	0.0	ug/L	J	J	DNQ

(HxCDD)

# Analysis Method E1613B

Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.0000145	0.0000505	0.0	ug/L	Q1	1	DNQ, *III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9		0.0000505	0.0	ug/L	U	U	
Total Tetrachlorodibenzofuran (TCDF)	Ν	55722-27-5	0.0000115	0.0000101	0.0	ug/L	Q1	1	DNQ, *III
Total Tetrachlorodibenzo-p-dioxin (TCDD)	Ν	41903-57-5		0.0000101	0.0	ug/L	U	U	

# Analysis Method E200.8

Sample Name

Outfall\_009\_20141213\_C Matrix Type: WM

Result Type: TRG

Sample Date: 12/13/2014 3:06:00 PM Validation Level: 3

Lab Sample Name: 440-96605-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0		2.0	0.50	ug/L	UQP	U	
Antimony	Ν	7440-36-0	0.74	2.0	0.50	ug/L	J,DX	J	DNQ
Antimony	Т	7440-36-0	0.74	2.0	0.50	ug/L	J,DX	J	DNQ
Cadmium	Ν	7440-43-9	0.31	1.0	0.25	ug/L	J,DX	J	DNQ
Cadmium	D	7440-43-9		1.0	0.25	ug/L	UQP	U	
Cadmium	Т	7440-43-9	0.31	1.0	0.25	ug/L	J,DX	J	DNQ
Copper	Ν	7440-50-8	9.0	2.0	0.50	ug/L			
Copper	Т	7440-50-8	9.0	2.0	0.50	ug/L			
Copper	D	7440-50-8	4.6	2.0	0.50	ug/L	QP		
Lead	Ν	7439-92-1	8.8	1.0	0.50	ug/L			
Lead	Т	7439-92-1	8.8	1.0	0.50	ug/L			
Lead	D	7439-92-1	1.1	1.0	0.50	ug/L	QP		
Thallium	Ν	7440-28-0		1.0	0.50	ug/L	U	U	
Thallium	Т	7440-28-0		1.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0		1.0	0.50	ug/L	UQP	U	

Analysis Method E900

Sample NameOutfall\_009\_20141213\_CMatrix Type:WMResult Type:TRG

Sample Date: 12/13/2014 3:06:00 PM Validation Level: 3

Lab Sample Name: 440-96605-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	Ν	GROSSALPH	IA2.53	3.00	1.75	pCi/L		J	С
Gross Beta Analytes	Ν	GROSSBETA	9.90	4.00	1.05	pCi/L			

Sample Name (	<i>E901</i> . Outfall 009 2	20141212 C	Matrix Tw	pe: WM		Result Ty	pe: TRG		
Sample Name Sample Date: 12/13/2014		_	ation Level:	-		Acoust 1 y	he. 110		
<b>5411111 Date:</b> 12/13/2014	5.00.00 1 141	v anda	auon Level:	5					
Lab Sample Name: 44	40-96605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	Ν	10045-97-3	1.06	20.0	9.94	pCi/L	U	U	
Potassium-40	Ν	13966-00-2	-73.0		244	pCi/L	U	U	
Analysis Method	E903.	.0							
Sample Name (	Outfall_009_2	20141213_C	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014	3:06:00 PM	Valida	ation Level:	3					
Lab Sample Name: 44	40-96605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	Ν	13982-63-3	0.284	1.00	0.281	pCi/L		J	С
Analysis Method	E904.	.0							
	Outfall_009_2	20141213_C	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014			ation Level:						
Lab Sample Name: 4	40-96605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	Ν	15262-20-1	0.564	1.00	0.686	pCi/L	U	U	
Analysis Method	E905.	.0							
Sample Name (	Outfall_009_2	20141213_C	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014	3:06:00 PM	Valida	ation Level:	3					
T									
-	40-96605-1								
Lab Sample Name: 4	40-96605-1 <b>Fraction</b>	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lab Sample Name: 4 Analyte		CAS No 10098-97-2		<b>RL</b> 3.00	<b>MDL</b> 1.14				
Lab Sample Name: 4 Analyte	<b>Fraction</b> N	10098-97-2	Value			Units	Qualifier	Qualifier	
Lab Sample Name: 4 Analyte Strontium-90 Analysis Method	<b>Fraction</b> N	10098-97-2 .0	-0.175	3.00		Units	<b>Qualifier</b> U	Qualifier	
Lab Sample Name: 44 Analyte Strontium-90 Analysis Method Sample Name	Fraction N E906. Outfall_009_2	10098-97-2 .0 20141213_C	-0.175	3.00 pe: WM		Units pCi/L	<b>Qualifier</b> U	Qualifier	
Lab Sample Name: 4 Analyte Strontium-90 Analysis Method Sample Name (Sample Date: 12/13/2014	Fraction N E906. Outfall_009_2	10098-97-2 .0 20141213_C	Value -0.175	3.00 pe: WM		Units pCi/L	<b>Qualifier</b> U	Qualifier	Validation Notes
Lab Sample Name: 4 Analyte Strontium-90 Analysis Method Sample Name (Sample Date: 12/13/2014	Fraction           N           E906.           Outfall_009_2           3:06:00 PM	10098-97-2 .0 20141213_C Valida	Value -0.175	3.00 pe: WM		Units pCi/L	<b>Qualifier</b> U	Qualifier	

Analysis Method	HASL	300 U N	<i>Iod</i>						
Sample Name Ou	utfall_009_2	20141213_C	Matrix Typ	e: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014 3:	06:00 PM	Valida	tion Level:	3					
Lab Sample Name: 440	-96605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Uranium	Ν	URANIUM	0.529	1.00	1.00	pCi/L	UG	U	
Analysis Method	SM25	40D							
Sample Name Ou	utfall_009_2	20141213_C	Matrix Typ	e: WM		Result Ty	pe: TRG		
Sample Date: 12/13/2014 3:	06:00 PM	Valida	tion Level:	3					
Lab Sample Name: 440	-96605-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS)	Ν	TSS	78	5.0	2.5	mg/L			



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: 440-96486-1

Client Project/Site: Boeing SSFL NPDES Routine Outfall 009 Revision: 2

# For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

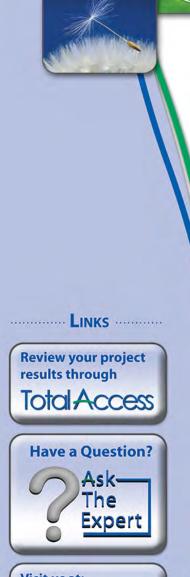
# Attn: Nancy Gardiner

Authorized for release by: 1/20/2015 4:33:00 PM Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@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.



Visit us at: www.testamericainc.com Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

> 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.

lebby Wilson

Debby Wilson Manager of Project Management 1/20/2015 4:33:00 PM

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Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009 TestAmerica Job ID: 440-96486-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-96486-1	Outfall009_20141212_Grab	Water	12/12/14 07:00	12/12/14 16:39
440-96605-1	Outfall009_20141213_Comp	Water	12/13/14 03:06	12/13/14 12:25
440-96605-2	Trip_Blank	Water	12/13/14 12:25	12/13/14 12:25

TestAmerica Irvine

#### Job ID: 440-96486-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-96486-1

#### Receipt

The samples were received on 12/12/2014 4:39 PM and 12/13/2014 12:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.5° C, 1.0° C and 3.6° C.

#### HPLC/IC

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

#### RAD

Method(s) 905: Prep Batch 165620: The strontium-90 sample has negative activity greater than the 3 sigma uncertainty. The sample cannot be recounted to verify activity due to the rapid decay rate of the yttrium carrier. The data have been qualified and reported. Trip\_Blank (440-96594-2)

Method(s) ExtChrom: Uranium (165361): The samples are a dark yellow-brown color. A reduced aliquot of 100 mL was used to prevent matrix interference. Outfall009\_20141213\_Comp (440-96605-1)

Method(s) PrecSep\_0: radium-228 batch #168188: The following samples were reduced to 500 mL because they were orange and contained sediment: Outfall009\_20141213\_Comp (440-96605-1).

Method(s) PrecSep\_0: radium-228 batch #168188: Insufficient volume of the following samples was available to perform a sample duplicate associated with this batch: Outfall009\_20141213\_Comp (440-96605-1), Trip\_Blank (440-96605-2). A LCSD was performed.

Method(s) PrecSep-21: radium-228 batch #164116 and radium-226 batch #164103: The following samples were reduced to 500 mL due to sediment: Outfall009\_20141213\_Comp (440-96605-1).

Method(s) PrecSep-7: strontium-90: The following samples in batch #165620 were prepped at a reduced aliquot due to the presence of sediment: Outfall009\_20141213\_Comp (440-96605-1).

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

#### Metals

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

#### **General Chemistry**

Method(s) SM 4500 CN E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 224827 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recovery were within acceptance limits.

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

#### Subcontract non-Sister

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

#### Organic Prep

Method(s) 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 226034. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

#### Subcontract Work

Method 1613 dioxin: This method was subcontracted to TestAmerica Knoxville. The subcontract laboratory certification is different from

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Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

#### Job ID: 440-96486-1 (Continued)

#### Laboratory: TestAmerica Irvine (Continued)

that of the facility issuing the final report. Refer to case narrative in appended report.

# **Client Sample Results**

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009 TestAmerica Job ID: 440-96486-1

Client Sample ID: Outfall009_ Date Collected: 12/12/14 07:00 Date Received: 12/12/14 16:39	20141212_(	Jrad					Lad Sam	ple ID: 440-9 Matrix	6486-' k: Wate
General Chemistry									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
HEM	ND		4.8	1.4	mg/L		12/21/14 14:30	12/21/14 17:01	
Client Sample ID: Outfall009_ ate Collected: 12/13/14 03:06 ate Received: 12/13/14 12:25	20141213_0	Comp					Lab Sam	ple ID: 440-9 Matrix	6605-' k: Wate
Method: 300.0 - Anions, Ion Chroi Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Chloride	13		0.50		mg/L			12/13/14 15:00	
Sulfate	4.3		0.50		mg/L			12/13/14 15:00	
	4.0		0.00	0.20				12/10/11 10:00	
Method: NO3NO2 Calc - Nitrogen,	Nitrate-Nitrit	e							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Nitrate Nitrite as N	3.0		0.15	0.070	mg/L			12/29/14 16:22	
Method: 1613B - Dioxins/Furans,	HRGC/HRMS	(1613B)							
Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fa
2,3,7,8-TCDD	ND		0.0000101	0.00000505			12/17/14 23:30	01/10/15 06:44	
Total TCDD	ND		0.0000101	0.00000505	•		12/17/14 23:30	01/10/15 06:44	
1,2,3,7,8-PeCDD	ND		0.0000505	0.00000314	•		12/17/14 23:30	01/10/15 06:44	
Total PeCDD	ND		0.0000505	0.00000314			12/17/14 23:30	01/10/15 06:44	
1,2,3,4,7,8-HxCDD	ND		0.0000505	0.00000251	•		12/17/14 23:30	01/10/15 06:44	
1,2,3,6,7,8-HxCDD	0.00000957		0.0000505		0		12/17/14 23:30	01/10/15 06:44	
1,2,3,7,8,9-HxCDD	0.00000801		0.0000505	0.00000241			12/17/14 23:30	01/10/15 06:44	
Total HxCDD	0.0000490		0.0000505		0		12/17/14 23:30	01/10/15 06:44	
1,2,3,4,6,7,8-HpCDD	0.000175	5	0.0000505	0.00000411	•		12/17/14 23:30	01/10/15 06:44	
Total HpCDD	0.000438		0.0000505	0.00000411			12/17/14 23:30	01/10/15 06:44	
OCDD	0.00180	P	0.000101	0.00000340	0		12/17/14 23:30	01/10/15 06:44	
2,3,7,8-TCDF	0.00180 ND	В	0.0000101	0.00000352	•		12/17/14 23:30	01/10/15 06:44	
		<u></u>	0.0000101	0.00000352			12/17/14 23:30	01/10/15 06:44	
Total TCDF 1,2,3,7,8-PeCDF	0.0000115 ND	Q J	0.0000505	0.000000332	•		12/17/14 23:30	01/10/15 06:44	
2,3,4,7,8-PeCDF	ND		0.0000505	0.00000212	•		12/17/14 23:30	01/10/15 06:44	
		<u></u>	0.0000505	0.00000205			12/17/14 23:30	01/10/15 06:44	
Total PeCDF 1,2,3,4,7,8-HxCDF	0.0000145 ND	Q J	0.0000505	0.00000203	-		12/17/14 23:30	01/10/15 06:44	
1,2,3,4,7,8-HxCDF		0.1	0.0000505	0.00000176	-		12/17/14 23:30	01/10/15 06:44	
2,3,4,6,7,8-HxCDF	0.00000340 ND	<b>Q</b> J	0.0000505	0.00000176			12/17/14 23:30	01/10/15 06:44	
	ND		0.0000505	0.00000216	-		12/17/14 23:30	01/10/15 06:44	
1,2,3,7,8,9-HxCDF		10	0.0000505	0.00000210	-		12/17/14 23:30	01/10/15 06:44	
	0.0000570		0.0000505	0.00000180			12/17/14 23:30	01/10/15 06:44	
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	0.0000330 ND	u J	0.0000505		-		12/17/14 23:30		
		0	0.0000505	0.00000305 0.00000265	-		12/17/14 23:30	01/10/15 06:44 01/10/15 06:44	
Total HpCDF OCDF	0.0000881 0.0000978		0.0000505	0.00000285			12/17/14 23:30	01/10/15 06:44	
				0.00000207					
Surrogate 37Cl4-2,3,7,8-TCDD	%Recovery 107	Quaimer	Limits 35 - 197				Prepared 12/17/14 23:30	Analyzed 01/10/15 06:44	Dil Fa
	107		55 - 137				1211117 23.30	01710/10 00.44	
Internal Standard	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C-2,3,7,8-TCDD	88		25 - 164				12/17/14 23:30	01/10/15 06:44	
13C-1,2,3,7,8-PeCDD	86		25 - 181				12/17/14 23:30	01/10/15 06:44	
	90		32 - 141				12/17/14 23:30	01/10/15 06:44	

#### Client Sample ID: Outfall009\_20141213\_Comp Date Collected: 12/13/14 03:06 Date Received: 12/13/14 12:25

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

Internal Standard	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
3C-1,2,3,6,7,8-HxCDD	96		28 - 130				12/17/14 23:30	01/10/15 06:44	
3C-1,2,3,4,6,7,8-HpCDD	98		23 - 140				12/17/14 23:30	01/10/15 06:44	
13C-OCDD	102		17 _ 157				12/17/14 23:30	01/10/15 06:44	
13C-2,3,7,8-TCDF	79		24 - 169				12/17/14 23:30	01/10/15 06:44	
3C-1,2,3,7,8-PeCDF	78		24 - 185				12/17/14 23:30	01/10/15 06:44	
3C-2,3,4,7,8-PeCDF	75		21 _ 178				12/17/14 23:30	01/10/15 06:44	
3C-1,2,3,4,7,8-HxCDF	73		26 - 152				12/17/14 23:30	01/10/15 06:44	• • • • • • •
3C-1,2,3,6,7,8-HxCDF	77		26 - 123				12/17/14 23:30	01/10/15 06:44	
3C-2,3,4,6,7,8-HxCDF	86		28 - 136				12/17/14 23:30	01/10/15 06:44	
'3C-1,2,3,7,8,9-HxCDF	84		29 - 147				12/17/14 23:30	01/10/15 06:44	
3C-1,2,3,4,6,7,8-HpCDF	82		28 - 143				12/17/14 23:30	01/10/15 06:44	
'3C-1,2,3,4,7,8,9-HpCDF	89		26 - 138				12/17/14 23:30	01/10/15 06:44	
13C-OCDF	100		17 _ 157				12/17/14 23:30	01/10/15 06:44	
Method: 200.8 - Metals (ICP/MS) - T	otal Recove	rable							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
admium	0.31	J,DX	1.0	0.25	ug/L		12/23/14 09:41	12/23/14 16:46	
opper	9.0		2.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:46	
ead	8.8		1.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:46	
Antimony	0.74	J,DX	2.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:46	
-hallium	ND		1.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:46	
Method: 200.8 - Metals (ICP/MS) - D	Dissolved								
nalyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Cadmium	ND	QP	1.0	0.25	ug/L		12/24/14 09:59	12/24/14 17:17	
		QP	2.0	0.50	ug/L		12/24/14 09:59	12/24/14 17:17	
	4.6	<b>G</b> (1							
Copper	4.6 1.1		1.0	0.50	ug/L		12/24/14 09:59	12/24/14 17:17	
Copper .ead	1.1		1.0 2.0		ug/L ug/L		12/24/14 09:59 12/24/14 09:59	12/24/14 17:17 12/24/14 17:17	
Copper Lead Antimony	1.1 ND	QP		0.50					
Copper Lead Antimony Thallium	1.1 ND	<b>QP</b> QP	2.0	0.50	ug/L		12/24/14 09:59	12/24/14 17:17	
Copper Lead Antimony Thallium	<b>1.1</b> ND ND	QP QP QP	2.0 1.0	0.50 0.50	ug/L ug/L		12/24/14 09:59	12/24/14 17:17	
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte	1.1 ND ND Result	<b>QP</b> QP	2.0 1.0 <b>RL</b>	0.50 0.50 <b>MDL</b>	ug/L ug/L Unit	D	12/24/14 09:59 12/24/14 09:59 Prepared	12/24/14 17:17 12/24/14 17:17 Analyzed	Dil Fa
Copper .ead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte	<b>1.1</b> ND ND	QP QP QP	2.0 1.0	0.50 0.50 <b>MDL</b>	ug/L ug/L	D	12/24/14 09:59 12/24/14 09:59	12/24/14 17:17 12/24/14 17:17	Dil Fa
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte Mercury	1.1 ND ND Result	QP QP QP	2.0 1.0 <b>RL</b>	0.50 0.50 <b>MDL</b>	ug/L ug/L Unit	D	12/24/14 09:59 12/24/14 09:59 Prepared	12/24/14 17:17 12/24/14 17:17 Analyzed	Dil Fa
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte Mercury General Chemistry	1.1 ND ND Result ND	QP QP QP Qualifier	2.0 1.0 <b>RL</b> 0.20	0.50 0.50 <b>MDL</b> 0.10	ug/L ug/L Unit ug/L		12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/17/14 09:30	12/24/14 17:17 12/24/14 17:17 Analyzed 12/17/14 17:36	Dil Fa
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte Mercury General Chemistry Analyte	1.1 ND ND Result Result	QP QP QP Qualifier	2.0 1.0 	0.50 0.50 MDL 0.10 MDL	ug/L ug/L Unit ug/L	D	12/24/14 09:59 12/24/14 09:59 Prepared	12/24/14 17:17 12/24/14 17:17 Analyzed 12/17/14 17:36 Analyzed	Dil Fa Dil Fa
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte Mercury General Chemistry Analyte Total Dissolved Solids	1.1 ND ND Result Result 140	QP QP QP Qualifier	2.0 1.0 <b>RL</b> 0.20 <b>RL</b> 10	0.50 0.50 MDL 0.10 MDL 5.0	ug/L ug/L Unit ug/L Unit mg/L		12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/17/14 09:30	12/24/14 17:17 12/24/14 17:17 Analyzed 12/17/14 17:36 Analyzed 12/18/14 10:49	Dil Fa Dil Fa
Copper Lead Antimony Thallium Method: 245.1 - Mercury (CVAA) Analyte Mercury General Chemistry Analyte	1.1 ND ND Result Result	QP QP QP Qualifier	2.0 1.0 	0.50 0.50 MDL 0.10 MDL 5.0 2.5	ug/L ug/L Unit ug/L		12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/17/14 09:30	12/24/14 17:17 12/24/14 17:17 Analyzed 12/17/14 17:36 Analyzed	Dil Fa

		Uncert.	Uncert.					
Analyte	Result Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	2.53	1.32	1.35	1.75	pCi/L	12/22/14 10:58	01/04/15 16:40	1
Gross Beta	9.90	1.20	1.55	1.05	pCi/L	12/22/14 10:58	01/04/15 16:40	1

TestAmerica Irvine

Lab Sample ID: 440-96605-1

Matrix: Water

5

# **Client Sample Results**

#### Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

TestAmerica Job ID: 440-96486-1

# Lab Sample ID: 440-96605-1 Matrix: Water

5

Client Sample ID: Outfall009_20141213_Comp
Date Collected: 12/13/14 03:06
Date Received: 12/13/14 12:25

d: 901.1 - Cesium 137 & Other (	Jamma Emit	ters (GS)						
		Count	Total					
		Uncert.	Uncert.					
Resul	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
137 1.06	5 U	5.14	5.14	9.94	pCi/L	12/19/14 11:40	12/22/14 15:28	1
m-40 -73.0	U	536	536	244	pCi/L	12/19/14 11:40	12/22/14 15:28	1
	137 <b>Resul</b>	ResultQualifier1371.06U	Result         Qualifier         (2σ+/-)           137         1.06         U         5.14	Count         Total           Uncert.         Uncert.           Result         Qualifier         (2σ+/-)         (2σ+/-)           137         1.06         U         5.14         5.14	Count         Total           Uncert.         Uncert.           137         1.06	Count         Total           Uncert.         Uncert.           Result         Qualifier         (2σ+/-)         (2σ+/-)         MDC         Unit           137         1.06         U         5.14         5.14         9.94         pCi/L	Count         Total           Uncert.         Uncert.           Result         Qualifier         (2σ+/-)         (2σ+/-)         MDC         Unit         Prepared           137         1.06         U         5.14         5.14         9.94         pCi/L         12/19/14 11:40	Count         Total           Uncert.         Uncert.           Result         Qualifier         (2σ+/-)         (2σ+/-)         MDC         Unit         Prepared         Analyzed           137         1.06         U         5.14         9.94         pCi/L         12/19/14 11:40         12/22/14 15:28

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.284		0.189	0.191	0.281	pCi/L	12/18/14 00:17	01/13/15 07:19	1
Carrier	%Yield Qualit	ier Limit	s				Prepared	Analyzed	Dil Fac
Ba Carrier	84.4	40 - 1	10				12/18/14 00:17	01/13/15 07:19	1

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

				Count	Total						
				Uncert.	Uncert.						
Analyte	Re	sult Qualif	ier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	0.	.564 U		0.436	0.439	0.686	pCi/L	01/13/15 12:50	01/16/15 11:18	1	
Carrier	%Yield Q	ualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	93.2		40 - 110	_				01/13/15 12:50	01/16/15 11:18	1	
Y Carrier	84.5		40 - 110					01/13/15 12:50	01/16/15 11:18	1	

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

				Count	Total					
				Uncert.	Uncert.					
Analyte	Result	Qualifier		(2 <b>σ+/-</b> )	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.175	U		0.614	0.614	1.14	pCi/L	12/29/14 18:01	01/07/15 15:56	1
Carrier	%Yield Quality	fier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	84.6		40 - 110					12/29/14 18:01	01/07/15 15:56	1
Y Carrier	91.6		40 - 110					12/29/14 18:01	01/07/15 15:56	1

#### Method: 906.0 - Tritium, Total (LSC)

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	91.0	U	182	182	310	pCi/L	01/02/15 09:02	01/02/15 16:28	1

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

		Count	Total				
		Uncert.	Uncert.				
Analyte	Result Qualifier	(2σ+/-)	(2σ+/-)	MDC Unit	t Prepared	Analyzed	Dil Fac
Total Uranium	0.529 U G	0.650	0.652	1.00 pCi/	/L 12/24/14 10:49	12/31/14 14:22	1

# **Client Sample Results**

#### Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

TestAmerica Job ID: 440-96486-1

#### Client Sample ID: Trip\_Blank Date Collected: 12/13/14 12:25

Date	<b>Received:</b>	12/13/14	12:25

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity										
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Gross Alpha	-0.358	U	0.717	0.718	1.51	pCi/L	12/22/14 10:58	01/04/15 18:30	1	
Gross Beta	-0.440	U	0.461	0.463	0.913	pCi/L	12/22/14 10:58	01/04/15 18:30	1	

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.000	U	1.19	1.19	11.4	pCi/L	12/19/14 11:40	12/22/14 15:27	1
Potassium-40	-56.4	U	522	522	221	pCi/L	12/19/14 11:40	12/22/14 15:27	1

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

				Count Uncert.	Total Uncert.					
Analyte	Res	ult Qualifie	r	(2 <b>σ</b> +/-)	(2 <b>σ+/-</b> )	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.007	24 U		0.0669	0.0669	0.124	pCi/L	12/18/14 00:17	01/13/15 07:19	1
Carrier	%Yield Qu	alifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110	-				12/18/14 00:17	01/13/15 07:19	1

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.000	U	0.168	0.168	0.302	pCi/L	01/13/15 12:50	01/16/15 11:18	1
Carrier	%Yield Qualif	ïer	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110				01/13/15 12:50	01/16/15 11:18	1
Y Carrier	90.5	4	40 - 110				01/13/15 12:50	01/16/15 11:18	1

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result (	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0721 ไ	U	0.169	0.169	0.291	pCi/L	12/29/14 18:01	01/07/15 15:56	1
Carrier	%Yield Qualifie	er Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	82.7	40 - 110	)				12/29/14 18:01	01/07/15 15:56	1
Y Carrier	90.8	40 - 110	)				12/29/14 18:01	01/07/15 15:56	1

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

		· · ·	Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	-0.0221	U	0.209	0.209	0.295	pCi/L	12/24/14 10:49	01/13/15 13:57	1

#### Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

1	
5	
6	
8	
9	

Vethod	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins/Furans, HRGC/HRMS (1613B)	EPA-5	TAL KNX
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
4-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

#### Protocol References:

1664A = EPA-821-98-002

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

EPA-5 = EPA-5

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

#### Laboratory References:

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

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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

Client Sample ID: Outfall009\_20141212\_Grab

Lab Sample ID: 440-96605-1

# Lab Sample ID: 440-96486-1 Matrix: Water

Matrix: Water

7

#### Date Collected: 12/12/14 07:00 Date Received: 12/12/14 16:39

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1035 mL	1000 mL	226034	12/21/14 14:30	JMB	TAL IRV
Total/NA	Analysis	1664A		1	1035 mL	1000 mL	226039	12/21/14 17:01	JMB	TAL IRV

#### Client Sample ID: Outfall009\_20141213\_Comp Date Collected: 12/13/14 03:06 Date Received: 12/13/14 12:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL		224501	12/13/14 15:00	JRA	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			227160	12/29/14 16:22	TN	TAL IRV
Total	Prep	1613			990 mL	20 uL	4351027_P	12/17/14 23:30		TAL KNX
Total	Analysis	1613B		1			4351027	01/10/15 06:44	PMP	TAL KNX
Dissolved	Filtration	FILTRATION			125 mL	125 mL	226565	12/23/14 18:56	APS	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	226703	12/24/14 09:59	ND	TAL IRV
Dissolved	Analysis	200.8		1	25 mL	25 mL	226988	12/24/14 17:17	NH	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	226388	12/23/14 09:41	ND	TAL IRV
Total Recoverable	Analysis	200.8		1	25 mL	25 mL	226568	12/23/14 16:46	YS	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	225232	12/17/14 09:30	JS1	TAL IRV
Total/NA	Analysis	245.1		1	20 mL	20 mL	225520	12/17/14 17:36	DB	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	225438	12/18/14 10:49	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	200 mL	1000 mL	225928	12/20/14 07:26	NTN	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	224778	12/15/14 15:08	BS	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	224827	12/15/14 17:51	BS	TAL IRV
Total/NA	Prep	Evaporation			200 mL	1.0 g	164748	12/22/14 10:58	MJS	TAL SL
Total/NA	Analysis	900.0		1	200 mL		166467	01/04/15 16:40	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	164475	12/19/14 11:40	MRB	TAL SL
Total/NA	Analysis	901.1		1	1000 mL		164820	12/22/14 15:28	SMP	TAL SL
Total/NA	Prep	PrecSep-21			501.00 g	1.0 g	164103	12/18/14 00:17	JH	TAL SL
Total/NA	Analysis	903.0		1	501.00 g		168078	01/13/15 07:19	RTM	TAL SL
Total/NA	Prep	PrecSep_0			503.90 mL	1.0 g	168188	01/13/15 12:50	LEM	TAL SL
Total/NA	Analysis	904.0		1	503.90 mL		168923	01/16/15 11:18	RTM	TAL SL
Total/NA	Prep	PrecSep-7			254.44 mL	1.0 g	165620	12/29/14 18:01	CMC	TAL SL
Total/NA	Analysis	905		1	254.44 mL		167123	01/07/15 15:56	RTM	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.31 mL	1.0 g	166399	01/02/15 09:02	JDL	TAL SL
Total/NA	Analysis	906.0		1	100.31 mL		166478	01/02/15 16:28	RTM	TAL SL
Total/NA	Prep	ExtChrom			99.83 mL	1.0 mL	165361	12/24/14 10:49	SCB	TAL SL
Total/NA	Analysis	A-01-R		1	99.83 mL		166361	12/31/14 14:22	MLK	TAL SL

TestAmerica Irvine

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

# Client Sample ID: Trip\_Blank

Date Collected: 12/13/14 12:25 Date Received: 12/13/14 12:25

-	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200 mL	1.0 g	164748	12/22/14 10:58	MJS	TAL SL
Total/NA	Analysis	900.0		1	200 mL		166464	01/04/15 18:30	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	164475	12/19/14 11:40	MRB	TAL SL
Total/NA	Analysis	901.1		1	1000 mL		164819	12/22/14 15:27	SMP	TAL SL
Total/NA	Prep	PrecSep-21			967.77 g	1.0 g	164103	12/18/14 00:17	JH	TAL SL
Total/NA	Analysis	903.0		1	967.77 g		168078	01/13/15 07:19	RTM	TAL SL
Total/NA	Prep	PrecSep_0			979.40 mL	1.0 g	168188	01/13/15 12:50	LEM	TAL SL
Total/NA	Analysis	904.0		1	979.40 mL		168923	01/16/15 11:18	RTM	TAL SL
Total/NA	Prep	PrecSep-7			994.51 mL	1.0 g	165620	12/29/14 18:01	CMC	TAL SL
Total/NA	Analysis	905		1	994.51 mL		167123	01/07/15 15:56	RTM	TAL SL
Total/NA	Prep	ExtChrom			499.77 mL	1.0 mL	165361	12/24/14 10:49	SCB	TAL SL
Total/NA	Analysis	A-01-R		1	499.77 mL		168253	01/13/15 13:57	MLK	TAL SL

#### Laboratory References:

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

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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

### Lab Sample ID: 440-96605-2 Matrix: Water

RL

0.50

0.50

Spike

Added

5.00

5.00

MDL Unit

0.25 mg/L

0.25 mg/L

LCS LCS

5.11

4.88

Result Qualifier

D

D

%Rec

102

98

Unit

mg/L

mg/L

Prepared

Method: 300.0 - Anions, Ion Chromatography

MB MB Result Qualifier

ND

ND

Lab Sample ID: MB 440-224501/4

Lab Sample ID: LCS 440-224501/6

Lab Sample ID: 440-96539-L-1 MS

Matrix: Water

Matrix: Water

Matrix: Water

Analyte

Chloride

Sulfate

Analyte

Chloride

Sulfate

Analysis Batch: 224501

Analysis Batch: 224501

**Client Sample ID: Method Blank** 

Analyzed

12/13/14 09:16

12/13/14 09:16

**Client Sample ID: Lab Control Sample** 

%Rec.

Limits

90 - 110

90 - 110

Prep Type: Total/NA

Prep Type: Total/NA

Dil Fac

1

1

# 2 3 5 6 7

13

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

Analysis Batch: 224501										
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	60		50.0	92.6	LN	mg/L		65	80 - 120	 
Sulfate	6.0		50.0	34.2	LN	mg/L		56	80 - 120	
						-				

Lab Sample ID: 440-96539-L-1 MS Matrix: Water Analysis Batch: 224501				Client	t Sa	ample IC	): Matrix S Prep 1	pike Dup Type: Tot				
	Sample	Sample	Spike	MSD	MSD					%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit		D	%Rec	Limits	RPD	Limit
Chloride	60		50.0	91.0	LN	mg/L		_	62	80 - 120	2	20
Sulfate	6.0		50.0	33.8	LN	mg/L			56	80 - 120	1	20

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

Lab Sample ID: H4L170000027B Matrix: Water Analysis Batch: 4351027	МВ	мв						mple ID: Metho Prep Typ Prep Batch: 435	e: Total
Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000100	0.00000589	ug/L		12/17/14 23:30	01/10/15 05:43	1
Total TCDD	ND		0.0000100	0.00000589	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,7,8-PeCDD	ND		0.0000500	0.00000301	ug/L		12/17/14 23:30	01/10/15 05:43	1
Total PeCDD	ND		0.0000500	0.00000301	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,4,7,8-HxCDD	ND		0.0000500	0.00000263	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,6,7,8-HxCDD	ND		0.0000500	0.00000268	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,7,8,9-HxCDD	ND		0.0000500	0.00000247	ug/L		12/17/14 23:30	01/10/15 05:43	1
Total HxCDD	ND		0.0000500	0.00000259	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,4,6,7,8-HpCDD	ND		0.0000500	0.00000302	ug/L		12/17/14 23:30	01/10/15 05:43	1
Total HpCDD	ND		0.0000500	0.00000302	ug/L		12/17/14 23:30	01/10/15 05:43	1
OCDD	0.0000276	J	0.000100	0.00000427	ug/L		12/17/14 23:30	01/10/15 05:43	1
2,3,7,8-TCDF	ND		0.0000100	0.00000442	ug/L		12/17/14 23:30	01/10/15 05:43	1
Total TCDF	ND		0.0000100	0.00000442	ug/L		12/17/14 23:30	01/10/15 05:43	1
1,2,3,7,8-PeCDF	ND		0.0000500	0.00000249	ug/L		12/17/14 23:30	01/10/15 05:43	1
2,3,4,7,8-PeCDF	ND		0.0000500	0.00000223	ug/L		12/17/14 23:30	01/10/15 05:43	1

#### TestAmerica Irvine

Lab Sample ID: H4L170000027B

# Client Sample ID: Method Blank Prep Type: Total Bron Batch: 4351027 B

5

**8** 9

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

Matrix: Water							Prep Type: Total Prep Batch: 4351027_P			
Analysis Batch: 4351027										
	МВ	MB							_	
Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac	
Total PeCDF	ND		0.0000500	0.00000235	ug/L		12/17/14 23:30	01/10/15 05:43	1	
1,2,3,4,7,8-HxCDF	ND		0.0000500	0.00000157	ug/L		12/17/14 23:30	01/10/15 05:43	1	
1,2,3,6,7,8-HxCDF	ND		0.0000500	0.00000170	ug/L		12/17/14 23:30	01/10/15 05:43	1	
2,3,4,6,7,8-HxCDF	ND		0.0000500	0.00000148	ug/L		12/17/14 23:30	01/10/15 05:43	1	
1,2,3,7,8,9-HxCDF	ND		0.0000500	0.00000202	ug/L		12/17/14 23:30	01/10/15 05:43	1	
Total HxCDF	ND		0.0000500	0.00000167	ug/L		12/17/14 23:30	01/10/15 05:43	1	
1,2,3,4,6,7,8-HpCDF	ND		0.0000500	0.00000229	ug/L		12/17/14 23:30	01/10/15 05:43	1	
1,2,3,4,7,8,9-HpCDF	ND		0.0000500	0.00000302	ug/L		12/17/14 23:30	01/10/15 05:43	1	
Total HpCDF	ND		0.0000500	0.00000261	ug/L		12/17/14 23:30	01/10/15 05:43	1	
OCDF	ND		0.000100	0.00000307	ug/L		12/17/14 23:30	01/10/15 05:43	1	
	MB	МВ								
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
37Cl4-2,3,7,8-TCDD	104		35 - 197				12/17/14 23:30	01/10/15 05:43	1	
	МВ	MB								
Internal Standard	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDD	92		25 - 164				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,7,8-PeCDD	87		25 - 181				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,4,7,8-HxCDD	92		32 - 141				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,6,7,8-HxCDD	94		28 - 130				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,4,6,7,8-HpCDD	93		23 - 140				12/17/14 23:30	01/10/15 05:43	1	
13C-OCDD	96		17 - 157				12/17/14 23:30	01/10/15 05:43	1	
13C-2,3,7,8-TCDF	77		24 - 169				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,7,8-PeCDF	80		24 - 185				12/17/14 23:30	01/10/15 05:43	1	
13C-2,3,4,7,8-PeCDF	78		21 - 178				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,4,7,8-HxCDF	72		26 - 152				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,6,7,8-HxCDF	75		26 - 123				12/17/14 23:30	01/10/15 05:43	1	
13C-2,3,4,6,7,8-HxCDF	84		28 - 136				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,7,8,9-HxCDF	79		29 - 147				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,4,6,7,8-HpCDF	79		28 - 143				12/17/14 23:30	01/10/15 05:43	1	
13C-1,2,3,4,7,8,9-HpCDF	86		26 - 138				12/17/14 23:30	01/10/15 05:43	1	

# Lab Sample ID: H4L170000027C Matrix: Water

Client Sample ID: Lab Control Sample
Prep Type: Total

Wallix. Walci			S LCS				Fieh i	ype. Total
Analysis Batch: 4351027							Prep Batch: 4351027_P	
	Spike	LCS					%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
2,3,7,8-TCDD	0.000200	0.000200		ug/L		100	67 - 158	
1,2,3,7,8-PeCDD	0.00100	0.00100		ug/L		100	70 - 142	
1,2,3,4,7,8-HxCDD	0.00100	0.000953		ug/L		95	70 - 164	
1,2,3,6,7,8-HxCDD	0.00100	0.000949		ug/L		95	76 - 134	
1,2,3,7,8,9-HxCDD	0.00100	0.000976		ug/L		98	64 - 162	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000934		ug/L		93	70 - 140	
OCDD	0.00200	0.00179	В	ug/L		90	78 <sub>-</sub> 144	
2,3,7,8-TCDF	0.000200	0.000200		ug/L		100	75 <sub>-</sub> 158	
1,2,3,7,8-PeCDF	0.00100	0.000912		ug/L		91	80 - 134	
2,3,4,7,8-PeCDF	0.00100	0.000949		ug/L		95	68 <sub>-</sub> 160	

TestAmerica Irvine

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

Lab Sample ID: H4L1700000270 Matrix: Water	0						Client	Sample	e ID: Lab Control Sample Prep Type: Tota
Analysis Batch: 4351027			Spike		LCS				Prep Batch: 4351027_F %Rec.
Analyte			Added		Qualifier	Unit	D	%Rec	Limits
1,2,3,4,7,8-HxCDF			0.00100	0.000952		ug/L		95	72 - 134
1,2,3,6,7,8-HxCDF			0.00100	0.000956		ug/L		96	84 - 130
2,3,4,6,7,8-HxCDF			0.00100	0.000946		ug/L		95	70 - 156
1,2,3,7,8,9-HxCDF			0.00100	0.000936		ug/L		94	78 - 130
1,2,3,4,6,7,8-HpCDF			0.00100	0.000924		ug/L		92	82 - 122
1,2,3,4,7,8,9-HpCDF			0.00100	0.000951		ug/L		95	78 - 138
OCDF			0.00200	0.00187		ug/L		93	63 - 170
						- 5			
		LCS							
Surrogate	%Recovery	Qualifier	Limits						
37Cl4-2,3,7,8-TCDD	105		31 - 191						
	LCS	LCS							
Internal Standard	%Recovery	Qualifier	Limits						
13C-2,3,7,8-TCDD	91		20 - 175						
13C-1,2,3,7,8-PeCDD	95		21 - 227						
13C-1,2,3,4,7,8-HxCDD	93		21 - 193						
13C-1,2,3,6,7,8-HxCDD	88		25 - 163						
13C-1,2,3,4,6,7,8-HpCDD	90		26 - 166						
13C-OCDD	91		13 - 199						
13C-2,3,7,8-TCDF	83		22 - 152						
13C-1,2,3,7,8-PeCDF	88		21 - 192						
13C-2,3,4,7,8-PeCDF	85		13 - 328						
13C-1,2,3,4,7,8-HxCDF	78		19 - 202						
13C-1,2,3,6,7,8-HxCDF	79		21 - 159						
13C-2,3,4,6,7,8-HxCDF	84		22 - 176						
13C-1,2,3,7,8,9-HxCDF	85		17 _ 205						
13C-1,2,3,4,6,7,8-HpCDF	80		21 - 158						
13C-1,2,3,4,7,8,9-HpCDF	83		20 - 186						
13C-OCDF	83		13 _ 199						

# Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-226388/1-A Matrix: Water Analysis Batch: 226568		МВ						mple ID: Metho ype: Total Reco Prep Batch:	verable
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		12/23/14 09:41	12/23/14 16:39	1
Copper	ND		2.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:39	1
Lead	ND		1.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:39	1
Antimony	ND		2.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:39	1
Thallium	ND		1.0	0.50	ug/L		12/23/14 09:41	12/23/14 16:39	1

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

85 - 115

98

# 8

# Client Sample ID: Outfall009\_20141213\_Comp Prep Type: Total Recoverable

Client Sample ID: Outfall009\_20141213\_Comp

Prep Type: Total Recoverable

**Client Sample ID: Method Blank** 

**Prep Type: Dissolved** 

Prep Batch: 226388

Lab Sample ID: LCS 440-226388/2-A Matrix: Water Analysis Batch: 226568					Client		Type: Total	ntrol Sample Recoverable atch: 226388
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Cadmium	80.0	81.6		ug/L		102	85 - 115	
Copper	80.0	81.6		ug/L		102	85 <sub>-</sub> 115	
Lead	80.0	81.4		ug/L		102	85 - 115	
Antimony	80.0	83.9		ug/L		105	85 _ 115	

# Lab Sample ID: LCSD 440-226388/3-A Matrix: Water

Analysis Batch: 226568

Thallium

Analysis Batch: 226568							Prep E	Batch: 2	26388
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	80.0	82.0		ug/L		103	85 - 115	1	20
Copper	80.0	81.3		ug/L		102	85 - 115	0	20
Lead	80.0	82.7		ug/L		103	85 _ 115	2	20
Antimony	80.0	84.4		ug/L		106	85 - 115	1	20
Thallium	80.0	81.8		ug/L		102	85 - 115	4	20

78.7

ug/L

80.0

## Lab Sample ID: 440-96605-1 MS Matrix: Water

Analysis Batch: 226568

	nalysis Datch. 220500									пері	Datch. 220000
		Sample	Sample	Spike	MS	MS				%Rec.	
An	nalyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ca	admium	0.31	J,DX	80.0	81.9		ug/L		102	70 - 130	
Co	opper	9.0		80.0	85.8		ug/L		96	70 - 130	
Lea	ad	8.8		80.0	91.8		ug/L		104	70 - 130	
An	itimony	0.74	J,DX	80.0	80.6		ug/L		100	70 - 130	
Th	allium	ND		80.0	81.4		ug/L		102	70 _ 130	

# Lab Sample ID: 440-96605-1 MSD

Matrix: Water aluate Databa 000500

Analysis Batch: 226568									Prep	Batch: 2	26388
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	0.31	J,DX	80.0	82.9		ug/L		103	70 - 130	1	20
Copper	9.0		80.0	88.3		ug/L		99	70 - 130	3	20
Lead	8.8		80.0	93.3		ug/L		106	70 - 130	2	20
Antimony	0.74	J,DX	80.0	81.2		ug/L		101	70 - 130	1	20
Thallium	ND		80.0	81.6		ug/L		102	70 - 130	0	20

# Lab Sample ID: MB 440-226565/1-D Matrix: Water

Analysis Batch: 226988								Prep Batch:	226703
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		12/24/14 09:59	12/24/14 16:39	1
Copper	ND		2.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Lead	ND		1.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Antimony	ND		2.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Thallium	ND		1.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1

Spike

Added

80.0

80.0

80.0

80.0

80.0

LCS LCS

79.5

83.3

79.3

82.1

77.0

Result Qualifier

Unit

ug/L

ug/L

ug/L

ug/L

ug/L

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

**Prep Type: Dissolved** 

Prep Batch: 226703

**Client Sample ID: Lab Control Sample** 

%Rec.

Limits

85 \_ 115

85 - 115

85 - 115

85 - 115

85 - 115

%Rec

99

104

99

103

96

D

# 8

Client Sample ID: Lab Control Sample Dup **Prep Type: Dissolved** 

<b>Client Sample ID: Matrix Spike</b>
Prep Type: Dissolved

Client Sample ID: Matrix Spike Duplicate

issoived	
· 226703	

Cadmium
Copper
Lead
Antimony

# Lab Sample ID: LCSD 440-226565/3-B

Lab Sample ID: LCS 440-226565/2-D

Matrix: Water 000000

Matrix: Water

Analyte

Thallium

Analysis Batch: 226988

Analysis Batch: 226988							Prep I	Batch: 2	26703	
	Spike	LCSD	LCSD				%Rec.		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Cadmium	80.0	81.2		ug/L		101	85 - 115	2	20	
Copper	80.0	83.7		ug/L		105	85 - 115	0	20	
Lead	80.0	80.4		ug/L		100	85 _ 115	1	20	
Antimony	80.0	83.2		ug/L		104	85 _ 115	1	20	I
Thallium	80.0	77.5		ug/L		97	85 _ 115	1	20	

## Lab Sample ID: 440-97088-D-1-D MS Matrix: Water

Analysis Batch: 226988

Analysis Batch: 226988									Prep Ba	atch: 226703
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Cadmium	0.36	J,DX QP	80.0	79.7		ug/L		99	70 - 130	
Copper	7.8	QP	80.0	86.4		ug/L		98	70 - 130	
Lead	ND	QP	80.0	79.7		ug/L		100	70 - 130	
Antimony	1.6	J,DX QP	80.0	85.7		ug/L		105	70 - 130	
Thallium	ND	QP	80.0	75.8		ug/L		95	70 - 130	

Lab Sample	ID:	440-97088-D-1-E	ISD

Matrix: Water									Prep Ty	vpe: Diss	olved
Analysis Batch: 226988									Prep	Batch: 2	26703
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	0.36	J,DX QP	80.0	78.7		ug/L		98	70 - 130	1	20
Copper	7.8	QP	80.0	85.3		ug/L		97	70 - 130	1	20
Lead	ND	QP	80.0	80.3		ug/L		100	70 - 130	1	20
Antimony	1.6	J,DX QP	80.0	83.1		ug/L		102	70 - 130	3	20
Thallium	ND	QP	80.0	75.5		ug/L		94	70 - 130	0	20

# Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-225232/1-A Matrix: Water Analysis Batch: 225520							Client Sa	mple ID: Metho Prep Type: 1 Prep Batch:	otal/NA
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		12/17/14 09:30	12/17/14 17:17	1

# Method: 245.1 - Mercury (CVAA) (Continued)

Matrix: Water									Prep T	ype: To	tal/N/
Analysis Batch: 225520									Prep E	Batch: 2	2523
-			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Mercury			8.00	8.12		ug/L		102	85 - 115		
Lab Sample ID: 440-96890-D-1-B MS	;							Client	Sample ID:	: Matrix	Spik
Matrix: Water									Prep T	ype: To	tal/N
Analysis Batch: 225520									Prep E	Batch: 2	2523
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Mercury	ND		8.00	8.03		ug/L		100	70 - 130		
Lab Sample ID: 440-96890-D-1-C MS	D					с	lient Sa	ample IC	): Matrix Sp	oike Dup	licat
Matrix: Water										ype: To	
Analysis Batch: 225520									Prep E	Batch: 2	2523
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RP
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Lim
Mercury	ND		8.00	8.32		ug/L		104	70 - 130	4	2
lethod: 1664A - HEM and SGT											

Lab Sample ID: MB 440-226034/1-A Matrix: Water							Client Sa	mple ID: Metho Prep Type: 1	otal/NA
Analysis Batch: 226039	МВ	МВ						Prep Batch:	226034
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0	1.4	mg/L		12/21/14 14:30	12/21/14 17:01	1

Lab Sample ID: LCS 440-226034/2-A Matrix: Water					Client	Sample		ontrol Sample ſype: Total/NA
Analysis Batch: 226039								Batch: 226034
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
HEM	20.0	18.5		mg/L		93	78 - 114	

Lab Sample ID: LCSD 440-226034/3-A Matrix: Water				Clie	nt Sam	nple ID: I	Lab Contro Prep T	l Sampl ype: Tot	
Analysis Batch: 226039							Prep I	Batch: 2	26034
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
HEM	20.0	19.0		mg/L		95	78 - 114	3	11

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

Lab Sample ID: MB 440-225438/1 Matrix: Water Analysis Batch: 225438							Client Sa	ample ID: Metho Prep Type: 1	
	M	3 MB							
Analyte	Resu	t Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	N		10	5.0	mg/L			12/18/14 05:37	1

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

Lab Sample ID: LCS 440-22 Matrix: Water	25438/2						Client	Sample	ID: Lab Contro Prep Type:		
Analysis Batch: 225438											
			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Total Dissolved Solids			1000	978		mg/L		98	90 - 110		
_ Lab Sample ID: 440-96682-	G-14 DU							Clie	ent Sample ID:	Dup	licate
Matrix: Water									Prep Type:	Tot	al/NA
Analysis Batch: 225438											
	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D		R	PD	Limit
Total Dissolved Solids	620			631		mg/L				2	5

Lab Sample ID: MB 440-225928/2 Matrix: Water Analysis Batch: 225928											Client	Sample ID: Meth Prep Type		
Analysis Batch. 225526		MB	МВ											
Analyte	R	esult (	Qualifier		RL		MDL	Unit		D	Prepared	Analyzed		Dil Fac
Total Suspended Solids		ND			1.0		0.50	mg/L				12/20/14 07:26		1
Lab Sample ID: LCS 440-225928/1										Clier	nt Sampl	e ID: Lab Contro	ol Sa	ample
Matrix: Water												Prep Type		
Analysis Batch: 225928														
				Spike		LCS	LCS					%Rec.		
Analyte				Added		Result	Qua	lifier	Unit	D	%Rec	Limits		
Total Suspended Solids				1000		1030			mg/L		103	85 - 115		
Lab Sample ID: 440-96877-B-1 DU											CI	ent Sample ID:	Dup	licate
Matrix: Water												· Prep Type:		
Analysis Batch: 225928														
-	Sample	Samp	le			DU	DU							RPD
Analyte	Result	Qualif	ïer			Result	Qua	lifier	Unit	D		R	PD	Limit
Total Suspended Solids	44					46.0			mg/L				4	10

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

Lab Sample ID: MB 440-224778/1-A Matrix: Water Analysis Batch: 224827	мв	МВ									Client Sa	ample ID: Metho Prep Type: 1 Prep Batch	Total/NA
Analyte	Result	Qualifier		RL		MDL (	Unit		D	Р	repared	Analyzed	Dil Fac
Cyanide, Total	ND			5.0		2.5 i	ug/L			12/1	5/14 15:08	12/15/14 17:50	1
Lab Sample ID: LCS 440-224778/2-A									с	lient	Sample	ID: Lab Control	Sample
Matrix: Water												Prep Type: 1	Total/NA
Analysis Batch: 224827												Prep Batch	: 224778
-			Spike		LCS	LCS						%Rec.	
Analyte			Added		Result	Qualif	ier	Unit		D	%Rec	Limits	
Cyanide, Total			100		99.8			ug/L		_	100	90 - 110	

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

Lab Sample ID: LCSD 440-22	24778/3-A					Cli	ient Sam	ple ID:	Lab Contro	I Sampl	e Dup
Matrix: Water									Prep T	ype: To	tal/NA
Analysis Batch: 224827									Prep	Batch: 2	24778
			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limi
Cyanide, Total			100	99.0		ug/L		99	90 - 110	1	1
Lab Sample ID: 440-96113-A	-5-B MS							Client	Sample ID	: Matrix	Spike
Matrix: Water									Prep T	ype: To	tal/N/
Analysis Batch: 224827									Prep	Batch: 2	2477
-	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Cyanide, Total	ND		100	2.54	J,DX LN	ug/L		3	70 - 115		
Lab Sample ID: 440-96113-A	-5-C MSD						Client Sa	ample IC	): Matrix S	oike Dup	olicate
Matrix: Water									Prep T	ype: To	tal/N/
Analysis Batch: 224827									Prep	Batch: 2	2477
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPI
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limi
Cyanide, Total	ND		100	ND	LN	ug/L		0	70 _ 115	NC	1

Lab Sample ID: MB 160-164748/1-A Matrix: Water Analysis Batch: 166173								Client Sa	mple ID: Metho Prep Type: 1 Prep Batch:	otal/NA
мв	МВ	ı	Count Jncert.	Total Uncert.						
Analyte Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	P	Prepared	Analyzed	Dil Fac
Gross Alpha -0.2181	U		0.804	0.805	1.60	pCi/L	12/2	22/14 10:58	12/31/14 08:26	1
Gross Beta 0.6397	U		0.588	0.591	0.952	pCi/L	12/2	22/14 10:58	12/31/14 08:26	1
Lab Sample ID: LCS 160-164748/2-A							Client	t Sample I	D: Lab Control	Sample
Matrix: Water									Prep Type: 1	otal/NA
Analysis Batch: 166173									Prep Batch:	164748
-				Total						
	Spike	LCS	LCS	Uncert.					%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Gross Alpha	50.1	51.89		7.52		2.37	pCi/L	104	73 - 133	
Lab Sample ID: LCSB 160-164748/3-A							Client	t Sample I	D: Lab Control	Sample
Matrix: Water									Prep Type: 1	otal/NA
Analysis Batch: 166173									Prep Batch:	164748
				Total						
	Spike	LCSB	LCSB	Uncert.					%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Gross Beta	95.9	97.40		10.3		0.936	pCi/L	102	75 - 125	

Total

Uncert.

(2**σ**+/-)

6.16

Total

Uncert.

(2**σ**+/-)

10.9

Total

MS MS

MSBT MSBT

Result Qual

103.3

Result Qual

41.79

Sample Sample

Sample Sample

Result Qual

3.86

Result Qual

-0.942 U

Lab Sample ID: 440-96594-R-1-G MSBT

Lab Sample ID: 440-96594-R-1-H DU

Lab Sample ID: 440-96594-R-1-F MS

Matrix: Water

Analyte

Analyte

Gross Beta

Matrix: Water

Gross Alpha

Matrix: Water

Analysis Batch: 166172

Analysis Batch: 166172

Analysis Batch: 166172

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Spike

Added

50.1

Spike

Added

95.9

**Client Sample ID: Matrix Spike** 

%Rec.

Limits

%Rec.

Limits

89 - 143

35 - 150

**Client Sample ID: Matrix Spike** 

%Rec

%Rec

104

83

MDC Unit

MDC Unit

1.01 pCi/L

1.47 pCi/L

Prep Type: Total/NA Prep Batch: 164748

# 8

Prep Type: Total/NA Prep Batch: 164748

	Client Sample ID: Duplicate Prep Type: Total/NA Prep Batch: 164748
MDC Unit	RER RER Limit

	Sample	Sample	DU	DU	Uncert.				RER
Analyte	Result	Qual	Result	Qual	(2σ+/-)	MDC	Unit	RER	Limit
Gross Alpha	-0.942	U	0.4884	U	0.954	1.68	pCi/L	0.75	1
Gross Beta	3.86		2.472		0.803	1.01	pCi/L	0.81	1

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

Lab Sample ID: MB 160-164 Matrix: Water Analysis Batch: 164603	475/1-A						Client Sa	mple ID: Metho Prep Type: T Prep Batch:	otal/NA
			Count	Total					
	MB	MB	Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.528	U	6.99	7.00	13.0	pCi/L	12/19/14 11:40	12/21/14 22:44	1
Potassium-40	-17.38	U	169	169	224	pCi/L	12/19/14 11:40	12/21/14 22:44	1
Lab Sample ID: LCS 160-16	4475/2-A						Client Sample I	D: Lab Control	Sample
Matrix: Water								Prep Type: 1	otal/NA
Analysis Batch: 164814								Prep Batch:	164475

				Total					
	Spike	LCS	LCS	Uncert.				%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Americium-241	137000	132000		15300	465	pCi/L	96	90 _ 111	
Cesium-137	49400	48080		4820	149	pCi/L	97	90 - 111	
Cobalt-60	52800	50140		4960	116	pCi/L	95	89 _ 110	

## Lab Sample ID: 440-96594-R-1-D DU Matrix: Water

# Analysis Batch: 164822

								 	•••••	
					Total					
	Sample	Sample	DU	DU	Uncert.				RER	
Analyte	Result	Qual	Result	Qual	(2σ+/-)	MDC	Unit	RER	Limit	
Cesium-137	-2.27	U	-0.3150	U	5.09	9.60	pCi/L	 0.15	1	
Potassium-40	-81.3	U	-95.09	U	3800	173	pCi/L	0	1	

**TestAmerica** Irvine

**Client Sample ID: Duplicate** 

Prep Type: Total/NA

Prep Batch: 164475

# Method: 903.0 - Radium-226 (GFPC)

Lab Sample		164103/1	I-A								Client Sa	mple ID: Metho	
Matrix: Wate												Prep Type: T	
Analysis Bat	tch: 168026											Prep Batch:	16410
						Count	Total						
			MB	MB		Uncert.	Uncert.						
Analyte				Qualifier		(2σ+/-)	(2σ+/-)	MDC			repared	Analyzed	Dil Fa
Radium-226		-0	.01830	U		0.0554	0.0554	0.114	pCi/L	12/1	8/14 00:17	01/12/15 20:12	
		МВ	ΜВ										
Carrier		%Yield	Qualif	ier	Limits					F	Prepared	Analyzed	Dil Fa
Ba Carrier		96.2			40 - 110					12/1	18/14 00:17	01/12/15 20:12	
Lab Sample	ID: LCS 160	-164103	/2-A							Client	t Sample I	D: Lab Control	Sampl
Matrix: Wate	er											Prep Type: T	otal/N/
Analysis Bat	tch: 168026											Prep Batch:	16410
							Total						
				Spike	LCS	LCS	Uncert.					%Rec.	
Analyte				Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Radium-226				11.2	8.867		0.920		0.104	pCi/L	79	68 - 137	
	LCS	LCS											
Carrier	%Yield	Qualifier		Limits									
Ba Carrier	96.5			40 _ 110	-								
Lab Sample	ID: 160-983	1-E-8-B [	บบ								Clier	t Sample ID: Du	uplicat
Matrix: Wate	er											Prep Type: T	otal/N
Analysis Bat	tch: 168078											Prep Batch:	16410
							Total						
	Sample	e Sample			DU	DU	Uncert.						RE
Analyte		lt Qual			Result		(2σ+/-)		MDC	Unit		RER	Lim
Radium-226	-0.029	5 U			0.04535	U	0.0690		0.117	pCi/L		0.58	
	DU	DU											
Carrier	%Yield	Qualifier		Limits									
Ba Carrier	109			40 - 110	-								

# Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160- Matrix: Water Analysis Batch: 168922		- <b>A</b>							Client Sa	mple ID: Metho Prep Type: T Prep Batch:	otal/NA
					Count	Total					
		MB	MB		Uncert.	Uncert.					
Analyte		Result	Qualifier		(2 <b>σ</b> +/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	(	0.2395	U		0.189	0.191	0.299	pCi/L	01/13/15 12:50	01/16/15 11:14	1
	МВ	ΜВ									
Carrier	%Yield	Qualif	ïer	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102			40 - 110	-				01/13/15 12:50	01/16/15 11:14	1
Y Carrier	89.0			40 - 110	)				01/13/15 12:50	01/16/15 11:14	1

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

Matrix: Water	ID: LCS 160 r	-100100/2-/						onem		D: Lab Co Prep Ty		
Analysis Bat										Prep B	-	
, indigolo Dat						Total						
			Spike	LCS	LCS	Uncert.				%Rec.		
Analyte			Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits		
Radium-228			3.56	3.966		0.557	0.324	pCi/L	111	56 - 140		
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	105		40 _ 110									
			10 110									
Lab Sample I		6 <mark>0-16</mark> 8188/3	40 - 110 8-A				Cli	ent Sam	nple ID: La	b Control	-	
Lab Sample I Matrix: Wate	ID: LCSD 1( r	6 <b>0-16</b> 8188/3					Cli	ent San	nple ID: La	ab Control Prep Ty Prep B	pe: To	tal/N/
Lab Sample I Matrix: Wate	ID: LCSD 1( r	60-168188/3				Total	Cli	ent Sam	nple ID: La	Prep Ty	pe: To	tal/N
Y Carrier Lab Sample I Matrix: Water Analysis Bat	ID: LCSD 1( r	60-168188/3		LCSD	LCSD	Total Uncert.	Cli	ent San	nple ID: La	Prep Ty	pe: To	tal/NA
Lab Sample I Matrix: Wate Analysis Bat	ID: LCSD 1( r	60-168188/3	3-A	LCSD Result				ent San Unit	nple ID: La %Rec	Prep Ty Prep B	pe: To	tal/N/ 6818 RE
Lab Sample I Matrix: Wate	ID: LCSD 1( r	60-168188/3	S-A Spike			Uncert.			-	Prep Ty Prep B %Rec.	vpe: Tot atch: 1	tal/N/ 6818
Lab Sample I Matrix: Water Analysis Bat Analyte	ID: LCSD 10 r ch: 168923 	60-168188/3 	S-A Spike Added	Result		Uncert. (2σ+/-)	MDC	Unit	%Rec	Prep Ty Prep B %Rec. Limits	rpe: Tor atch: 1	tal/N/ 6818 REI Lim
Lab Sample I Matrix: Water Analysis Bat Analyte Radium-228	ID: LCSD 10 r ch: 168923 — <i>LCSD</i>		S-A Spike Added	Result		Uncert. (2σ+/-)	MDC	Unit	%Rec	Prep Ty Prep B %Rec. Limits	rpe: Tor atch: 1	tal/N/ 6818 RE Lim
Lab Sample I Matrix: Water Analysis Bat Analyte	ID: LCSD 10 r ch: 168923 — <i>LCSD</i>	LCSD	Spike Added 3.56	Result		Uncert. (2σ+/-)	MDC	Unit	%Rec	Prep Ty Prep B %Rec. Limits	rpe: Tor atch: 1	tal/N/ 6818 RE Lim

# Method: 905 - Strontium-90 (GFPC)

Lab Sample II Matrix: Water		165620/1	- <b>A</b>								Client Sa	mple ID: Metho Prep Type: 1	
Analysis Batc	.11. 10/123					Count	Total					Prep Batch	. 105020
			мв	мв		Jncert.	Uncert.						
Analyte				Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	P	Prepared	Analyzed	Dil Fa
Strontium-90			04484			0.176	0.176	0.321	pCi/L		29/14 18:01	01/07/15 15:55	
		МВ	ΜΒ										
Carrier		%Yield	Qualifi	er	Limits					F	Prepared	Analyzed	Dil Fa
Sr Carrier		90.0			40 - 110					12/2	29/14 18:01	01/07/15 15:55	· · · ·
Y Carrier		89.3			40 - 110					12/2	29/14 18:01	01/07/15 15:55	
Lab Sample II	D' L CS 160	-165620/	2-∆							Client	t Sample I	D: Lab Control	Sample
Matrix: Water										•	c oumpion	Prep Type: 1	
Analysis Bato	h. 167123											Prep Batch	
Analysis Date							Total					Trep Baten	. 100020
				Spike	LCS	LCS	Uncert.					%Rec.	
Analyte				Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Strontium-90				8.95	8.768		0.905		0.298	pCi/L	98	90 - 134	
	LCS	LCS											
		O		Limits									
Carrier	%Yield	Qualifier		Linnito									
Carrier Sr Carrier	%Yield 	Qualifier		40 - 110	-								

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

Lab Sample II Matrix: Water Analysis Bate		94-A-2-G DI	J						Client Sample Prep Ty Prep E		tal/NA
-						Total					
	Sample	Sample		DU	DU	Uncert.					RER
Analyte	Result	Qual		Result	Qual	(2σ+/-)	MDC	Unit		RER	Limit
Strontium-90	-0.255	U		-0.01446	U	0.155	0.281	pCi/L		0.79	1
	DU	DU									
Carrier	%Yield	Qualifier	Limits								
Sr Carrier	88.2		40 - 110								
Y Carrier	90.8		40 - 110								

# Method: 906.0 - Tritium, Total (LSC)

Lab Sample	ID: MB 160-1	66399/1-A								<b>Client Sa</b>	mple ID: Metho	d Blanl
Matrix: Wate	ər										Prep Type: T	otal/NA
Analysis Ba	tch: 166478										Prep Batch:	16639
					Count	Total						
		MB	MB	ι	Jncert.	Uncert.						
Analyte		Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	P	repared	Analyzed	Dil Fa
Tritium		158.1	U		187	187	304	pCi/L	01/0	02/15 08:35	01/02/15 14:05	
Lab Sample	ID: LCS 160-	166399/2-A							Client	t Sample I	D: Lab Control	Sampl
Matrix: Wate	ər										Prep Type: T	otal/N
Analysis Ba	tch: 166478										Prep Batch:	16639
						Total						
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Tritium			3440	3383		509		306	pCi/L	98	74 - 114	
I ab Sample	ID: 280-63961	1-C-3-B MS								Client S	ample ID: Matri	x Snik
Matrix: Wate											Prep Type: T	
Analysis Ba											Prep Batch:	
						Total					Trop Batom.	
	Sample	Sample	Spike	MS	MS	Uncert.					%Rec.	
Analyte	Result	Qual	Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Tritium	1050		3450	4424		603		306	pCi/L	98	67 - 130	
Lab Sample	ID: 280-63670	)-A-3-D DU								Clier	nt Sample ID: Di	uplicat
Matrix: Wate	ər										Prep Type: T	otal/N
Analysis Ba	tch: 166478										Prep Batch:	16639
-						Total					-	
	Sample	Sample		DU	DU	Uncert.						RE
Analyte	Result	Qual		Result	Qual	(2σ+/-)		MDC	Unit		RER	t Lim
Tritium	2030			1865		366		307	pCi/L		0.22	2

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

Lab Sample II Matrix: Water		165361/1-A								Client Sa	mple ID: Metho Prep Type: 1	
Analysis Batc											Prep Batch	
Analysis Date					Count	Total					Frep Batch	. 105501
		МВ	мв		Jncert.	Uncert.						
Analyte		Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	F	Prepared	Analyzed	Dil Fac
Total Uranium		0.03958			.06314	0.06318	0.0995	pCi/L		24/14 10:49	12/31/14 14:22	1
Lab Sample II	D: LCS 160	-165361/2-A							Clien	t Sample I	D: Lab Control	Sample
Matrix: Water											Prep Type: 1	
Analysis Batc	h: 166358										Prep Batch	
-						Total						
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Uranium-234			12.7	13.13		1.57		0.0712	pCi/L	103	84 - 120	
Uranium-238			13.0	14.40		1.68		0.108	pCi/L	111	83 - 121	
	LCS	LCS										
Tracer	%Yield	Qualifier	Limits									
Uranium-232	83.7		30 - 110									
Lab Sample I	D: 440-972 <sup>,</sup>	11-A-2-D DU								Clier	nt Sample ID: D	uplicate
Matrix: Water											Prep Type: 1	Fotal/NA
<b>Analysis Batc</b>	h: 166370										Prep Batch	: <b>16536</b> 1
						Total						
	Sample	e Sample		DU	DU	Uncert.						REF
Analyte	Resul	t Qual		Result	Qual	(2σ+/-)		MDC	Unit		RE	R Limi
Total Uranium	0.0479	9 U —		0.2654	U	0.274		0.343	pCi/L		0.6	2

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

TestAmerica Job ID: 440-96486-1

# HPLC/IC

Analy	vsis	Batch:	224501
<b>A</b> IIM	,010	Batom	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96539-L-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-96539-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	300.0	
LCS 440-224501/6	Lab Control Sample	Total/NA	Water	300.0	
MB 440-224501/4	Method Blank	Total/NA	Water	300.0	
Analysis Batch: 22716	j0				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96605-1	Outfall009 20141213 Comp	Total/NA	Water	NO3NO2 Calc	

# **Specialty Organics**

# Analysis Batch: 4351027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
440-96605-1	Outfall009_20141213_Comp	Total	Water	1613B		
H4L170000027B	Method Blank	Total	Water	1613B		
H4L170000027C	Lab Control Sample	Total	Water	1613B		
	_					
Prep Batch: 4351027	_P Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
Г.	-	Prep Type Total	Matrix Water	<u>Method</u> 1613	Prep Batch	
Lab Sample ID	Client Sample ID				Prep Batch	

# Metals

# Prep Batch: 225232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	245.1	
440-96890-D-1-B MS	Matrix Spike	Total/NA	Water	245.1	
440-96890-D-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	
LCS 440-225232/2-A	Lab Control Sample	Total/NA	Water	245.1	
MB 440-225232/1-A	Method Blank	Total/NA	Water	245.1	

# Analysis Batch: 225520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	245.1	225232
440-96890-D-1-B MS	Matrix Spike	Total/NA	Water	245.1	225232
440-96890-D-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	225232
LCS 440-225232/2-A	Lab Control Sample	Total/NA	Water	245.1	225232
MB 440-225232/1-A	Method Blank	Total/NA	Water	245.1	225232

# Prep Batch: 226388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96605-1	Outfall009_20141213_Comp	Total Recoverable	Water	200.2	
440-96605-1 MS	Outfall009_20141213_Comp	Total Recoverable	Water	200.2	
440-96605-1 MSD	Outfall009_20141213_Comp	Total Recoverable	Water	200.2	
LCS 440-226388/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
LCSD 440-226388/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.2	
MB 440-226388/1-A	Method Blank	Total Recoverable	Water	200.2	

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

# 9 10 11

12 13 14

# Metals (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-96605-1	Outfall009_20141213_Comp	Dissolved	Water	FILTRATION	
440-97088-D-1-D MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-97088-D-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
LCS 440-226565/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
MB 440-226565/1-D	Method Blank	Dissolved	Water	FILTRATION	
nalysis Batch: 226568					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-96605-1	Outfall009_20141213_Comp	Total Recoverable	Water	200.8	22638
440-96605-1 MS	Outfall009_20141213_Comp	Total Recoverable	Water	200.8	22638
440-96605-1 MSD	Outfall009_20141213_Comp	Total Recoverable	Water	200.8	22638
LCS 440-226388/2-A	Lab Control Sample	Total Recoverable	Water	200.8	22638
LCSD 440-226388/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	22638
MB 440-226388/1-A	Method Blank	Total Recoverable	Water	200.8	22638
rep Batch: 226703					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-96605-1	Outfall009_20141213_Comp	Dissolved	Water	200.2	22656
440-97088-D-1-D MS	Matrix Spike	Dissolved	Water	200.2	22656
440-97088-D-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	22656
LCS 440-226565/2-D	Lab Control Sample	Dissolved	Water	200.2	22656
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	200.2	22656
MB 440-226565/1-D	Method Blank	Dissolved	Water	200.2	22656
nalysis Batch: 226988					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bato
440-96605-1	Outfall009_20141213_Comp	Dissolved	Water	200.8	22670
440-97088-D-1-D MS	Matrix Spike	Dissolved	Water	200.8	22670
440-97088-D-1-E MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	22670
_CS 440-226565/2-D	Lab Control Sample	Dissolved	Water	200.8	22670
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	200.8	22670
MB 440-226565/1-D	Method Blank	Dissolved	Water	200.8	22670

# **General Chemistry**

# Prep Batch: 224778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96113-A-5-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-96113-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	Distill/CN	
LCS 440-224778/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCSD 440-224778/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/CN	
MB 440-224778/1-A	Method Blank	Total/NA	Water	Distill/CN	
Analysis Batch: 224827	,				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96113-A-5-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	224778
440-96113-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	224778
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	SM 4500 CN E	224778

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

	12
	13
Prep Batch	14
	15

General Chemistry (Continued) Analysis Batch: 224827 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
LCS 440-224778/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	22477
LCSD 440-224778/3-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	22477
MB 440-224778/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	22477
nalysis Batch: 225438	•				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bato
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	SM 2540C	
440-96682-G-14 DU	Duplicate	Total/NA	Water	SM 2540C	
LCS 440-225438/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-225438/1	Method Blank	Total/NA	Water	SM 2540C	
nalysis Batch: 225928	<b>k</b>				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bate
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	SM 2540D	
440-96877-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	
LCS 440-225928/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-225928/2	Method Blank	Total/NA	Water	SM 2540D	
rep Batch: 226034					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bate
440-96486-1	Outfall009_20141212_Grab	Total/NA	Water	1664A	
LCS 440-226034/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-226034/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-226034/1-A	Method Blank	Total/NA	Water	1664A	
nalysis Batch: 226039					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bate
440-96486-1	Outfall009_20141212_Grab	Total/NA	Water	1664A	22603
LCS 440-226034/2-A	Lab Control Sample	Total/NA	Water	1664A	22603
LCSD 440-226034/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	22603
MB 440-226034/1-A	Method Blank	Total/NA	Water	1664A	2260

# Rad

# Prep Batch: 164103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-9831-E-8-B DU	Duplicate	Total/NA	Water	PrecSep-21	
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	PrecSep-21	
440-96605-2	Trip_Blank	Total/NA	Water	PrecSep-21	
LCS 160-164103/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-164103/1-A	Method Blank	Total/NA	Water	PrecSep-21	

# Prep Batch: 164475

1	_ab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Batc	h
2	440-96594-R-1-D DU	Duplicate	Total/NA	Water	Fill_Geo-0	_
4	140-96605-1	Outfall009_20141213_Comp	Total/NA	Water	Fill_Geo-0	
4	140-96605-2	Trip_Blank	Total/NA	Water	Fill_Geo-0	
1	_CS 160-164475/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
1	MB 160-164475/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

# Rad (Continued)

Prei	o Batc	h: 1	64748
110	J Duit		07170

MB 160-168188/1-A

Method Blank

Lab Sample ID	Sample ID Client Sample ID		Matrix	Method	Prep Batch	
440-96594-R-1-F MS	4-R-1-F MS Matrix Spike Total/NA Water Evaporation					
440-96594-R-1-G MSBT	Matrix Spike	Total/NA	Water	Evaporation		
440-96594-R-1-H DU Duplicate		Total/NA	Water	Evaporation		
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	Evaporation		
440-96605-2	Trip_Blank	Total/NA	Water	Evaporation		
LCS 160-164748/2-A	Lab Control Sample	Total/NA	Water	Evaporation		
LCSB 160-164748/3-A	Lab Control Sample	Total/NA	Water	Evaporation		
MB 160-164748/1-A	Method Blank	Total/NA	Water	Evaporation		
rep Batch: 165361						
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	ExtChrom		
440-96605-2	Trip_Blank	Total/NA	Water	ExtChrom		
440-97211-A-2-D DU	Duplicate	Total/NA	Water	ExtChrom		
LCS 160-165361/2-A	Lab Control Sample	Total/NA	Water	ExtChrom		
MB 160-165361/1-A	Method Blank	Total/NA	Water	ExtChrom		
rep Batch: 165620						
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc	
440-96594-A-2-G DU	Duplicate	Total/NA	Water	PrecSep-7		
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	PrecSep-7		
440-96605-2	Trip_Blank	Total/NA	Water	PrecSep-7		
LCS 160-165620/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7		
MB 160-165620/1-A	Method Blank	Total/NA	Water	PrecSep-7		
rep Batch: 166399						
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc	
280-63670-A-3-D DU	Duplicate	Total/NA	Water	LSC_Dist_Susp		
280-63961-C-3-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp		
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	LSC_Dist_Susp		
LCS 160-166399/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp		
MB 160-166399/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp		
rep Batch: 168188						
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc	
440-96605-1	Outfall009_20141213_Comp	Total/NA	Water	PrecSep_0		
440-96605-2	Trip_Blank	Total/NA	Water	PrecSep_0	ა_0	
LCS 160-168188/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	PrecSep_0	
LCSD 160-168188/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0		

Total/NA

Water

PrecSep\_0

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

# Qualifiers

HPLC/IC		
Qualifier	Qualifier Description	
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)	5
DIOXIN		
Qualifier	Qualifier Description	
J	Estimated result. Result is less than the reporting limit.	
Q	Estimated maximum possible concentration (EMPC).	
В	Method blank contamination. The associated method blank contains the target analyte at a reportable level.	
Metals		8
Qualifier	Qualifier Description	
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL	9
QP	Holding time Immediate. Analyzed as close to receipt as possible	
General Cher	nistry	1
Qualifier	Qualifier Description	
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL	
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)	
Rad		
Qualifier	Qualifier Description	1
U	Result is less than the sample detection limit.	
G	The Sample MDC is greater than the requested RL.	
Glossary		
Abbreviation	These commonly used abbreviations may or may not be present in this report	

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

# **Certification Summary**

EPA Region

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**Certification ID** 

Cert. No. 12.002r

CA015312007A

P330-09-00080

CA01531

AZ0671

10256

2706

N/A

N/A

4005

MP0002

CA01531

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

Laboratory: TestAmerica Irvine

Authority

Alaska

Arizona

California

California

Guam

Hawaii

Nevada

Oregon

USDA

New Mexico

USEPA UCMR

Northern Mariana Islands

# TestAmerica Job ID: 440-96486-1

**Expiration Date** 

06-30-15

10-13-15

01-31-15 \*

06-30-16

01-23-15 \*

01-29-15 \*

07-31-15

01-29-15 \*

01-29-15 \*

01-29-15 \*

06-06-15

01-31-15

11

# Laboratory: TestAmerica Knoxville

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

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

Program

State Program

NELAP

Federal

Federal

LA Cty Sanitation Districts

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0688	06-17-15
California	State Program	9	2423	06-30-16
Colorado	State Program	8	N/A	02-28-15
Connecticut	State Program	1	PH-0223	09-30-15
Florida	NELAP	4	E87177	06-30-15
Georgia	State Program	4	906	04-13-17
Hawaii	State Program	9	N/A	04-13-15
Kansas	NELAP	7	E-10349	01-31-15
Kentucky (DW)	State Program	4	90101	12-31-15
A-B	DoD ELAP		L2311	02-13-16
ouisiana	NELAP	6	83979	06-30-15
ouisiana	NELAP	6	LA110001	12-31-15
Maryland	State Program	3	277	03-31-15
Vichigan	State Program	5	9933	04-13-17
Nevada	State Program	9	TN00009	07-31-15
New Jersey	NELAP	2	TN001	06-30-15
New York	NELAP	2	10781	03-31-15
North Carolina (DW)	State Program	4	21705	07-31-15
North Carolina (WW/SW)	State Program	4	64	12-31-15
Dhio VAP	State Program	5	CL0059	03-26-15
Oklahoma	State Program	6	9415	08-31-15
Pennsylvania	NELAP	3	68-00576	12-31-15
South Carolina	State Program	4	84001	06-30-15
Tennessee	State Program	4	2014	04-13-17
exas	NELAP	6	T104704380-TX	08-31-15
JSDA	Federal		P330-13-00260	08-29-16
Jtah	NELAP	8	QUAN3	07-31-15
Virginia NELAP		3	460176	09-14-15
Virginia State Program		3	165	06-30-15
Vashington	State Program	10	C593	01-19-16
Vest Virginia (DW)	State Program	3	9955C	12-31-14
West Virginia DEP	State Program	3	345	04-30-15
Visconsin	State Program	5	998044300	08-31-15

\* Certification renewal pending - certification considered valid.

# **Certification Summary**

EPA Region

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**Certification ID** 

MO00054

PH-0241

E87689

200023

E-10236

90125

L2305

310

780

MO002

11616

R207

9997

24-24817-01

68-00540

85002001

460230

C592

381

T104704193-13-6

P330-07-00122

MO000542013-5

LA150017

MO000542013-1

373

2886

# Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

#### Laboratory: TestAmerica St. Louis

Authority

California

Connecticut

Alaska

Florida

Illinois

lowa

Kansas

L-A-B

Louisiana

Maryland

Missouri

Nevada

New Jersey

New Mexico

North Dakota

Pennsylvania

South Carolina

New York

Oklahoma

NRC

Texas

USDA

Utah

Virginia

Washington

West Virginia DEP

Kentucky (DW)

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

Program

NELAP

NELAP

NELAP

NELAP

NELAP

NELAP

NELAP

NRC

NELAP

NELAP

Federal

NELAP

NELAP

State Program

State Program

State Program

State Program

State Program State Program

State Program

State Program

State Program

State Program

State Program

State Program

State Program

DoD ELAP

**Expiration Date** 

06-30-15

03-31-15

03-31-15

06-30-15

11-30-15

12-01-14 \*

03-31-15 \*

12-31-14 \*

01-10-16

12-31-16

09-30-15

06-30-15

07-31-15

06-30-15

06-30-10 \*

03-31-15 \*

06-30-15

12-31-22

08-31-15

02-28-15 \*

06-30-15

07-31-15

01-09-17

07-31-15

06-14-15

08-30-15

08-31-15

* Certification renewal pending - certification considered valid.	
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H4L160434 Analytical Report	1
Sample Receipt Documentation	16

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THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

# **ANALYTICAL REPORT**

PROJECT NO. 440-96605-1

Boeing SSFL Outfall 009 COMPOS

Lot #: H4L160434

Debby Wilson

TestAmerica Irvine 17461 Derian Ave Suite 100 Irvine, CA 92614-5817

TESTAMERICA LABORATORIES, INC.

Terry Wasmund Project Manager

January 12, 2015

1/20/2015

# ANALYTICAL METHODS SUMMARY

# H4L160434

	ANALYTICAL METHODS SUMMARY		
	H4L160434		
		ANALYTICAL	5
PARAMETE	ER	METHOD	
Dioxins/Furans, HRGC/HRMS EPA-5 1613B			
Referenc	References:		
EPA-5	"Method 1613: Tetra- through C Furans by Isotope Dilution, HR		9
	EPA, OCTOBER 1994		10
			12
			13

2 of 18

	3	3 of 18	1
SAMPLE SUMMARY			2
H4L160434			3
H4LL60434			4
WO # SAMPLE# CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME	5
M5Q2L 001 Outfall_009_20141213_Comp	12/13/14	03:06	6
NOTE (S) :			7
- The analytical results of the samples listed above are presented on the following pages. - All calculations are performed before rounding to avoid round-off errors in calculated results.			8
<ul> <li>Results noted as "ND" were not detected at or above the stated limit.</li> <li>This report must not be reproduced, except in full, without the written approval of the laboratory.</li> </ul>			9
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.			10
			4.4
			12
			13
			14
			15

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The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

# Sample Receipt

There were no problems with the condition of the samples received.

# **Quality Control and Data Interpretation**

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

The following flags are used to qualify results for chlorinated dioxin and furan results:

**J** – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report, the ML is qualitatively defined as described above, and quantitatively defined as follows:

**Minimum Level**: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

Example: The lowest calibration level for TCDD in the initial calibration is 0.5 pg/uL. A mass of 10 pg of 2,3,7,8-TCDD in the sample would result in a concentration of 0.5 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the lowest calibration standard, the 10 pg mass in the sample components is the ML. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The ML for 2,3,7,8-TCDD becomes 100 pg rather than the default of 10 pg.

**E** – The reported result is an estimate. The amount reported is above the Upper Calibration Level (UCL) described below. The quantitative definition of the UCL is listed below:

**Upper Calibration Level:** The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Example: The maximum calibration level for TCDD in the initial calibration is 200 pg/uL. A mass of 4000 pg of 2,3,7,8-TCDD in the sampling components would result in a concentration of 200 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the highest calibration standard, the 4000 pg mass in the sample components is the UCL. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The UCL for 2,3,7,8-TCDD becomes 40,000 pg rather than the default of 4000 pg. In this example, all positive 2,3,7,8-TCDD results above 40,000 pg are flagged with an E.

**B** – The analyte is present in the associated method blank at a detectable level. For this analysis, there is no method specified reporting level other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of  $\geq$ 2.5 to 1. Therefore, the presence of any reportable amount of the analyte in the blank will result in a B qualifier on all associated samples.

**Q** – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. These criteria include the following:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio).
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).
- Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.
- Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

S – lon suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity due to a matrix-borne interference.

**C** – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer.

**X** – Other. See explanation in narrative.

Laboratory studies supporting risk assessment and Total Maximum Daily Load (TMDL) evaluations, frequently use qualified data reported as low as the Method Detection Limit (MDL), or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL.<sup>1,2,3</sup> The EDL is based on a direct measurement of the signal-to-noise (S/N) ratio acquired during sample analysis. This S/N measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL

reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the S/N obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample than is an MDL run periodically on a reference matrix.

The EDL is typically calculated according to the following equation:

Estimated Detection Limit =  $\frac{N \times 2.5 \times Qis}{His \times RRF \times W \times S}$ 

Where:

Ν	=	peak to peak noise of quantitation ion signal in the region of the ion
		chromatogram where the compound of interest is expected to elute
His	Ξ	peak height of quantitation ion for appropriate internal standard
Qis	=	ng of internal standard added to sample
RRF	Ξ	mean relative response factor of compound obtained during initial calibration
W	Ξ	amount of sample extracted (grams or liters)
S	=	percent solids (optional, if results are requested to be reported on dry weight
		basis)

(The area of the internal standard is sometimes used instead of height, along with an area-toheight conversion factor.)

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often closer to the true value than an assumption that the target analyte is present at the detection or reporting limits. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

Analyte Concentration = 
$$\frac{As \times Qis}{Ais \times RRF \times W \times S}$$

Where:

As = Sum of areas of the target peaks

Qis = ng of internal standard added to sample

- Ais = Sum of areas of the internal standard peaks
- RRF = mean relative response factor of compound obtained during initial calibration
- W = amount of sample extracted (grams or liters)
- S = percent solids (optional, if results are requested to be reported on dry weight basis)

In sample data, peaks must have an intensity of  $\geq$ 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the

smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 times the noise on the calibration. This is the result of normal variability. Because the source methods for the EDL (SW-846 8290 and 8280A) do not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

# Footnotes:

- 1. Code of Federal Regulations, Part 136, Chapter 1, Appendix 1, October 1994: Method 1613 Tetra- Through Octa-Chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography/High Resolution Mass Spectrometry.
- U.S. EPA. Test Methods for Evaluating Solid Waste, Volume II, SW-846, Update III, December 1996. Method 8280A: The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/Low Resolution Mass Spectrometry.
- 3. U.S. EPA. Test Methods for Evaluating Solid Waste, SW-846. Third Edition. March 1995 Method 8290: Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/High Resolution Mass Spectrometry.

# 8 of 18 1

# **CERTIFICATION SUMMARY**

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Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	L-A-B	DoD ELAP		L2311
TestAmerica Knoxville	Arkansas DEQ	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana DOHH	State Program	6	LA110001
TestAmerica Knoxville	Louisiana DEQ	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina DENR	State Program	4	64
TestAmerica Knoxville	North Carolina DHHS	State Program	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	Federal	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	NELAC	3	460176
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia DEP	State Program	3	345
TestAmerica Knoxville	West Virginia DHHR	State Program	3	9955C

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

# Sample Data Summary

9 of 18

# TestAmerica Irvine Sample ID: Outfall\_009\_20141213\_Comp Trace Level Organic Compounds

Lot - Sample # ....: Work Order #....: M5Q2L1AA Matrix ....: H4L160434 - 001 WATER Date Sampled ....: 12/13/14 Date Received ....: **Dilution Factor:** 12/16/14 1 Prep Date ....: 12/17/14 Analysis Date ....: 01/10/15 Prep Batch # ....: 4351027 Initial Wgt/Vol : 990 mL Instrument ID....: Method: M2A EPA-5 1613B Analyst ID ....: Patricia(Trish) M. Parsly **ESTIMATED** MINIMUM RESULT **DETECTION LIMIT** PARAMETER UNITS LEVEL 2.3.7.8-TCDD ND 0.0000101 0.00000505 ug/L ND Total TCDD 0.0000101 0.00000505 ug/L ND 1,2,3,7,8-PeCDD 0.0000505 0.00000314 ug/L ND Total PeCDD 0.0000505 0.00000314 ug/L 1,2,3,4,7,8-HxCDD ND 0.0000505 0.00000251 ug/L 1,2,3,6,7,8-HxCDD 0.00000957 J 0.0000505 0.00000268 ug/L  $\mathbf{J}$ 1,2,3,7,8,9-HxCDD 0.00000801 0.0000505 ug/L 0.00000241 Total HxCDD 0.0000490 J 0.0000505 ug/L 0.00000253 1,2,3,4,6,7,8-HpCDD 0.000175 0.0000505 0.00000411 ug/L Total HpCDD 0.000438 0.0000505 0.00000411 ug/L OCDD 0.00180 В 0.000101 ug/L 0.0000340 2,3,7,8-TCDF ND 0.0000101 0.0000352 ug/L **Total TCDF** 0.0000115 QJ 0.0000101 ug/L 0.00000352 ND 1,2,3,7,8-PeCDF 0.0000505 0.00000212 ug/L 2,3,4,7,8-PeCDF ND 0.0000505 0.00000199 ug/L **Total PeCDF** 0.0000145 0.0000505 QJ 0.00000205 ug/L ND 1,2,3,4,7,8-HxCDF 0.0000505 0.00000181 ug/L 1,2,3,6,7,8-HxCDF 0.0000340 QJ 0.0000505 ug/L 0.00000176 ND 2,3,4,6,7,8-HxCDF 0.0000505 0.00000156 ug/L 1,2,3,7,8,9-HxCDF ND 0.0000505 0.00000216 ug/L 0.0000570 **Total HxCDF** JQ 0.0000505 0.00000180 ug/L

0.0000330

0.0000881

0.0000978

ND

QJ

Q

J

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

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

**Total HpCDF** 

OCDF

ug/L

ug/L

ug/L

ug/L

0.00000233

0.0000305

0.00000265

0.00000237

0.0000505

0,0000505

0.0000505

0.000101

# TestAmerica Irvine Sample ID: Outfall\_009\_20141213\_Comp Trace Level Organic Compounds

Lot - Sample #: Date Sampled: Prep Date: Prep Batch #: Initial Wgt/Vol : Analyst ID:	H4L160434 - 001 12/13/14 12/17/14 4351027 990 mL Patricia(Trish) M. Parsly	Work Order #: Date Received: Analysis Date: Instrument ID:	M5Q2L1AA 12/16/14 01/10/15 M2A	Matrix: WATER Dilution Factor: 1 Method: EPA-5 1613B		
INTERNAL STAND 13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCE 13C-1,2,3,4,6,7,8-HxCE 13C-1,2,3,4,6,7,8-HxCE 13C-0CDD 13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-1,2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCD 13C-1,2,3,4,6,7,8-HxCD 13C-1,2,3,4,6,7,8-HxCD 13C-1,2,3,4,6,7,8-HxCD 13C-1,2,3,4,6,7,8-HxCD 13C-1,2,3,4,7,8,9-HpC 13C-1,2,3,4,7,8,9-HpC 13C-0CDF	DD DD CDD PF PF PF PF PF CDF	PERCENT RECOVER 88 86 90 96 98 102 79 78 75 73 77 86 84 82 89 100		<b>RECOVERY</b> LIMITS 25 - 164 25 - 181 32 - 141 28 - 130 23 - 140 17 - 157 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138 17 - 157		
SURROGATE 37Cl4-2,3,7,8-TCDD	_	PERCENT RECOVER 107	<u>Y</u>	RECOVERY LIMITS 35 - 197		

# **QUALIFIERS**

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

# Method Blank Report

# **Trace Level Organic Compounds**

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Lot - Sample #:	H4L170000 - 027B	Work Order #:	M5RCM1AA	Matrix:	WATER
Dilution Factor: Prep Date:	1 12/17/14	Analysis Date:	01/10/15		
Prep Batch #: Initial Wgt/Vol :	4351027 1000 mL	Instrument ID:	M2A	Method:	EPA-5 1613B
Analyst ID:	Patricia(Trish) M. Parsly				

PARAMETER	RESULT	MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
2,3,7,8-TCDD	ND	0.0000100	0.00000589	ug/L
Total TCDD	ND	0.0000100	0.00000589	ug/L
1,2,3,7,8-PeCDD	ND	0.0000500	0.0000301	ug/L
Total PeCDD	ND	0.0000500	0.0000301	ug/L
1,2,3,4,7,8-HxCDD	ND	0.0000500	0.00000263	ug/L
1,2,3,6,7,8-HxCDD	ND	0.0000500	0.00000268	ug/L
1,2,3,7,8,9-HxCDD	ND	0.0000500	0.00000247	ug/L
Total HxCDD	ND	0.0000500	0.00000259	ug/L
1,2,3,4,6,7,8-HpCDD	ND	0.0000500	0.00000302	ug/L
Total HpCDD	ND	0.0000500	0.00000302	ug/L
OCDD	0.0000276 J	0.000100	0.00000427	ug/L
2,3,7,8-TCDF	ND	0.0000100	0.00000442	ug/L
Total TCDF	ND	0.0000100	0.00000442	ug/L
1,2,3,7,8-PeCDF	ND	0.0000500	0.00000249	ug/L
2,3,4,7,8-PeCDF	ND	0,0000500	0.00000223	ug/L
Total PeCDF	ND	0.0000500	0.00000235	ug/L
1,2,3,4,7,8-HxCDF	ND	0.0000500	0.00000157	ug/L
1,2,3,6,7,8-HxCDF	ND	0.0000500	0.00000170	ug/L
2,3,4,6,7,8-HxCDF	ND	0.0000500	0.00000148	ug/L
1,2,3,7,8,9-HxCDF	ND	0.0000500	0.00000202	ug/L
Total HxCDF	ND	0.0000500	0.00000167	ug/L
1,2,3,4,6,7,8-HpCDF	ND	0.0000500	0.00000229	ug/L
1,2,3,4,7,8,9-HpCDF	ND	0,0000500	0.00000302	ug/L
Total HpCDF	ND	0,0000500	0.00000261	ug/L
OCDF	ND	0.000100	0.00000307	ug/L

# Method Blank Report

# **Trace Level Organic Compounds**

Lot - Sample #:	H4L170000 - 027B	Work Order #:	M5RCM1AA	Matrix:	WATER
<b>Dilution Factor:</b>	1				
Prep Date:	12/17/14	Analysis Date:	01/10/15		
Prep Batch #:	4351027				
Initial Wgt/Vol :	1000 mL	Instrument ID:	M2A	Method:	EPA-5 1613B
Analyst ID:	Patricia(Trish) M. Parsly				

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	92	25 - 164
13C-1,2,3,7,8-PeCDD	87	25 - 181
13C-1,2,3,4,7,8-HxCDD	92	32 - 141
13C-1,2,3,6,7,8-HxCDD	94	28 - 130
13C-1,2,3,4,6,7,8-HpCDD	93	23 - 140
13C-OCDD	96	17 - 157
13C-2,3,7,8-TCDF	77	24 - 169
13C-1,2,3,7,8-PeCDF	80	24 - 185
13C-2,3,4,7,8-PeCDF	78	21 - 178
13C-1,2,3,4,7,8-HxCDF	72	26 - 152
13C-1,2,3,6,7,8-HxCDF	75	26 - 123
13C-2,3,4,6,7,8-HxCDF	84	28 - 136
13C-1,2,3,7,8,9-HxCDF	79	29 - 147
13C-1,2,3,4,6,7,8-HpCDF	79	28 - 143
13C-1,2,3,4,7,8,9-HpCDF	86	26 - 138
13C-OCDF	93	17 - 157
SURROGATE	PERCENT RECOVERY	<b>RECOVERY</b> LIMITS

104

37Cl4-2,3,7,8-TCDD

# **QUALIFIERS**

J Estimated Result.

\\qknxsql1\qdsapps\SOG\_Stnd\SOG\_Stnd\_MB\_Rev1.rpt 1/10/2015

35 - 197

# LABORATORY CONTROL SAMPLE DATA REPORT

# **Trace Level Organic Compounds**

Client Lot #: LCS Lot-Sample# :	H4L160434 H4L170000 - 027	Work Order # .	: M5RCM12	AC-LCS	Matrix:	WATER
Prep Date: Prep Batch #:	12/17/14 4351027	Analysis Date	: 01/07/15			
<b>Dilution Factor</b> :	1					
Analyst ID:	Patricia(Trish) M. Parsl	Instrument ID	: M2A	Method:	EPA-5 1613B	
Initial Wgt/Vol:	1000 mL					
PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RECOVERY LIMITS	
2,3,7,8-TCDD	0.0002	0.0002	ug/L	100	(67 - 158)	
1,2,3,7,8-PeCDD	0.0010	0.0010	ug/L	100	(70 - 142)	
1,2,3,4,7,8-HxCDD	0.0010	0.0009	ug/L	95	(70 - 164)	
1,2,3,6,7,8-HxCDD	0.0010	0.0009	ug/L	95	(76 - 134)	
1,2,3,7,8,9-HxCDD	0.0010	0.0009	ug/L	98	(64 - 162)	
1,2,3,4,6,7,8-HpCDI		0.0009	ug/L	93	(70 - 140)	
OCDD	0.0020	0.0017	ug/L	90 B	(78 - 144)	
2,3,7,8-TCDF	0.0002	0.0002	ug/L	100	(75 - 158)	
1,2,3,7,8-PeCDF	0.0010	0.0009	ug/L	91	(80 - 134)	
2,3,4,7,8-PeCDF	0.0010	0.0009	ug/L	95	(68 - 160)	
1,2,3,4,7,8-HxCDF	0.0010	0.0009	ug/L	95	(72 - 134)	
1,2,3,6,7,8-HxCDF	0.0010	0.0009	ug/L	96	(84 - 130)	
2,3,4,6,7,8-HxCDF	0.0010	0.0009	ug/L	95	(70 - 156)	
1,2,3,7,8,9-HxCDF	0.0010	0.0009	ug/L	94	(78 - 130)	
1,2,3,4,6,7,8-HpCDF		0.0009	ug/L	92	(82 - 122)	
1,2,3,4,7,8,9-HpCDF		0.0009	ug/L	95	(78 - 138)	
OCDF	0.0020	0.0018	ug/L	93	(63 - 170)	
INTERNAL STANDAR	20		ERCENT ECOVERY		RECOVERY LIMITS	
13C-2,3,7,8-TCDD		_	91		(20 - 175)	
13C-1,2,3,7,8-PeCDI	)		95		(21 - 227)	
13C-1,2,3,4,7,8-HxCl			93		(21 - 193)	
13C-1,2,3,6,7,8-HxCl	DD		88		(25 - 163)	
13С-1,2,3,4,6,7,8-Нр	CDD		90		(26 - 166)	
13C-OCDD			91		(13 - 199)	
13C-2,3,7,8-TCDF			83		(22 - 152)	
13C-1,2,3,7,8-PeCDF	1		88		(21 - 192)	
13C-2,3,4,7,8-PeCDF			85		(13 - 328)	
13C-1,2,3,4,7,8-HxCl			78		(19 - 202)	
13C-1,2,3,6,7,8-HxCI	OF		79		(21 - 159)	
13C-2,3,4,6,7,8-HxCI			84		(22 - 176)	
13C-1,2,3,7,8,9-HxCI			85		(17 - 205)	
13С-1,2,3,4,6,7,8-Нр			80		(21 - 158)	
13С-1,2,3,4,7,8,9-Нр	CDF		83		(20 - 186)	
13C-OCDF			83		(13 - 199)	
		P	ERCENT		RECOVERY	
SURROGATE			ECOVERY		LIMITS	
37Cl4-2,3,7,8-TCDD		-	105		(31 - 191)	
			-		·/	

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# LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

# Notes:

Calculations are performed before rounding to avoid round-off errors in calculated results. Bold print denotes control parameters

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

# Sample Receipt Documentation

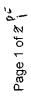
16 of 18

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1 es Latriert de la VIII e 17461 Derian Ave Suite 100 Invine, CA 92614-5817 Phana Barris 2000 200	Chain of Cu	of Custody Record	rd		<b>ESTAMENCO</b>	
t Lab)	Sampler.	Lab PM: Wilson, Debby S		Carrier Tracking No(s):	COC No: 440-70091.1	
	Phone:	E-Mail: debby wilso	E-Mail: debby.wilson@testamericainc.com		Page: Page 1 of 1	
ttories, Inc.			Analysis Requested	sted	Job #. 440-96605-1	
	Due Date Requested: 12/29/2014				80	
	TAT Requested (days):				A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2	
State, Zip: TN, 37921						
000(Tel) 865-584-4315(Fax)	PO#	(0			cid	
	#OM				I - Ice J - Di Water	
Project Name: Boeing SSFL Outfall 009 COMPOSITE	Project #: 44009879	0.0000000000000000000000000000000000000		9UIB10	K - EDA	
	SSOW#:	0000025260			Other:	
	Sample Type Sample (C=come.	ble Matrix du 20 (W-water, EFE 60 5*solid, EFE 60 MB- Constant	- -	nadmuN lis		
Sample Identification - Client ID (Lab ID)		BT=TIssue, A=Air)			Special Instructions/Note:	
Outfall_009_20141213_Comp (440-96605-1)	12/13/14 03:06 Dacific	Water	×     Rc/hip	pH=6	See QAS,Boeing_w/u to zero. ug/L	
				RT C		
			REC	@ 0.9°c 0.	<b>د</b> .	
			•	d.7' 0.	· •	
			cos.	custopy sepils n	WTACT	
			FED	EX# 6/1/1264	0426492	
المحافظة المحافظة معفاق معفالا المحافظة المعالمة المحافظة محافظة المحافظة		Sa	Samole Disposal ( A fee may be assessed if samples are retained longer than 1 month)	sed if samples are retaine	ed longer than 1 month)	
Possible Hazard Identification Unconfirmed			Return To Client	Disposal By Lab	Archive For Months	
Deliverable Requested: I, II, IV, Other (specify)		Sp	Special Instructions/QC Requirements:			
Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:		
Ju Baul	Date/Time/S/4 17:00	Company	Received by:	151	4 1220 Company	
Relinquished by:	Date/Time: /	Company	Received by Reput	Date/Tirge: 12/16/14		17
Relinquished by:	Date/Time:	Company	Received by:	<u> </u>	Company	of 1
Custody Seals Intact 🐑 Custody.Seal No.			Cooler Temperature(s) <sup>9</sup> C and Other Remarks			8

Lot Number: Hyle 160484		Lot Nun	ber: HHL/b0434			
Review Items	ζ	No NA	If No, what was the problem?	s the problem?	Comments/Actions Taken	ken
1. Do sample container labels match COC?						
(IDs. Dates. Times)						
			□ 1D Incomplete information	information		•
			LI IC Marking smeared	neared		
			L Id Label tom			
			LI Ie No label			
	7		LIFCOC not received	cerved		
			1 1g Other:			
2. Is the cooler temperature within limits? (> freezing			$\Box 2a \text{ Temp Blank} =$	k=		
temp. of water to 6°C, VOST: 10°C)	\		□ 2b Cooler Temp =	= du		
1	7	••• <del>•</del> ••••	□ 2c Cooling ini	□ 2c Cooling initiated for recently		
Correction factor: -0.1.			collected samples. ice present.	s. ice present		
<ol><li>Were samples received with correct chemical</li></ol>			☐ 3a See box 3A	1 3a See box 3A for nH Preservation		
preservative (excluding Encore)?		7	<b>3b</b> Other:	TOWN MONTY AND		
<ol> <li>Were custody seals present/intact on cooler and/or</li> </ol>			□ 4a Not present			
containers?	7		1 4h Not intact			
	•		□ 4c Other:			
<ol><li>Were all of the samples listed on the COC received?</li></ol>			1 5a Samples re	1 5a Samnles received-not on COC		
	7		□ 5b Samples no	□ 5b Samples not received-on COC		
<ol><li>Were all of the sample containers received intact?</li></ol>	7		D 6a Leaking			
	7		D 6b Broken			
7. Were VOA samples received without headspace?			1 17a Headspace (VOA only)	(VOA only)		
8. Were samples received in appropriate containers?	7			ontainer		
			Do Could and 1			
(e.g. 1613B. 1668)	7			□ 74 Couta not be accermined due to		
Chlorine test strip lot number: 4252 2017/07						
nolding time	7		110a Holding time evnired	me evnired		
11. For rad samples, was sample activity info. provided?				omotion		
				OIIIIallOII		
I CALIFY OF CONTINUES AND A COLOR NOT	7		IT no, was pH ad sulfuric acid?	IT no, was pH adjusted to pH 7 - 9 with sulfuric acid?	pH test strip lot number: HC4255//	1155
13. Are the shipping containers intact?	1		113a Leakino		Rov 3A LI Do	Daw 0.4. Dackhart
	7		[] 13b Other:			ox 9A: resiuuai Chlorine
14. Was COC relinquished? (Signed/Dated/Timed)	>		114a Not relinquished	nished	Preservative.	
15. Are tests/parameters listed for each sample?	5		115a Incomplete information	e information	Lot Number:	
16. Is the matrix of the samples noted?			115ª Incomplete information	e înformation	Exp Date:	
17. Is the date/time of sample collection noted?				v information	Analyst:	
18 Is the client and project name/# identified?		+		e information	Date:	
10 Wor the country identified an the COCO	<u>ا</u>		LI5a Incomplete information	e information	Time:	
17. Was une sampler identified on the COC?	>		19a Other			
Quote #: PM Instructions:	and a second					
Samule Receiving Accordate.			in lin lind			of
MILLAN MARKANING VASANARCE WANT INTERNA		E T T	Date: 12/10/14		QA026R28.doc, 042414	
•				1 1 1	4 5 6 7 8 9	1 2 3 4
			4 5	1 2 3		2

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CHAIN OF CUSTODY FORM





Cilent Name/Address	Project:		ANALYSIS REQUIRED	
Haley & Aldrich 9040 Friars Road Suite 220 San Diego, CA 92108-5860	Boeing-SSFL NPDES Routine Outfall 009 GRAB Stormwater at SW-13			Field readings: (Include units) $UHVADK$ Time of readings
Test America Contact Debby Wilson				р <del>и 6-54</del> рн unit
Project Manager Nancy Gardiner	Phone Number. 819.285.7132, 858.337 4061 (cell)			Temp 11 • 7 <u>- 7</u> <u>6</u> 61 • F
Sampler B. B. S. S.	Field Manager, Jeff Bannon ete 250, 7240			Field readings QC
D. Ear	818 414.5608(cell)		))) e263	Checked by: CAF ANI 1KA FLUE
Semple Sample Container kol Description Matrix Type Cent	Sample ! D Sampling Dato/Timp	Preservative Bottle #	001 & Gree	Date/Time: team
~	Outfall 008_2014_12_12_012 00 2014-12 .12/0700	HC! 1A, 1B		
		-		
		09 for this storm	These Samples are the Grab Portion of Outfall 008 for this storm event. Composite samples will follow and are to be added to this work order.	this work order.
Relinquished By Dote/Time	-		V DelayTime 12/12/14 14 Alter 5000 2000	
Relinquished By Contrinue.		Recritrod B	Date/Time: 10.37 Sample Intertity (Civech)	
Relinding to the Date of The Date of The	T 10/ 10/14 10	1. Clarked By J. C.	Date/Time	Ŷ
				V INDES LAWE

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Test America version 1 October 2014

CHAIN OF CUSTODY FORM



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		Comments							Filter w/in 24hrs of receipt at lab	Unfilibred and unpreservod	anatysis	Only test If first or second rain events of the vear								10 Day				NPDES Laval IV.	Z	
ANALYSIS REQUIRED	5.0), Total 8 (1 509 1) &	, 5r-90 (903.0 ( 126 (903.0 ( 10 Uranum (	kipna(900 0), 1328 (904 0) 132 (901 0) 132 (901 0) 137 (901 0) 137 (901 0) 138	muthi nidmoC muībsF	) 7) 1								×					this storm event. tiall 009 for the same event.	Tum-around time (Check)	12/13/14 24 Hou 72 Hour 72 Hour	<u> </u>	12/14 12:25 [tract & on tes.		Dalu Requirements (Check) No Lovel IV. All Laves IV	IN QUENT 1+11	,
		N (sueua	ecoverable M knd all conge , NO <sub>5</sub> -HO <sub>2</sub> -t , NO <sub>5</sub> -t , N	188 DC 20 DC	- - -	×	×		×					×				COC Page 2 of 2 list the Composite Samples for Outfall 009 for this storm event. st be added to the same work order for COC Page 1 of 2 for Outfall 009 for the same event.	V Date/Time	at a var	Date/Time.	1 HAI	v Date/Time.			
				Preservative Bottle #	AS CONH	None VIA. 3B	None AA, 4B	None 5 🖌	None 6 V	None 7A	None 78	None 8 /	NaOH 9	None 5				2 list the Composi the same work ord	Received By	5	Received By	1255, AM	Received By		0.04/8	2 - 1 - 1 - 1 = 1
Project <sup>-</sup>	Boeing-SSFL NPDES Routine Outfall 009 COMPOSITE Storrtwater at SW-13		Phone Number 619.285.7132, 858 337.4061(cell) Field Manager. Jeff Battron	818 350./340, 818.414 5608(Cell) Sampling Date/Time		•			- -	# 12/13/14/03UG			<b>I</b>					These must be added to t		e		2/13/14 13				1-H-1-
		L.		ar . Sample I,D			2	-	1213	1 Outfall 009_2014_0 _Comp 12_173/14/	-	-	Ţ.	-					Date/Time	12/13/14 1020		•	erTime			
ie/Address:	Haley & Aidnch 9040 Friars Road Suite 220 San Diego, CA 92108-5860	Test America Contact Debby Wilson	Project Manager Nancy Gardiner B. Bursch Sampler. C. Sunsch	Container to Matrix Type Container to Containe to Container to Contain	W 1L Poly	W 1L Amber	W 500 mL Poly	W 5	9 W 1LPoly 1	W 25 Gal Cube 1		9 W T Gal Poly 1	3 W 500 mL Poly 1	9 W 1L Poly 1		-				the Ci		Charles make	By Date			
Client Name/Address:	Haley & Aldrich 9040 Friars Road 9 San Diego, CA 921	Test Amer	Project Ma Sampler:	Sample Description	Outfall 009	Outfall 009	Outtall 009	Outtall 009	Outfall 009	Outfall 009		Outfall 009	Ourtial1 009	Outfall 009		•			Reilnquished By	D	Relinquished By	-	Relinquished By			

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## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 96486 List Number: 1

Creator: Blocker, Kristina M

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

List Source: TestAmerica Irvine

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

## Login Number: 96605

List Number: 1 Creator: Kim, Guerry

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

Job Number: 440-96486-1

List Source: TestAmerica Irvine

Client: Haley & Aldrich, Inc.

#### Login Number: 96605 List Number: 2

Creator: Clarke, Jill C

Radioactivity wasn't checked or is = background as measured by a survey neter.<br The cooler's custody seal, if present, is intact.	True	
he 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 ampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.4, 4.6, 5.4
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	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested //S/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is 60mm (1/4").	N/A	
Aultiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: TestAmerica St. Louis

List Creation: 12/16/14 01:25 PM

# **Tracer/Carrier Summary**

# Method: 903.0 - Radium-226 (GFPC)

M	atr	ix:	W	ate	ľ

Prep	Type:	Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

5

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(40-110)	
160-9831-E-8-B DU	Duplicate	109	
440-96605-1	Outfall009_20141213_Comp	84.4	
440-96605-2	Trip_Blank	104	
LCS 160-164103/2-A	Lab Control Sample	96.5	
MB 160-164103/1-A	Method Blank	96.2	

Ba = Ba Carrier

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

Matrix: Water

				Percent Yield (Acceptance Limits)	
		Ва	Y		
Lab Sample ID	Client Sample ID	(40-110)	(40-110)		
440-96605-1	Outfall009_20141213_Comp	93.2	84.5		
440-96605-2	Trip_Blank	107	90.5		
LCS 160-168188/2-A	Lab Control Sample	105	85.6		- 2
LCSD 160-168188/3-A	Lab Control Sample Dup	104	87.9		
MB 160-168188/1-A	Method Blank	102	89.0		
Tracer/Carrier Legend					1
Ba = Ba Carrier					
Y = Y Carrier					

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

Matrix: Water

				Percent Yield
		Sr (C)	Y	
Lab Sample ID	Client Sample ID	(40-110)	(40-110)	
440-96594-A-2-G DU	Duplicate	88.2	90.8	
440-96605-1	Outfall009_20141213_Comp	84.6	91.6	
440-96605-2	Trip_Blank	82.7	90.8	
LCS 160-165620/2-A	Lab Control Sample	88.6	92.7	
MB 160-165620/1-A	Method Blank	90.0	89.3	
Tracer/Carrier Legend				
Sr (C) = Sr Carrier				
Y = Y Carrier				

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

			Percent Yield (Acceptance Limits)
		U-232	
Lab Sample ID	Client Sample ID	(30-110)	
440-97211-A-2-D DU	Duplicate	31.1	
LCS 160-165361/2-A	Lab Control Sample	83.7	
MB 160-165361/1-A	Method Blank	87.1	

TestAmerica Irvine

Prep Type: Total/NA

# **Tracer/Carrier Summary**

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Routine Outfall 009

Tracer/Carrier Legend

U-232 = Uranium-232

TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-97027-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

# I. INTRODUCTION

Task Order Title:	Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order:	1272.003H.01 001
Sample Delivery Group:	440-97027-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

## Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
Outfall009_20141217_ Comp	440-97211-1	N/A	Water	12/17/2014 8:21:00 AM	E1613B, E200.8, E900, E901.1, E905.0, SM2540D

# II. Sample Management

No anomalies were observed regarding sample management. A portion of the sample containers were received at TestAmerica-Irvine below the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ , at 0.5 °C. As the sample was not noted to be frozen or damaged, no qualification was required. According to the case narrative for this SDG, the sample container was received on ice, intact and properly preserved. No COC transferring the samples to TestAmerica-St. Louis. The COC was appropriately signed and dated by field and laboratory personnel. The samples were transferred to TestAmerica-Irvine via courier. Custody seals were intact at the remaining laboratories.

Upon receipt at TestAmerica-Irvine, the laboratory prepared the radionuclide samples and a blank that accompanied the samples to TestAmerica-St. Louis.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

# Data Qualifier Reference Table

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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

# **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

# III. Method Analyses

# A. EPA METHOD 1613B—Dioxin/Furans

Reviewed By: L. Calvin Date Reviewed: January 20, 2015

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

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
  - GC Column Performance: A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.
  - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.
- Calibration: Calibration criteria were met.
  - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.
  - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.
- Blanks: The method blank had a detect below the reporting limit for OCDD at 0.00000202 µg/L. The sample concentration of OCDD exceeded 10x the method blank concentration and required no qualification. The method blank had no other detects above the estimated detection limit (EDL).

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

The results for 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, and 1,2,3,7,8-PeCDF reported as EMPCs were qualified as estimated nondetects, "UJ," at the level of the EMPC. Totals HpCDF, HxCDF, PeCDD, PeCDF, and TCDF containing one or more EMPC peaks were qualified as estimated, "J."

# B. EPA METHOD 200.8—Metals

Reviewed By: M. Cherny Date Reviewed: January 19, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the  $MEC^{X}$  Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 200.8 and the National Functional Guidelines for Inorganic Data Review (2014).

• Holding Times: The analytical holding time, six months, was met.

- Calibration: The initial and continuing calibration recoveries were within 90-110% and the CRI recoveries were within the control limits of 70-130%.
- Blanks: Total recoverable copper was detected in the method blank but not at sufficient concentration to qualify the site sample. Method blanks and CCBs had no other detects.
- Interference Check Samples: Recoveries were within 80-120%. Total recoverable and dissolved copper were reported in the ICSA at 1.68 µg/L and 1.64 µg/L; therefore copper detected in the site sample was qualified as estimated with high bias, "J+". There were no other detects in the ICSA above the certified impurity levels.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the method control limits of 85-115% and the ICP MS RPDs were ≤20%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on the sample in this SDG. Method accuracy and precision were evaluated based upon laboratory spike results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-"; otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

# C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks Date Reviewed: January 19, 2015

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *EPA Methods 900.0, 901.1, 903.0, 904.0, 905.0, and 906.0, HASL-300,* and the *National Functional Guidelines for Inorganic Data Review* (2014).

- Holding Times: The tritium sample was analyzed within 180 days of collection. Aliquots for the remaining analytes were preserved within the five-day holding time.
- Calibration: The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

The gross alpha and radium-226 detector efficiencies were less than 20%; therefore, gross alpha and radium-226 in the sample was qualified as estimated, "J," for detects and, "UJ," for nondetects. The remaining detector efficiencies were greater than 20%.

All initial and annual calibration verifications were acceptable with mean recoveries within 90-110%. All carrier recoveries were within 40-110%. The gamma spectroscopy analytes were determined at the maximum photopeak energy.

- Blanks: There were no analytes detected in the method blanks or the blank prepared by TestAmerica-Irvine.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratoryestablished control limits.
- Laboratory Duplicates: There were no laboratory duplicate analyses performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No matrix spike analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDCs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any detects between the MDC and the reporting limit (RL) were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDC.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

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

# D. EPA METHOD 2540D—Total Suspended Solids

Reviewed By: M. Cherny Date Reviewed: January 19, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the Standard Method for the Examination of Water and Wastewater Method 2540D, and the National Functional Guidelines for Inorganic Data Review (2014).

- Holding Times: The analytical holding time, seven days, was met.
- Calibration: The daily calibration log was acceptable.
- Blanks: The method blank had no detects.
- Blank Spikes and Laboratory Control Samples: The recovery was within the method control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses are not applicable to this method.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-," otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

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

# Validated Sample Result Forms: 440970271

# Analysis Method E1613B

Sample Name Out	tfal1009_20	0141217_Co	Matrix Typ	e: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014 8:2	1:00 AM	Valid	ation Level:	3					
Lab Sample Name: 440-	97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9- Octachlorodibenzofuran (OCDF)	Ν	39001-02-0	0.0000593	0.000100	0.0	ug/L	J	J	DNQ
1,2,3,4,6,7,8,9-Octachlorodibenzo dioxin (OCDD)	o-p- N	3268-87-9	0.00198	0.000100	0.0	ug/L	В		
1,2,3,4,6,7,8- Heptachlorodibenzofuran (HpCDl	N F)	67562-39-4	0.0000234	0.0000502	0.0	ug/L	J	J	DNQ
1,2,3,4,6,7,8-Heptachlorodibenzo- dioxin (HpCDD)	-p- N	35822-46-9	0.000146	0.0000502	0.0	ug/L			
1,2,3,4,7,8,9- Heptachlorodibenzofuran (HpCDl	N F)	55673-89-7		0.0000502	0.0	ug/L	U	U	
1,2,3,4,7,8-Hexachlorodibenzofur (HxCDF)	an N	70648-26-9	0.00000164	0.0000502	0.0	ug/L	QJ	UJ	*Ш
1,2,3,4,7,8-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	39227-28-6		0.0000502	0.0	ug/L	U	U	
1,2,3,6,7,8-Hexachlorodibenzofur (HxCDF)	an N	57117-44-9	0.00000466	0.0000502	0.0	ug/L	QJ	UJ	*Ш
1,2,3,6,7,8-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	57653-85-7	0.00000846	0.0000502	0.0	ug/L	J	J	DNQ
1,2,3,7,8,9-Hexachlorodibenzofur (HxCDF)	an N	72918-21-9		0.0000502	0.0	ug/L	U	U	
1,2,3,7,8,9-Hexachlorodibenzo-p- dioxin (HxCDD)	Ν	19408-74-3	0.00000610	0.0000502	0.0	ug/L	J	J	DNQ
1,2,3,7,8-Pentachlorodibenzofurar (PeCDF)	n N	57117-41-6		0.0000502	0.0	ug/L	U	U	
1,2,3,7,8-Pentachlorodibenzo-p- dioxin (PeCDD)	Ν	40321-76-4	0.00000161	0.0000502	0.0	ug/L	Q1	UJ	*Ш
2,3,4,6,7,8-Hexachlorodibenzofur (HxCDF)	an N	60851-34-5		0.0000502	0.0	ug/L	U	U	
2,3,4,7,8-Pentachlorodibenzofurar (PeCDF)	n N	57117-31-4		0.0000502	0.0	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	Ν	51207-31-9		0.0000100	0.0	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzo-p-diox (TCDD)	xin N	1746-01-6		0.0000100	0.0	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	Ν	38998-75-3	0.0000699	0.0000502	0.0	ug/L	Q1	J	DNQ, *III
Total Heptachlorodibenzo-p-dioxi (HpCDD)	in N	37871-00-4	0.000360	0.0000502	0.0	ug/L			
Total Hexachlorodibenzofuran (HxCDF)	Ν	55684-94-1	0.0000949	0.0000502	0.0	ug/L	JQ	J	DNQ, *III
Total Hexachlorodibenzo-p-dioxi	n N	34465-46-8	0.0000421	0.0000502	0.0	ug/L	J	J	DNQ

(HxCDD)

Analysis Method	<i>E1613B</i>
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Total Pentachlorodibenzofuran (PeCDF)	Ν	30402-15-4	0.0000195	0.0000502	0.0	ug/L	QJ	J	DNQ, *III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.00000478	0.0000502	0.0	ug/L	QJ	J	DNQ, *III
Total Tetrachlorodibenzofuran (TCDF)	Ν	55722-27-5	0.00000954	0.0000100	0.0	ug/L	JQ	J	DNQ, *III
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5		0.0000100	0.0	ug/L	U	U	

# Analysis Method E200.8

Sample Name Outfall009\_20141217\_Co Matrix Type: WM Result Type: TRG

**Sample Date:** 12/17/2014 8:21:00 AM **Validation Level:** 3

Lab Sample Name: 440-97211-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	Ν	7440-36-0	0.83	2.0	0.50	ug/L	J,DX	J	DNQ
Antimony	D	7440-36-0	0.54	2.0	0.50	ug/L	J,DXQP	J	DNQ
Cadmium	D	7440-43-9		1.0	0.25	ug/L	UQP	U	
Cadmium	Ν	7440-43-9		1.0	0.25	ug/L	U	U	
Copper	Ν	7440-50-8	8.8	2.0	0.50	ug/L	MB	J+	Ι
Copper	D	7440-50-8	4.4	2.0	0.50	ug/L	QP	J+	Ι
Lead	Ν	7439-92-1	13	1.0	0.50	ug/L			
Lead	D	7439-92-1	1.3	1.0	0.50	ug/L	QP		
Thallium	D	7440-28-0		1.0	0.50	ug/L	UQP	U	
Thallium	Ν	7440-28-0		1.0	0.50	ug/L	U	U	
Analysis Method	E900								

Sample NameOutfall009\_20141217\_CoMatrix Type:WMResult Type:TRG

Sample Date: 12/17/2014 8:21:00 AM Validation Level: 3

**Lab Sample Name:** 440-97211-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha Analytes	Ν	GROSSALPH	HA5.82	3.00	1.48	pCi/L		J	С
Gross Beta Analytes	Ν	GROSSBETA	A 6.73	4.00	1.02	pCi/L			
Analysis Method	E901.	.1							
Sample Name O	utfall009_20	0141217_Co	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014 8	:21:00 AM	Valida	ation Level:	3					
Lab Sample Name: 440	)-97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	Ν	10045-97-3	0.000	20.0	16.0	pCi/L	U	U	
Potassium-40	Ν	13966-00-2	2.92		170	pCi/L	U	U	

Friday, January 23, 2015

	E903.	U							
Sample Name (	Outfall009_20	0141217_Co	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014		Valida	ation Level:	3					
Lab Sample Name: 44	40-97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	Ν	13982-63-3	0.0774	1.00	0.229	pCi/L	U	UJ	С
Analysis Method	E904.	0							
Sample Name (	Outfall009_20	0141217_Co	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014	8:21:00 AM	Valida	ation Level:	3					
Lab Sample Name: 44	40-97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	Ν	15262-20-1	0.539	1.00	0.814	pCi/L	U	U	
Analysis Method	E905.	0							
Sample Name (	Outfall009_20	0141217_Co	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014	8:21:00 AM	Valida	ation Level:	3					
Lab Sample Name: 44	40-97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	Ν	10098-97-2	-0.192	3.00	1.14	pCi/L	U	U	
Analysis Method	E906.	0							
Sample Name (	Outfall009_2(								
		)141217_Co	Matrix Ty	pe: WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014			Matrix Ty			Result Ty	pe: TRG		
-						Result Ty	pe: TRG		
Lab Sample Name: 44	8:21:00 AM	Valida			MDL	Result Ty Result Units	pe: TRG Lab Qualifier	Validation Qualifier	Validation Notes
Lab Sample Name: 44 Analyte	8:21:00 AM 40-97211-1	Valida	ntion Level: Result	3	<b>MDL</b> 346	Result	Lab		
Lab Sample Name: 44 Analyte	8:21:00 AM 40-97211-1 <b>Fraction</b> N	Valid: CAS No	Result Value	3 RL		Result Units	Lab Qualifier	Qualifier	
Lab Sample Name: 44 Analyte Tritium Analysis Method	8:21:00 AM 40-97211-1 <b>Fraction</b> N	Valida CAS No 10028-17-8 <i>,-300 U I</i>	Result Value -15.8 Mod	3 RL 500		Result Units	Lab Qualifier U	Qualifier	
Lab Sample Name: 44 Analyte Tritium Analysis Method Sample Name	8:21:00 AM 40-97211-1 <b>Fraction</b> N <i>HASL</i> Outfall009_20	Valida CAS No 10028-17-8 <i>J-300 U N</i> 0141217_Co	Result Value -15.8 Mod	3 RL 500 pe: WM		Result Units pCi/L	Lab Qualifier U	Qualifier	
Lab Sample Name: 44 Analyte Tritium Analysis Method Sample Name ( Sample Date: 12/17/2014	8:21:00 AM 40-97211-1 <b>Fraction</b> N <i>HASL</i> Outfall009_20	Valida CAS No 10028-17-8 <i>J-300 U N</i> 0141217_Co	Result Value -15.8 Mod Matrix Ty	3 RL 500 pe: WM		Result Units pCi/L	Lab Qualifier U	Qualifier	
Analyte Tritium Analysis Method Sample Name Sample Date: 12/17/2014	8:21:00 AM 40-97211-1 <b>Fraction</b> N <i>HASL</i> Outfall009_20 8:21:00 AM	Valida CAS No 10028-17-8 <i>J-300 U I</i> 0141217_Co Valida	Result Value -15.8 Mod Matrix Ty	3 RL 500 pe: WM		Result Units pCi/L	Lab Qualifier U	Qualifier	

Analysis Method	l SM25	40D							
Sample Name	Outfall009_20	0141217_Co	Matrix Type	WM		Result Ty	pe: TRG		
Sample Date: 12/17/2014	8:21:00 AM	Valida	ation Level: 3						
Lab Sample Name:	440-97211-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids (TSS	) N	TSS	78	5.0	2.5	mg/L			



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: 440-97027-1

Client Project/Site: Routine Outfall 009 Grab Revision: 1

# For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

# Attn: Nancy Gardiner

Authorized for release by: 1/19/2015 5:49:01 PM Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@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.



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.

abby Wilson

Debby Wilson Manager of Project Management 1/19/2015 5:49:01 PM

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Matrix

Water

Water

Water

Client: Haley & Aldrich, Inc. Project/Site: Routine Outfall 009 Grab

**Client Sample ID** 

Trip Blank

Outfall 009\_20141217\_Grab

Outfall009\_20141217\_Comp

Lab Sample ID

440-97027-1

440-97211-1

440-97211-2

Received

12/17/14 13:36

12/18/14 17:20

12/18/14 17:20

Collected

12/17/14 07:30

12/17/14 08:21

12/18/14 17:20

2
3
5
8
9
13

TestAmerica Irvine

#### Job ID: 440-97027-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-97027-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/17/2014 1:36 PM and 12/18/2014 5:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.5° C, 2.1° C, 2.4° C and 3.0° C.

#### HPLC/IC

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

#### RAD

Method(s) ExtChrom: Uranium (165361): The samples are a dark yellow-brown color. A reduced aliquot of 100 mL was used to prevent matrix interference. (440-97211-1), Outfall009\_20141217\_Comp (440-97211-1)

Method(s) PrecSep-7: strontium-90: The following samples in batch #165620 were prepped at a reduced aliquot due to the presence of sediment: (440-97211-1), Outfall009\_20141217\_Comp (440-97211-1).

Method(s) PrecSep\_21, PrecSep\_0: radium-228 batch #164779 and radium-226 batch #164776: The following samples were reduced to 500 mL due to sediment:

Method(s) 905: Prep Batch 165620: The strontium-90 sample has negative activity greater than the 3 sigma uncertainty. The sample cannot be recounted to verify activity due to the rapid decay rate of the yttrium carrier. The data have been qualified and reported. (440-96594-2), Trip\_Blank (440-96594-2)

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

#### Metals

Method(s) 245.1: The continuing calibration verification (CCV) associated with analytical batch 227057 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: Outfall009\_20141217\_Comp (440-97211-1).

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

#### **General Chemistry**

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

#### Subcontract non-Sister

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

#### Organic Prep

Method(s) 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 226034. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

#### Subcontract Work

Method 1613 dioxin: This method was subcontracted to TestAmerica Knoxville. The subcontract laboratory certification is different from that of the facility issuing the final report. Refer to case narrative in appended report.

**TestAmerica** Irvine

1/19/2015

TestAmerica Job ID: 440-97027-1

TestAmerica Job ID: 440-97027-1

Client Sample ID: Outfall 009_20 Date Collected: 12/17/14 07:30	14121/_	Grad					Lad Sam	ple ID: 440-9 Matriz	7027- x: Wate
ate Received: 12/17/14 13:36 General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
HEM	ND		4.8	1.4	mg/L		12/21/14 14:30	12/21/14 17:01	
-									
Client Sample ID: Outfall009_20 Date Collected: 12/17/14 08:21 Date Received: 12/18/14 17:20	141217_	Comp					Lab Sam	ple ID: 440-9 Matrix	7211- x: Wate
Method: 300.0 - Anions, Ion Chromat Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Chloride	6.1		0.50	0.25	mg/L			12/18/14 22:50	
Sulfate	3.9		0.50	0.25	mg/L			12/18/14 22:50	
-									
Method: NO3NO2 Calc - Nitrogen, Nit						_	<b>_</b> .		
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Nitrate Nitrite as N	1.9		0.15	0.070	mg/L			01/05/15 12:00	
Method: 1613B - Dioxins/Furans, HR	GC/HRMS	(1613B)							
Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil F
2,3,7,8-TCDD	ND		0.0000100	0.00000208	ug/L		12/30/14 14:30	01/16/15 08:53	
Total TCDD	ND		0.0000100	0.00000208	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,7,8-PeCDD	0.00000161	QJ	0.0000502	0.00000117	ug/L		12/30/14 14:30	01/16/15 08:53	
	0.00000478	QJ	0.0000502	0.00000117	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,4,7,8-HxCDD	ND		0.0000502	0.00000101	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,6,7,8-HxCDD	0.00000846	J	0.0000502	0.000000930	ug/L		12/30/14 14:30	01/16/15 08:53	
	0.00000610	J	0.0000502	0.000000900	ug/L		12/30/14 14:30	01/16/15 08:53	
Total HxCDD	0.0000421	J	0.0000502	0.000000900	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,4,6,7,8-HpCDD	0.000146		0.0000502	0.00000170	ug/L		12/30/14 14:30	01/16/15 08:53	
Total HpCDD	0.000360		0.0000502	0.00000170	ug/L		12/30/14 14:30	01/16/15 08:53	
OCDD	0.00198	в	0.000100	0.00000248	ug/L		12/30/14 14:30	01/16/15 08:53	
2,3,7,8-TCDF	ND		0.0000100	0.00000148	ug/L		12/30/14 14:30	01/16/15 08:53	
Total TCDF	0.00000954	JQ	0.0000100	0.00000148	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,7,8-PeCDF	ND		0.0000502	0.000000830	ug/L		12/30/14 14:30	01/16/15 08:53	
2,3,4,7,8-PeCDF	ND		0.0000502	0.000000740	ug/L		12/30/14 14:30	01/16/15 08:53	
Total PeCDF	0.0000195	QJ	0.0000502	0.000000740	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,4,7,8-HxCDF	0.00000164	QJ	0.0000502	0.000000670	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,6,7,8-HxCDF	0.00000466	QJ	0.0000502	0.000000650	ug/L		12/30/14 14:30	01/16/15 08:53	
2,3,4,6,7,8-HxCDF	ND		0.0000502	0.000000650	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,7,8,9-HxCDF	ND		0.0000502	0.000000980	ug/L		12/30/14 14:30	01/16/15 08:53	
Total HxCDF	0.0000949	JQ	0.0000502	0.000000650	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,4,6,7,8-HpCDF	0.0000234	J	0.0000502	0.000000820	ug/L		12/30/14 14:30	01/16/15 08:53	
1,2,3,4,7,8,9-HpCDF	ND		0.0000502	0.00000144	ug/L		12/30/14 14:30	01/16/15 08:53	
Total HpCDF	0.0000699	QJ	0.0000502	0.00000820	ug/L		12/30/14 14:30	01/16/15 08:53	
OCDF	0.0000593	J	0.000100	0.00000111	ug/L		12/30/14 14:30	01/16/15 08:53	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
37Cl4-2,3,7,8-TCDD	80		35 - 197				12/30/14 14:30	01/16/15 08:53	
Internal Standard	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C-2,3,7,8-TCDD	70		25 - 164				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,7,8-PeCDD	76		25 _ 181				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,4,7,8-HxCDD	82		32 - 141				12/30/14 14:30	01/16/15 08:53	

Limits

Internal Standard

#### Client Sample ID: Outfall009\_20141217\_Comp Date Collected: 12/17/14 08:21 Date Received: 12/18/14 17:20

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

%Recovery Qualifier

TestAmerica Job ID: 440-97027-1

## Lab Sample ID: 440-97211-1 Matrix: Water

Analyzed

Prepared

5

Dil Fac

	8
	9
	3

13C-1,2,3,6,7,8-HxCDD	88		28 - 130				12/30/14 14:30	01/16/15 08:53	1
13C-1,2,3,4,6,7,8-HpCDD	79		23 - 140				12/30/14 14:30	01/16/15 08:53	1
13C-OCDD	77		17 _ 157				12/30/14 14:30	01/16/15 08:53	1
13C-2,3,7,8-TCDF	68		24 - 169				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,7,8-PeCDF	68		24 - 185				12/30/14 14:30	01/16/15 08:53	
13C-2,3,4,7,8-PeCDF	66		21 - 178				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,4,7,8-HxCDF	72		26 - 152				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,6,7,8-HxCDF	76		26 - 123				12/30/14 14:30	01/16/15 08:53	
13C-2,3,4,6,7,8-HxCDF	79		28 - 136				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,7,8,9-HxCDF	69		29 - 147				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,4,6,7,8-HpCDF	79		28 - 143				12/30/14 14:30	01/16/15 08:53	
13C-1,2,3,4,7,8,9-HpCDF	67		26 - 138				12/30/14 14:30	01/16/15 08:53	
13C-OCDF	75		17 _ 157				12/30/14 14:30	01/16/15 08:53	
Method: 200.8 - Metals (ICP/MS) -	Total Recove	rable							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		12/29/14 14:01	12/30/14 10:03	
Copper	8.8	MB	2.0	0.50	ug/L		12/29/14 14:01	12/30/14 10:03	
_ead	13		1.0	0.50	ug/L		12/29/14 14:01	12/30/14 10:03	
Fhallium	ND		1.0	0.50	ug/L		12/29/14 14:01	12/30/14 10:03	
Antimony	0.83	J,DX	2.0	0.50	ug/L		12/29/14 14:01	12/30/14 10:03	
Method: 200.8 - Metals (ICP/MS) -	Dissolved								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
						_		Analyzou	Dirra
-	ND	QP	1.0		ug/L		12/24/14 09:59	12/24/14 17:29	
Cadmium	ND 4.4	QP QP		0.25	ug/L ug/L				
Cadmium Copper			1.0	0.25	•		12/24/14 09:59	12/24/14 17:29	
Cadmium Copper Lead	4.4	QP	1.0 2.0	0.25 0.50 0.50	ug/L		12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29	· · · · · · · · · · · · · · · · · · ·
Cadmium Copper Lead Thallium Antimony	4.4 1.3 ND	QP QP	1.0 2.0 1.0	0.25 0.50 0.50 0.50	ug/L ug/L		12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29	-
Cadmium Copper Lead Thallium Antimony	4.4 1.3 ND	QP QP QP	1.0 2.0 1.0 1.0	0.25 0.50 0.50 0.50	ug/L ug/L ug/L		12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29	
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA)	4.4 1.3 ND 0.54	QP QP QP	1.0 2.0 1.0 1.0	0.25 0.50 0.50 0.50 0.50	ug/L ug/L ug/L	 	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29	
Cadmium Copper Lead Thallium	4.4 1.3 ND 0.54	QP QP J,DX QP	1.0 2.0 1.0 1.0 2.0	0.25 0.50 0.50 0.50 0.50	ug/L ug/L ug/L ug/L		12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29	Dil Fac
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Mercury	4.4 1.3 ND 0.54 Result ND	QP QP J,DX QP	1.0 2.0 1.0 2.0 2.0 <b>RL</b>	0.25 0.50 0.50 0.50 0.50 MDL	ug/L ug/L ug/L ug/L Unit		12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b>	Dil Fa
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Viercury Method: 245.1 - Mercury (CVAA) -	4.4 1.3 ND 0.54 - Result ND - Dissolved	QP QP J,DX QP	1.0 2.0 1.0 2.0 2.0 <b>RL</b>	0.25 0.50 0.50 0.50 0.50 <b>MDL</b> 0.10	ug/L ug/L ug/L ug/L Unit		12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b>	Dil Fac
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA) Analyte	4.4 1.3 ND 0.54 - Result ND - Dissolved	QP QP J,DX QP	1.0 2.0 1.0 2.0 2.0 <b>RL</b> 0.20	0.25 0.50 0.50 0.50 0.50 <b>MDL</b> MDL	ug/L ug/L ug/L ug/L Unit ug/L	D	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/19/14 14:51	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b> 12/19/14 19:31	Dil Fa
Cadmium Copper Lead Fhallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Wercury Method: 245.1 - Mercury (CVAA) - Analyte	4.4 1.3 ND 0.54 Result Dissolved Result	QP QP J,DX QP Qualifier	1.0 2.0 1.0 2.0 2.0 <b>RL</b> 0.20	0.25 0.50 0.50 0.50 0.50 <b>MDL</b> MDL	ug/L ug/L ug/L ug/L Unit ug/L	D	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 Prepared 12/19/14 14:51 Prepared	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b> 12/19/14 19:31	Dil Fa Dil Fa
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Mercury Method: 245.1 - Mercury (CVAA) - Analyte Mercury General Chemistry	4.4 1.3 ND 0.54 Result ND - Dissolved Result ND	QP QP J,DX QP Qualifier	1.0 2.0 1.0 2.0 2.0 <b>RL</b> 0.20	0.25 0.50 0.50 0.50 0.50 0.10 <b>MDL</b> 0.10	ug/L ug/L ug/L ug/L Unit ug/L	D	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 Prepared 12/19/14 14:51 Prepared	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b> 12/19/14 19:31	Dil Fa Dil Fa
Cadmium Copper Lead Fhallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Mercury Method: 245.1 - Mercury (CVAA) - Analyte Mercury	4.4 1.3 ND 0.54 Result ND - Dissolved Result ND	QP QP J,DX QP Qualifier B LQ QP	1.0 2.0 1.0 2.0 2.0 <b>RL</b> 0.20 <b>RL</b> 0.20	0.25 0.50 0.50 0.50 0.50 0.10 <b>MDL</b> 0.10	ug/L ug/L ug/L ug/L Unit ug/L	D	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/19/14 14:51 <b>Prepared</b> 12/24/14 06:37	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b> 12/19/14 19:31 <b>Analyzed</b> 12/24/14 16:04	Dil Fa Dil Fa Dil Fa
Cadmium Copper Lead Thallium Antimony Method: 245.1 - Mercury (CVAA) Analyte Mercury Method: 245.1 - Mercury (CVAA) - Analyte Mercury General Chemistry Analyte	4.4 1.3 ND 0.54 Result ND - Dissolved Result ND	QP QP J,DX QP Qualifier B LQ QP	1.0 2.0 1.0 2.0 2.0 <b>RL</b> 0.20 <b>RL</b> 0.20 <b>RL</b>	0.25 0.50 0.50 0.50 <b>MDL</b> 0.10 <b>MDL</b> 5.0	ug/L ug/L ug/L ug/L Unit ug/L Unit Unit	D	12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 12/24/14 09:59 <b>Prepared</b> 12/19/14 14:51 <b>Prepared</b> 12/24/14 06:37	12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 12/24/14 17:29 <b>Analyzed</b> 12/19/14 19:31 <b>Analyzed</b> 12/24/14 16:04 <b>Analyzed</b>	Dil Fa Dil Fa

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 <b>σ+/-</b> )	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	5.82		1.62	1.75	1.48	pCi/L	12/29/14 14:42	01/06/15 11:09	1
Gross Beta	6.73		1.05	1.25	1.02	pCi/L	12/29/14 14:42	01/06/15 11:09	1

**TestAmerica** Irvine

Total

Uncert.

(2**σ**+/-)

2.37

69.3

Total

Uncert.

(2**σ**+/-)

0.134

MDC Unit

16.0 pCi/L

170 pCi/L

MDC Unit

0.229 pCi/L

Count

Uncert.

(2**σ**+/-)

2.37

69.3

Count

Uncert.

(2**σ**+/-)

0.134

Limits

40 - 110

Analyte

Analyte

Carrier

Ba Carrier

Radium-226

Cesium-137

Potassium-40

#### Client Sample ID: Outfall009\_20141217\_Comp Date Collected: 12/17/14 08:21 Date Received: 12/18/14 17:20

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

Result Qualifier

Result Qualifier

0.0774 U

%Yield Qualifier

92.9

0.000 U

2.92 U

### Lab Sample ID: 440-97211-1 Matrix: Water

Analyzed

01/05/15 22:15

Analyzed

Analyzed

Prepared

01/02/15 14:33

01/02/15 14:33

Prepared

12/22/14 13:06

Prepared

12/22/14 13:06

5

# 01/05/15 22:15 1 Dil Fac 01/13/15 18:47 1 Dil Fac 01/13/15 18:47 1

Dil Fac

1

Method: 904.0 - Radium-228 (GFPC)

Method: 903.0 - Radium-226 (GFPC)

				Count	Total						
				Uncert.	Uncert.						
Analyte	Resul	t Qualifier	r	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	0.539	U		0.504	0.506	0.814	pCi/L	12/22/14 13:41	01/08/15 11:09	1	
Carrier	%Yield Qual	ifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	92.9		40 - 110	-				12/22/14 13:41	01/08/15 11:09	1	
Y Carrier	84.5		40 - 110					12/22/14 13:41	01/08/15 11:09	1	

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

				Count	Total					
				Uncert.	Uncert.					
Analyte	Result	Qualifier	r	(2 <b>σ</b> +/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.192	U		0.616	0.616	1.14	pCi/L	12/29/14 18:01	01/07/15 15:58	1
Carrier	%Yield Quali	fier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.6		40 - 110	-				12/29/14 18:01	01/07/15 15:58	1
Y Carrier	92.7		40 - 110					12/29/14 18:01	01/07/15 15:58	1

#### Method: 906.0 - Tritium, Total (LSC)

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-15.8	U	183	183	346	pCi/L	01/02/15 09:02	01/02/15 18:04	1

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

-			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 <b>σ+/-</b> )	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.551		0.376	0.378	0.405	pCi/L	12/24/14 10:49	01/02/15 12:39	1

#### **Client Sample ID: Trip Blank** Date Collected: 12/18/14 17:20 Date Received: 12/18/14 17:20

Method: 900.0 - Gros	s Alpha and Gros	s Beta Radi	oactivity						
			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.597	U	1.02	1.02	1.74	pCi/L	12/29/14 14:42	01/06/15 11:09	1
Gross Beta	-0.277	U	0.531	0.531	0.978	pCi/L	12/29/14 14:42	01/06/15 11:09	1

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.113	U	5.54	5.54	10.4	pCi/L	01/02/15 14:33	01/05/15 22:15	1
Potassium-40	-11.9	U	77.5	77.5	156	pCi/L	01/02/15 14:33	01/05/15 22:15	1

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

				Count	Total					
				Uncert.	Uncert.					
Analyte	Re	sult Qualifie	r	(2 <b>σ</b> +/-)	(2 <b>σ+/-</b> )	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0	117 U		0.0509	0.0509	0.0946	pCi/L	12/22/14 13:06	01/13/15 18:47	1
Carrier	%Yield Q	ualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110	-				12/22/14 13:06	01/13/15 18:47	1

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.339	U	0.245	0.247	0.383	pCi/L	12/22/14 13:41	01/08/15 11:10	1
Carrier	%Yield Qualifi	ier Li	mits				Prepared	Analyzed	Dil Fac
Ba Carrier	95.6	40	- 110				12/22/14 13:41	01/08/15 11:10	1
Y Carrier	84.1	40	- 110				12/22/14 13:41	01/08/15 11:10	1

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

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0125	U	0.168	0.168	0.306	pCi/L	12/29/14 18:01	01/07/15 15:58	1
Carrier	%Yield Qualifi	ier Limi	its				Prepared	Analyzed	Dil Fac
Sr Carrier	76.1	40 -	110				12/29/14 18:01	01/07/15 15:58	1
Y Carrier	94.2	40 -	110				12/29/14 18:01	01/07/15 15:58	1

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

		Count	Total				
		Uncert.	Uncert.				
Analyte	Result Qualifier	(2σ+/-)	(2σ+/-)	MDC Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.0591 U	0.1019	0.1019	0.150 pCi/L	12/24/14 10:49	01/13/15 13:57	1

#### Client: Haley & Aldrich, Inc. Project/Site: Routine Outfall 009 Grab

TestAmerica Job ID: 440-97027-1

'-1	
	5
	6
	8
	9

lethod	Method Description	Protocol	Laboratory
00.0	Anions, Ion Chromatography	MCAWW	TAL IRV
IO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
613B	Dioxins/Furans, HRGC/HRMS (1613B)	EPA-5	TAL KNX
00.8	Metals (ICP/MS)	EPA	TAL IRV
45.1	Mercury (CVAA)	EPA	TAL IRV
664A	HEM and SGT-HEM	1664A	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
0.00	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
01.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
03.0	Radium-226 (GFPC)	EPA	TAL SL
04.0	Radium-228 (GFPC)	EPA	TAL SL
05	Strontium-90 (GFPC)	EPA	TAL SL
06.0	Tritium, Total (LSC)	EPA	TAL SL
-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

#### Protocol References:

1664A = EPA-821-98-002

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

EPA-5 = EPA-5

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

#### Laboratory References:

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

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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

# Lab Sample ID: 440-97027-1 Matrix: Water

Lab Sample ID: 440-97211-1

Matrix: Water

Client Sample ID: Outfall 009\_20141217\_Grab Date Collected: 12/17/14 07:30 Date Received: 12/17/14 13:36

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1035 mL	1000 mL	226034	12/21/14 14:30	JMB	TAL IRV
Total/NA	Analysis	1664A		1	1035 mL	1000 mL	226039	12/21/14 17:01	JMB	TAL IRV

#### Client Sample ID: Outfall009\_20141217\_Comp Date Collected: 12/17/14 08:21 Date Received: 12/18/14 17:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	- 300.0		1	5 mL	1.0 mL	225477	12/18/14 22:50	JRA	- TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1	0 IIIE	1.0 112	228039	01/05/15 12:00	TN	TAL IRV
Total	Prep	1613		·	995 mL	20 uL	4364015 P	12/30/14 14:30		TAL KNX
Total	Analysis	1613B		1	ooo me	LOUL	4364015	01/16/15 08:53	PMP	TAL KNX
Dissolved	Filtration	FILTRATION			125 mL	125 mL	226565	12/23/14 18:56	APS	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	226703	12/24/14 09:59	ND	TAL IRV
Dissolved	Analysis	200.8		1	25 mL	25 mL	226988	12/24/14 17:29	NH	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	227112	12/29/14 14:01	APS	TAL IRV
Total Recoverable	Analysis	200.8		1	25 mL	25 mL	227345	12/30/14 10:03	NH	TAL IRV
Dissolved	Filtration	FILTRATION			125 mL	125 mL	226565	12/23/14 18:56	APS	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	226624	12/24/14 06:37	JS1	TAL IRV
Dissolved	Analysis	245.1		1	20 mL	20 mL	227057	12/24/14 16:04	DB	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	225851	12/19/14 14:51	JS1	TAL IRV
Total/NA	Analysis	245.1		1	20 mL	20 mL	225931	12/19/14 19:31	DB	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	226535	12/23/14 16:53	NTN	TAL IRV
Total/NA	Analysis	SM 2540D		1	200 mL	1000 mL	226269	12/22/14 19:52	NTN	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	226574	12/23/14 20:02	BS	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	226768	12/24/14 13:37	BS	TAL IRV
Total/NA	Prep	Evaporation			200 mL	1.0 g	165591	12/29/14 14:42	MJS	TAL SL
Total/NA	Analysis	900.0		1	200 mL		166871	01/06/15 11:09	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	166424	01/02/15 14:33	MRB	TAL SL
Total/NA	Analysis	901.1		1	1000 mL		166597	01/05/15 22:15	JLW	TAL SL
Total/NA	Prep	PrecSep-21			503.33 mL	1.0 g	164776	12/22/14 13:06	LEM	TAL SL
Total/NA	Analysis	903.0		1	503.33 mL		168077	01/13/15 18:47	RTM	TAL SL
Total/NA	Prep	PrecSep_0			503.33 mL	1.0 g	164779	12/22/14 13:41	LEM	TAL SL
Total/NA	Analysis	904.0		1	503.33 mL		167475	01/08/15 11:09	MLK	TAL SL
Total/NA	Prep	PrecSep-7			251.80 mL	1.0 g	165620	12/29/14 18:01	CMC	TAL SL
Total/NA	Analysis	905		1	251.80 mL		167353	01/07/15 15:58	RTM	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.07 mL	1.0 g	166399	01/02/15 09:02	JDL	TAL SL
Total/NA	Analysis	906.0		1	100.07 mL		166478	01/02/15 18:04	RTM	TAL SL
Total/NA	Prep	ExtChrom			100.20 mL	1.0 mL	165361	12/24/14 10:49	SCB	TAL SL
Total/NA	Analysis	A-01-R		1	100.20 mL		166495	01/02/15 12:39	MLK	TAL SL

TestAmerica Irvine

#### Client Sample ID: Trip Blank Date Collected: 12/18/14 17:20

Date Received: 12/18/14 17:20

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
otal/NA	Prep	Evaporation			200 mL	1.0 g	165591	12/29/14 14:42	MJS	TAL SL
otal/NA	Analysis	900.0		1	200 mL		166871	01/06/15 11:09	RTM	TAL SL
otal/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	166424	01/02/15 14:33	MRB	TAL SL
otal/NA	Analysis	901.1		1	1000 mL		166600	01/05/15 22:15	SMP	TAL SL
otal/NA	Prep	PrecSep-21			973.02 mL	1.0 g	164776	12/22/14 13:06	LEM	TAL SL
otal/NA	Analysis	903.0		1	973.02 mL		168077	01/13/15 18:47	RTM	TAL SL
otal/NA	Prep	PrecSep_0			973.02 mL	1.0 g	164779	12/22/14 13:41	LEM	TAL SL
otal/NA	Analysis	904.0		1	973.02 mL		167475	01/08/15 11:10	MLK	TAL SL
otal/NA	Prep	PrecSep-7			995.02 mL	1.0 g	165620	12/29/14 18:01	CMC	TAL SL
otal/NA	Analysis	905		1	995.02 mL		167353	01/07/15 15:58	RTM	TAL SL
otal/NA	Prep	ExtChrom			499.44 mL	1.0 mL	165361	12/24/14 10:49	SCB	TAL SL
otal/NA	Analysis	A-01-R		1	499.44 mL		168256	01/13/15 13:57	MLK	TAL SL

#### Laboratory References:

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

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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

# Lab Sample ID: 440-97211-2 Matrix: Water

RL

0.50

0.50

Spike

Added

MDL Unit

0.25 mg/L

0.25 mg/L

LCS LCS

Result Qualifier

Lab Sample ID: MB 440-225477/4

Lab Sample ID: LCS 440-225477/6

Lab Sample ID: 320-10924-D-2 MS

Matrix: Water

Matrix: Water

Matrix: Water

Analyte

Chloride

Sulfate

Analyte

Chloride Sulfate

Analyte

Chloride

Sulfate

Analysis Batch: 225477

Analysis Batch: 225477

Analysis Batch: 225477

Method: 300.0 - Anions, Ion Chromatography

MB MB Result Qualifier

ND

ND

Sample Sample

12

20

Result Qualifier

**Client Sample ID: Method Blank** 

Analyzed

12/18/14 09:35

12/18/14 09:35

**Client Sample ID: Lab Control Sample** 

%Rec.

Limits

Prep Type: Total/NA

Prep Type: Total/NA

Dil Fac

1

1

# 8

mg/L 92 90 - 110	10
mg/L 96 90 - 110	
Client Sample ID: Matrix Spil	11
Prep Type: Total/N	12
%Rec.	
er Unit D %Rec Limits	13
mg/L 83 80 - 120	-
mg/L 93 80 - 120	

D

%Rec

D

Unit

Prepared

Lab Sample ID: 320-10924-D- Matrix: Water	2 MSD						Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA					
Analysis Batch: 225477												
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	[	D %Rec	Limits	RPD	Limit	
Chloride	12		5.00	16.1		mg/L		84	80 - 120	0	20	
Sulfate	20		5.00	23.8		mg/L		83	80 - 120	2	20	

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

Lab Sample ID: H4L300000015B Matrix: Water Analysis Batch: 4364015	мв	МВ						mple ID: Metho Prep Typ Prep Batch: 436	e: Total
Analyte		Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000100	0.00000222	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total TCDD	ND		0.0000100	0.00000222	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,7,8-PeCDD	ND		0.0000500	0.00000105	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total PeCDD	ND		0.0000500	0.00000105	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,4,7,8-HxCDD	ND		0.0000500	0.00000850	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,6,7,8-HxCDD	ND		0.0000500	0.00000890	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,7,8,9-HxCDD	ND		0.0000500	0.000000810	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total HxCDD	ND		0.0000500	0.00000850	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,4,6,7,8-HpCDD	ND		0.0000500	0.00000113	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total HpCDD	ND		0.0000500	0.00000113	ug/L		12/30/14 14:30	01/15/15 03:43	1
OCDD	0.00000202	QJ	0.000100	0.000000970	ug/L		12/30/14 14:30	01/15/15 03:43	1
2,3,7,8-TCDF	ND		0.0000100	0.00000144	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total TCDF	ND		0.0000100	0.00000144	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,7,8-PeCDF	ND		0.0000500	0.00000820	ug/L		12/30/14 14:30	01/15/15 03:43	1
2,3,4,7,8-PeCDF	ND		0.0000500	0.000000710	ug/L		12/30/14 14:30	01/15/15 03:43	1

**8** 9

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

Lab Sample ID: H4L300000015B Matrix: Water							Client Sa	nple ID: Metho Prep Typ	
Analysis Batch: 4364015							F	Prep Batch: 436	
	МВ	МВ							_
Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PeCDF	ND		0.0000500	0.00000710	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,4,7,8-HxCDF	ND		0.0000500	0.000000500	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,6,7,8-HxCDF	ND		0.0000500	0.000000490	ug/L		12/30/14 14:30	01/15/15 03:43	1
2,3,4,6,7,8-HxCDF	ND		0.0000500	0.000000500	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,7,8,9-HxCDF	ND		0.0000500	0.00000600	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total HxCDF	ND		0.0000500	0.000000490	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,4,6,7,8-HpCDF	ND		0.0000500	0.00000680	ug/L		12/30/14 14:30	01/15/15 03:43	1
1,2,3,4,7,8,9-HpCDF	ND		0.0000500	0.000000960	ug/L		12/30/14 14:30	01/15/15 03:43	1
Total HpCDF	ND		0.0000500	0.00000680	ug/L		12/30/14 14:30	01/15/15 03:43	1
OCDF	ND		0.000100	0.00000103	ug/L		12/30/14 14:30	01/15/15 03:43	1
	МВ	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	94		35 - 197				12/30/14 14:30	01/15/15 03:43	1
	MB	МВ							
Internal Standard	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	83		25 - 164				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,7,8-PeCDD	89		25 _ 181				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,4,7,8-HxCDD	86		32 _ 141				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,6,7,8-HxCDD	94		28 _ 130				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,4,6,7,8-HpCDD	91		23 _ 140				12/30/14 14:30	01/15/15 03:43	1
13C-OCDD	89		17 - 157				12/30/14 14:30	01/15/15 03:43	1
13C-2,3,7,8-TCDF	84		24 _ 169				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,7,8-PeCDF	83		24 - 185				12/30/14 14:30	01/15/15 03:43	1
13C-2,3,4,7,8-PeCDF	79		21 - 178				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,4,7,8-HxCDF	77		26 - 152				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,6,7,8-HxCDF	79		26 - 123				12/30/14 14:30	01/15/15 03:43	1
13C-2,3,4,6,7,8-HxCDF	86		28 - 136				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,7,8,9-HxCDF	89		29 - 147				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,4,6,7,8-HpCDF	84		28 - 143				12/30/14 14:30	01/15/15 03:43	1
13C-1,2,3,4,7,8,9-HpCDF	87		26 - 138				12/30/14 14:30	01/15/15 03:43	1
13C-OCDF	81		17 _ 157				12/30/14 14:30	01/15/15 03:43	

#### Lab Sample ID: H4L30000015C Matrix: Water

**Client Sample ID: Lab Control Sample** Prep Type: Total

Prep Batch: 4364015\_P

Analysis Batch: 4364015

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
2,3,7,8-TCDD	0.000200	0.000197		ug/L		98	67 _ 158	
1,2,3,7,8-PeCDD	0.00100	0.000995		ug/L		99	70 - 142	
1,2,3,4,7,8-HxCDD	0.00100	0.000966		ug/L		97	70 - 164	
1,2,3,6,7,8-HxCDD	0.00100	0.000937		ug/L		94	76 - 134	
1,2,3,7,8,9-HxCDD	0.00100	0.000941		ug/L		94	64 - 162	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000921		ug/L		92	70 - 140	
OCDD	0.00200	0.00179	В	ug/L		90	78 <sub>-</sub> 144	
2,3,7,8-TCDF	0.000200	0.000216		ug/L		108	75 _ 158	
1,2,3,7,8-PeCDF	0.00100	0.000951		ug/L		95	80 - 134	
2,3,4,7,8-PeCDF	0.00100	0.000991		ug/L		99	68 - 160	

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

Lab Sample ID: H4L300000015	с						Client	Sample	e ID: Lab Control Sample
Matrix: Water Analysis Batch: 4364015									Prep Type: Total Prep Batch: 4364015_P
			Spike	LCS	LCS				%Rec.
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
1,2,3,4,7,8-HxCDF			0.00100	0.000982		ug/L		98	72 - 134
1,2,3,6,7,8-HxCDF			0.00100	0.000993		ug/L		99	84 - 130
2,3,4,6,7,8-HxCDF			0.00100	0.000987		ug/L		99	70 _ 156
1,2,3,7,8,9-HxCDF			0.00100	0.000982		ug/L		98	78 - 130
1,2,3,4,6,7,8-HpCDF			0.00100	0.000932		ug/L		93	82 - 122
1,2,3,4,7,8,9-HpCDF			0.00100	0.000956		ug/L		96	78 - 138
OCDF			0.00200	0.00179		ug/L		89	63 - 170
	105	LCS							
Surrogate	%Recovery		Limits						
37Cl4-2,3,7,8-TCDD	82	Quanner	31 - 191						
01014 2,0,1,0 1000	02		01-101						
	LCS	LCS							
Internal Standard	%Recovery	Qualifier	Limits						
13C-2,3,7,8-TCDD	79		20 - 175						
13C-1,2,3,7,8-PeCDD	85		21 _ 227						
13C-1,2,3,4,7,8-HxCDD	82		21 _ 193						
13C-1,2,3,6,7,8-HxCDD	90		25 - 163						
13C-1,2,3,4,6,7,8-HpCDD	87		26 - 166						
13C-OCDD	65		13 _ 199						
13C-2,3,7,8-TCDF	71		22 - 152						
13C-1,2,3,7,8-PeCDF	80		21 _ 192						
13C-2,3,4,7,8-PeCDF	76		13 - 328						
13C-1,2,3,4,7,8-HxCDF	77		19 - 202						
13C-1,2,3,6,7,8-HxCDF	84		21 - 159						
13C-2,3,4,6,7,8-HxCDF	80		22 - 176						
13C-1,2,3,7,8,9-HxCDF	67		17 _ 205						
13C-1,2,3,4,6,7,8-HpCDF	74		21 - 158						
13C-1,2,3,4,7,8,9-HpCDF	58		20 - 186						
13C-OCDF	49		13 - 199						

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

Lab Sample ID: MB 440-227112/1-A Matrix: Water Analysis Batch: 227345	мв	МВ						mple ID: Metho ype: Total Reco Prep Batch:	verable
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		12/29/14 14:01	12/30/14 09:38	1
Copper	1.27	J,DX	2.0	0.50	ug/L		12/29/14 14:01	12/30/14 09:38	1
Lead	ND		1.0	0.50	ug/L		12/29/14 14:01	12/30/14 09:38	1
Thallium	ND		1.0	0.50	ug/L		12/29/14 14:01	12/30/14 09:38	1
Antimony	ND		2.0	0.50	ug/L		12/29/14 14:01	12/30/14 09:38	1

Spike

Added

80.0

80.0

80.0

80.0

80.0

Spike

Added

80.0

80.0

80.0

80.0

80.0

Spike

Added

80.0

80.0

80.0

80.0

80.0

80.0

Sample Sample

Result

ND

5.2

ND

ND

ND

ND

Qualifier

J,DX MB

LCS LCS

78.6

79.5

78.2

77.2

80.2

LCSD LCSD

78.3

80.2

79.5

77.6

79.0

Result Qualifier

Result Qualifier

Unit

ug/L

ug/L

ug/L

ug/L

ug/L

Unit

ug/L

ug/L

ug/L

ug/L

ug/L

Lab Sample ID: LCS 440-227112/2-A

Lab Sample ID: LCSD 440-227112/3-A

Lab Sample ID: 440-97790-A-2-B MS ^5

Lab Sample ID: 440-97790-A-2-D MSD ^5

Matrix: Water

Analyte

Copper

Thallium

Antimony

Analyte

Copper

Thallium

Antimony

Analyte

Copper

Thallium

Antimony

Analyte

Copper

Thallium

Antimony

Lead

Cadmium

Matrix: Water

**Analysis Batch:** 

Lead

Cadmium

Matrix: Water

Analysis Batch: 227345

Lead

Cadmium

Matrix: Water

Analysis Batch: 227345

Lead

Cadmium

Analysis Batch: 227345

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

**Client Sample ID: Lab Control Sample** 

%Rec.

Limits

85 - 115

85 - 115

85 - 115

85 - 115

85 - 115

%Rec.

Limits

85 - 115

85 - 115

70 - 130

70 - 130

70 - 130

**Client Sample ID: Method Blank** 

Client Sample ID: Lab Control Sample Dup

%Rec

98

99

98

97

100

%Rec

97

99

D

D

**Prep Type: Total Recoverable** 

Prep Batch: 227112

5

#### 98 85 - 115 0 20 100 85 - 115 20 1 99 85 - 115 2 20

Prep Type: Total Recoverable

Prep Batch: 227112

RPD

1

1

RPD

Limit

20

20

20

3

#### **Client Sample ID: Matrix Spike**

Prep Type: Total Recoverable

Prep Batch: 227112 MS MS %Rec. Qualifier %Rec Limits Result Unit D 78.2 ug/L 98 70 - 130 82.1 96 70 - 130 ug/L 81.2 ug/L 101 70 - 130

87

101

104

#### **Client Sample ID: Matrix Spike Duplicate**

ug/L

ug/L

ug/L

								Prep	Type: Tota	Recove	erable
: 227345									Prep E	Batch: 2	27112
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
	ND		80.0	79.0		ug/L		99	70 - 130	1	20
	5.2	J,DX MB	80.0	82.7		ug/L		97	70 - 130	1	20
	ND		80.0	83.2		ug/L		104	70 - 130	2	20
	ND		80.0	74.0		ug/L		92	70 - 130	6	20

83.4

69.5

81.0

#### Lab Sample ID: MB 440-226565/1-D Matrix: Water

Matrix: Water Analysis Batch: 226988								Prep Type: Di Prep Batch:	
	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		12/24/14 09:59	12/24/14 16:39	1
Copper	ND		2.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Lead	ND		1.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Thallium	ND		1.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1
Antimony	ND		2.0	0.50	ug/L		12/24/14 09:59	12/24/14 16:39	1

LCS LCS

79.5

83.3

79.3

77.0

82.1

LCSD LCSD

81.2

83.7

80.4

77.5

83.2

Result Qualifier

Result Qualifier

Unit

ug/L

ug/L

ug/L

ug/L

ug/L

Unit

ug/L

ug/L

ug/L

ug/L

ug/L

Spike

Added

80.0

80.0

80.0

80.0

80.0

Spike

Added

80.0

80.0

80.0

80.0

80.0

Lab Sample ID: LCS 440-226565/2-D

Matrix: Water

Analyte

Cadmium

Copper

Thallium

Antimony

Analyte

Cadmium

Copper

Lead

Matrix: Water

Analysis Batch: 226988

Lead

Analysis Batch: 226988

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

**Prep Type: Dissolved** 

**Prep Type: Dissolved** 

Prep Batch: 226703

Prep Batch: 226703

**Client Sample ID: Lab Control Sample** 

%Rec.

Limits

85 - 115

85 - 115

85 - 115

85 - 115

85 - 115

%Rec.

Limits

85 - 115

85 - 115

85 - 115

85 - 115

85 - 115

Client Sample ID: Lab Control Sample Dup

%Rec

99

104

99

96

103

%Rec

101

105

100

97

104

D

D

## 8

RPD RPD Limit 2 20 20 0

ix Spike	, 1
1 20	0
1 20	0

20

1

Client Sample ID: Matrix S	pik
Prep Type: Disso	olve

Prep Type: Dissolved
Prep Batch: 226703

#### Thallium Antimony

Lab Sample ID: LCSD 440-226565/3-B

Lab Sample ID: 440-96606-R-1 Matrix: Water Analysis Batch: 226988	-G MS							Client	Sample ID: Ma Prep Type: Prep Bate	
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Cadmium	ND	QP	80.0	80.2		ug/L		100	70 - 130	
Copper	3.2	QP	80.0	84.0		ug/L		101	70 - 130	
Lead	ND	QP	80.0	80.5		ug/L		101	70 - 130	
Thallium	ND	QP	80.0	79.0		ug/L		99	70 - 130	
Antimony	ND	QP	80.0	83.4		ug/L		104	70 - 130	

Lab Sample ID: 440-96606-R-1-	H MSD						<b>Client Sa</b>	ample IC	: Matrix Sp	oike Dup	licate
Matrix: Water									Prep Ty	pe: Diss	olved
Analysis Batch: 226988									Prep E	Batch: 2	26703
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cadmium	ND	QP	80.0	79.8		ug/L		100	70 - 130	1	20
Copper	3.2	QP	80.0	83.7		ug/L		101	70 - 130	0	20
Lead	ND	QP	80.0	80.1		ug/L		100	70 - 130	1	20
Thallium	ND	QP	80.0	76.4		ug/L		96	70 - 130	3	20
Antimony	ND	QP	80.0	81.8		ug/L		102	70 - 130	2	20

#### Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-225851/1-A Matrix: Water Analysis Batch: 225915							Client Sa	mple ID: Metho Prep Type: 1 Prep Batch:	Total/NA
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		12/19/14 14:51	12/19/14 18:09	1

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#### Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 440-2258	851/2-A						С	lient	Sample	ID: Lab C	ontrol S	ample
Matrix: Water											Гуре: То	
Analysis Batch: 225915											Batch: 2	
-			Spike	LCS	LCS					%Rec.		
Analyte			Added	Result	Qualifier	Unit		D	%Rec	Limits		
Mercury			8.00	8.24		ug/L		_	103	85 - 115		
Lab Sample ID: 440-96316-G-7	1-F MS								Client	Sample ID	): Matrix	Spike
Matrix: Water											Гуре: То	
Analysis Batch: 225915											Batch: 2	
-	Sample	Sample	Spike	MS	MS					%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit		D	%Rec	Limits		
Mercury	ND		8.00	8.40		ug/L		_	105	70 - 130		
Lab Sample ID: 440-96316-G-	1-G MSD						Clie	nt Sa	ample ID	: Matrix S	pike Du	plicate
Matrix: Water										Prep 1	Гуре: То	tal/NA
Analysis Batch: 225915											Batch: 2	
-	Sample	Sample	Spike	MSD	MSD					%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit		D	%Rec	Limits	RPD	Limit
Mercury	ND		8.00	8.36		ug/L		_	104	70 - 130	0	20
Lab Sample ID: MB 440-22656	65/1-B								Client Sa	ample ID:	Method	Blank
Matrix: Water										Prep Ty	pe: Dise	solved
Analysis Batch: 227057										Prep	Batch: 2	26624
		MB MB										
Analyte	R	esult Qualifier		RL	MDL Unit		D	Р	repared	Analy	zed	Dil Fac
Analyte Mercury	R(			RL	MDL Unit		D		repared 4/14 06:37			Dil Fac
		esult Qualifier						12/2	4/14 06:37		15:22	1
Mercury		esult Qualifier						12/2	4/14 06:37	12/24/14	15:22	1 ample
Mercury Lab Sample ID: LCS 440-2265		esult Qualifier						12/2	4/14 06:37	12/24/14 ID: Lab C Prep Ty	15:22	1 ample solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water		esult Qualifier	 Spike	0.20				12/2	4/14 06:37	12/24/14 ID: Lab C Prep Ty	15:22 ontrol S /pe: Dise	1 ample solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water		esult Qualifier	Spike Added	0.20 LCS	0.10 ug/L	Unit		12/2	4/14 06:37	12/24/14 ID: Lab C Prep Ty Prep	15:22 ontrol S /pe: Dise	1 ample solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057		esult Qualifier		0.20 LCS Result	0.10 ug/L	Unit ug/L		12/2	: <b>Sample</b>	12/24/14 ID: Lab C Prep Ty Prep %Rec.	15:22 ontrol S /pe: Dise	1 ample solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte	565/2-B	esult Qualifier	Added	0.20 LCS Result	0.10 ug/L LCS Qualifier			12/2	4/14 06:37 <b>Sample</b> <u>%Rec</u> <u>125</u> -	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115	15:22 control S /pe: Diss Batch: 2 	1 ample solved 226624 Spike
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury	565/2-B	esult Qualifier	Added	0.20 LCS Result	0.10 ug/L LCS Qualifier			12/2	4/14 06:37 <b>Sample</b> <u>%Rec</u> <u>125</u> -	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115	15:22 control S /pe: Diss Batch: 2	1 ample solved 226624 Spike
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4	565/2-B	esult Qualifier	Added	0.20 LCS Result	0.10 ug/L LCS Qualifier			12/2	4/14 06:37 <b>Sample</b> <u>%Rec</u> <u>125</u> -	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty	15:22 control S /pe: Diss Batch: 2 	1 sample solved 226624 Spike solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water	i65/2-B 	esult Qualifier	Added	0.20 LCS <u>Result</u> 10.0	0.10 ug/L LCS Qualifier			12/2	4/14 06:37 <b>Sample</b> <u>%Rec</u> <u>125</u> -	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty	15:22 control S /pe: Diss Batch: 2 	1 sample solved 226624 Spike solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water	65/2-B 1-C MS Sample	esult Qualifier ND IB	Added 8.00	0.20 LCS Result 10.0	0.10 ug/L LCS Qualifier LQ IB			12/2	4/14 06:37 <b>Sample</b> <u>%Rec</u> <u>125</u> -	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep	15:22 control S /pe: Diss Batch: 2 	1 sample solved 226624 Spike solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-1 Matrix: Water Analysis Batch: 227057	65/2-B 1-C MS Sample Result	Sample	Added 8.00 Spike	0.20 LCS Result 10.0	0.10 ug/L LCS Qualifier LQ IB MS Qualifier	ug/L			* Sample * Sample * Rec 125 Client	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec.	15:22 control S /pe: Diss Batch: 2 	1 sample solved 226624 Spike solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-1 Matrix: Water Analysis Batch: 227057 Analyte	565/2-B 1-C MS Sample Result ND	Sample Qualifier	Added 8.00 Spike Added	0.20 LCS Result 10.0 MS Result	0.10 ug/L LCS Qualifier LQ IB MS Qualifier	ug/L	C	D	**************************************	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec. Limits	15:22 ontrol S (pe: Diss Batch: 2 	1 ample solved 226624 Spike solved 226624
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water Analysis Batch: 227057 Analyte Mercury	565/2-B 1-C MS Sample Result ND	Sample Qualifier	Added 8.00 Spike Added	0.20 LCS Result 10.0 MS Result	0.10 ug/L LCS Qualifier LQ IB MS Qualifier	ug/L	C	D	**************************************	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec. Limits 70 - 130 : Matrix S	15:22 ontrol S (pe: Diss Batch: 2 	1 ample solved 226624 Spike solved 226624 policate
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4	565/2-B 1-C MS Sample Result ND	Sample Qualifier	Added 8.00 Spike Added	0.20 LCS Result 10.0 MS Result	0.10 ug/L LCS Qualifier LQ IB MS Qualifier	ug/L	C	D	**************************************	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec. Limits 70 - 130 : Matrix S Prep Ty	15:22 ontrol S (pe: Diss Batch: 2 	1 ample solved 226624 Spike solved 226624 plicate solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water	565/2-B 1-C MS Sample Result ND 1-D MSD	Sample Qualifier	Added 8.00 Spike Added	0.20 LCS Result 10.0 MS Result 10.2	0.10 ug/L LCS Qualifier LQ IB MS Qualifier	ug/L	C	D	**************************************	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec. Limits 70 - 130 : Matrix S Prep Ty	15:22 ontrol S (pe: Diss Batch: 2 ): Matrix (pe: Diss Batch: 2 pike Dup (pe: Diss	1 ample solved 226624 Spike solved 226624 plicate solved
Mercury Lab Sample ID: LCS 440-2265 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water Analysis Batch: 227057 Analyte Mercury Lab Sample ID: 440-96606-R-4 Matrix: Water	565/2-B 1-C MS Sample Result ND 1-D MSD Sample	Sample Qualifier IB	Added 8.00 Spike Added 8.00	0.20 LCS Result 10.0 MS Result 10.2	0.10 ug/L LCS Qualifier LQ IB MS Qualifier IB	ug/L	C	D	**************************************	ID: Lab C Prep Ty Prep %Rec. Limits 85 - 115 Sample ID Prep Ty Prep %Rec. Limits 70 - 130 : Matrix S Prep Ty Prep	15:22 ontrol S (pe: Diss Batch: 2 ): Matrix (pe: Diss Batch: 2 pike Dup (pe: Diss	1 ample solved 226624 Spike solved 226624 plicate solved 226624

RL

5.0

Spike

Added

20.0

Spike

Added

20.0

MDL Unit

LCS LCS

LCSD LCSD

19.0

Result Qualifier

18.5

**Result Qualifier** 

1.4 mg/L

D

D

D

Unit

mg/L

Unit

mg/L

Prepared

12/21/14 14:30

%Rec

%Rec

95

93

MB MB Result Qualifier

ND

Lab Sample ID: MB 440-226034/1-A

Lab Sample ID: LCS 440-226034/2-A

Lab Sample ID: LCSD 440-226034/3-A

Matrix: Water

Matrix: Water

Matrix: Water

Analyte

Analyte

Analyte

HEM

HEM

HEM

Analysis Batch: 226039

Analysis Batch: 226039

Analysis Batch: 226039

Method: 1664A - HEM and SGT-HEM

Analyzed

12/21/14 17:01

%Rec.

Limits

78 - 114

%Rec.

Limits

78 - 114

Prep Batch: 226034

### **Client Sample ID: Method Blank** Prep Type: Total/NA Prep Batch: 226034 Dil Fac 1 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

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#### Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA Prep Batch: 226034 RPD RPD Limit 3 11

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

Lab Sample ID: MB 440-226535/1 Matrix: Water												Client	Sample ID: Meti Prep Type		
Analysis Batch: 226535		мвг	ИВ												
Analyte	R		Qualifier		RL		MDL	Unit		D	Pi	repared	Analyzed		Dil Fac
Total Dissolved Solids		ND			10		5.0	mg/L				· ·	12/23/14 16:53		1
 Lab Sample ID: LCS 440-226535/2										Clie	ent	Sampl	e ID: Lab Contr	ol Sa	ample
Matrix: Water													Prep Type	: Tot	tal/NA
Analysis Batch: 226535															
-				Spike		LCS	LCS						%Rec.		
Analyte				Added		Result	Qual	ifier	Unit		D	%Rec	Limits		
Total Dissolved Solids				1000		970			mg/L		_	97	90 - 110		
- Lab Sample ID: 440-97110-A-1 DU												CI	ient Sample ID:	Dup	olicate
Matrix: Water													Prep Type	: Tot	tal/NA
Analysis Batch: 226535															
-	Sample	Samp	e			DU	DU								RPD
Analyte	Result	Qualif	ier			Result	Qual	ifier	Unit		D		R	PD	Limit
Total Dissolved Solids	2500					2450			mg/L					0.6	5

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

Lab Sample ID: MB 440-226269/2 Matrix: Water Analysis Batch: 226269							Client Sa	ample ID: Metho Prep Type: T	
	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			12/22/14 17:30	1

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

Lab Sample ID: LCS 440-226269 Matrix: Water	/1						Client	Sample	ID: Lab Co Prep T	ontrol Sa ype: Tot	
Analysis Batch: 226269											
			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Total Suspended Solids			1000	992		mg/L		99	85 - 115		
- Lab Sample ID: 440-97384-A-2 D	U							Clie	ent Sample	ID: Dup	olicate
Matrix: Water									Prep T	ype: To	tal/NA
Analysis Batch: 226269											
-	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Total Suspended Solids	250			263		mg/L				4	10

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

Lab Sample ID: MB 440-226574/1-/ Matrix: Water	A											Client Sa	mple ID: Mo		
													Prep Typ		
Analysis Batch: 226768													Prep Ba	tch: 2	26574
		MB MB													
Analyte	R	esult Qua	alifier		RL		MDL			_ <u>D</u>		repared	Analyzed		Dil Fac
Cyanide, Total		ND			5.0		2.5	ug/L			12/2	3/14 20:02	12/24/14 13	36	1
Lab Sample ID: LCS 440-226574/2	- <b>A</b>									CI	ient	Sample	ID: Lab Con	trol Sa	ample
Matrix: Water													Prep Typ	e: To	tal/NA
Analysis Batch: 226768													Prep Ba	tch: 2	26574
			:	Spike		LCS	LCS						%Rec.		
Analyte			A	dded		Result	Qual	ifier	Unit		D	%Rec	Limits		
Cyanide, Total				100		99.6			ug/L		_	100	90 - 110		
- Lab Sample ID: 440-97518-O-1-B M	<b>NS</b>											Client S	Sample ID: N	latrix	Spike
Matrix: Water													Prep Typ		
Analysis Batch: 226768													Prep Ba		
	Sample	Sample	:	Spike		MS	MS						%Rec.		
Analyte	Result	Qualifier	А	dded		Result	Qual	ifier	Unit		D	%Rec	Limits		
Cyanide, Total	ND			100		108			ug/L		_	108	70 - 115		
Lab Sample ID: 440-97518-O-1-C M	ISD									Clier	nt Sa	ample ID:	Matrix Spik	e Dur	olicate
Lab Sallible ID. 440-37310-0-1-0 I													Prep Typ		
-															
Matrix: Water													Prep Ba	tch: 2	26574
Matrix: Water	Sample	Sample	:	Spike		MSD	MSD						Prep Ba %Rec.	tch: 2	26574 RPD
Matrix: Water Analysis Batch: 226768 Analyte		Sample Qualifier		Spike dded		MSD Result			Unit		D	%Rec		tch: 2 RPD	

#### Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-1 Matrix: Water Analysis Batch: 166749	65591/1-A		Count	Total			Client Sa	mple ID: Metho Prep Type: 1 Prep Batch:	otal/NA
	МВ	МВ	Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 <b>σ+/-</b> )	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.8022	U	0.881	0.886	1.43	pCi/L	12/29/14 14:42	01/06/15 07:08	1
Gross Beta	0.7705	U	0.602	0.606	0.935	pCi/L	12/29/14 14:42	01/06/15 07:08	1

Lab Sample ID	: LCS 160-	165591/2-A	L					Clien	t Sample I	D: Lab Control S	
Matrix: Water										Prep Type: To	
Analysis Batcl	n: <b>166749</b>									Prep Batch: 1	16559
			• "			Total					
			Spike		LCS	Uncert.				%Rec.	
Analyte Gross Alpha	·		Added	Result 54.04	Qual	<u>(2σ+/-)</u> 7.72	MDC 1.68	Unit pCi/L		Limits	
								P			
_ab Sample ID	: LCSB 160	)-165591/3·	-A					Clien	t Sample I	D: Lab Control S	amp
Matrix: Water										Prep Type: To	otal/N
Analysis Batch	n: <b>166749</b>									Prep Batch: 1	1655
						Total					
			Spike	LCSB		Uncert.				%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)	MDC		%Rec	Limits	
Gross Beta			95.9	98.18		10.4	1.03	pCi/L	102	75 - 125	
Lab Sample ID	: 440-97209	9-R-1-E MS	5						Client S	ample ID: Matrix	Spi
Matrix: Water										Prep Type: To	otal/l
Analysis Batcl	n: <b>16674</b> 8									Prep Batch: 1	1655
						Total					
	Sample	Sample	Spike	MS	MS	Uncert.				%Rec.	
Analyte	Result		Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Gross Alpha	1.23	U	50.1	45.66		6.60	1.38	pCi/L	91	35 - 150	
Lab Sample ID	: 440-9720	9-R-1-F MS	BT						Client S	ample ID: Matrix	Spi
Matrix: Water										· Prep Type: To	
Analysis Batcl	n: <b>16674</b> 8									Prep Batch: 1	
						Total					
	Sample	Sample	Spike	MSBT	MSBT	Uncert.				%Rec.	
Analyte	Result	Qual	Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Gross Beta	2.69		95.9	99.59		10.5	0.893	pCi/L	101	89 - 143	
Lab Sample ID	: 440-97209	9-R-1-G DU	I						Clier	nt Sample ID: Du	plica
Matrix: Water										Prep Type: To	-
Analysis Batch	n: <b>16674</b> 8									Prep Batch: 1	
-						Total					
	Sample	Sample		DU	DU	Uncert.					R
Analyte	Result	Qual		Result	Qual	(2σ+/-)	MDC	Unit		RER	Li
Gross Alpha	1.23	U		0.3675	U	0.994	1.79	pCi/L	·	0.41	
Gross Beta	2.69			2.410		0.773	0.954	pCi/L		0.18	

#### Lab Sample ID: MB 160-166424/1-A **Client Sample ID: Method Blank** Matrix: Water Prep Type: Total/NA Analysis Batch: 166598 Prep Batch: 166424 Count Total MB MB Uncert. Uncert. Analyte MDC Unit Prepared Dil Fac **Result Qualifier** (2**σ**+/-) (2**σ**+/-) Analyzed Cesium-137 -1.386 U 9.43 9.43 17.2 pCi/L 01/02/15 14:33 01/05/15 20:30 1 Potassium-40 237 pCi/L 01/02/15 14:33 01/05/15 20:30 -68.28 U 427 427 1

**8** 9

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

Lab Sample ID	: LCS 160-	166424/2-A						Clien	t Sample I	D: Lab Control S	
Matrix: Water										Prep Type: To	
Analysis Batc	h: <b>16659</b> 8									Prep Batch: 1	66424
						Total					
			Spike	LCS	LCS	Uncert.				%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Americium-241			137000	134900		15600	552	pCi/L	99	90 - 111	
Cesium-137			49400	48130		4830	215	pCi/L	97	90 _ 111	
Cobalt-60			52500	51470		5090	118	pCi/L	98	89 - 110	
_ Lab Sample ID	): 440-97209	9-R-1-J DU							Clier	nt Sample ID: Dup	olicate
Matrix: Water										Prep Type: To	tal/NA
Analysis Batc	h: 166594									Prep Batch: 1	66424
-						Total					
	Sample	Sample		DU	DU	Uncert.					RER
Analyte	Result	Qual		Result	Qual	(2σ+/-)	MDC	Unit		RER	Limit
Cesium-137	-2.12	U		0.0000	U	1.79	9.30	pCi/L		0.23	1
Potassium-40	-79.6	U		-32.82	U	164	171	pCi/L		0.01	1

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

Lab Sample ID Matrix: Water	D: MB 160-	164776/1-/	A							Client Sa	mple ID: Metho Prep Type: T	
Analysis Batcl	h: 168077										Prep Batch:	
,,					Count	Total						
			MB MB	I	Uncert.	Uncert.						
Analyte		R	esult Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	I	Prepared	Analyzed	Dil Fac
Radium-226		0.0	2365 U		0.0573	0.0574	0.102	pCi/L	12/	22/14 13:06	01/13/15 18:46	1
		MB	МВ									
Carrier		%Yield	Qualifier	Limits						Prepared	Analyzed	Dil Fac
Ba Carrier		89.7		40 - 110					12/	/22/14 13:06	01/13/15 18:46	1
Lab Sample ID Matrix: Water Analysis Batcl		-164776/2	-A						Clien	it Sample I	D: Lab Control Prep Type: T Prep Batch:	otal/NA
-						Total					-	
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Radium-226			11.2	10.62		1.06		0.112	pCi/L	95	68 - 137	
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	94.7		40 - 110	-								
Lab Sample ID	D: 480-732	71-AA-5-A	DU							Clier	t Sample ID: D	uplicate
Matrix: Water											Prep Type: T	
Analysis Batcl	h: 168078										Prep Batch:	
						Total						
	•	e Sample			DU	Uncert.						RER
Analyte		t Qual		Result	Qual	(2σ+/-)		MDC			REF	
Radium-226	0.692			0.6244		0.139		0.113	pCi/L		0.24	1 1

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

89.4

86.4

40 - 110

40 - 110

Ba Carrier

Y Carrier

## 1 2 3 4 5 6 7 8 9 10 11

Lab Sample II Matrix: Water		71 <b>-AA-5</b> -	A DU								Clier	it Sample ID: D Prep Type: 1	
Analysis Bate												Prep Batch	
Analysis Date												Trop Baten	. 10411
		DU											
Carrier		Qualifier		Limits	_								
Ba Carrier	89.4			40 _ 110									
Method: 904	.0 - Radiu	um-228	(GFF	PC)									
Lab Sample I	D: MB 160-	164779/1	- <b>A</b>								Client Sa	mple ID: Metho	od Blan
Matrix: Water												Prep Type: 1	
<b>Analysis Bate</b>	ch: 167475											Prep Batch	: 16477
						Count	Total						
			MB	MB	ı	Jncert.	Uncert.						
Analyte			Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	F	Prepared	Analyzed	Dil Fa
Radium-228			0.1131	U		0.254	0.254	0.434	pCi/L	12/2	22/14 13:41	01/08/15 11:09	
		МВ	МВ										
Carrier		%Yield	Qualif	ïer	Limits					F	Prepared	Analyzed	Dil Fa
Ba Carrier		89.7			40 - 110					12/2	22/14 13:41	01/08/15 11:09	
Y Carrier		88.6			40 - 110					12/2	22/14 13:41	01/08/15 11:09	
Lab Sample I	D: LCS 160	-164779/	2-A							Clien	t Sample I	D: Lab Control	Sample
Matrix: Water												Prep Type:	
Analysis Bato	ch: 167475											Prep Batch	
							Total						
				Spike	LCS	LCS	Uncert.					%Rec.	
Analyte				Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Radium-228				3.57	3.923		0.599		0.428	pCi/L	110	56 - 140	
	LCS	LCS											
Carrier	%Yield	Qualifier		Limits									
Ba Carrier	94.7			40 - 110	-								
Y Carrier	84.1			40 - 110									
Lab Sample I	D: 480-732	71-AA-5-	B DU								Clien	it Sample ID: D	uplicate
Matrix: Water												Prep Type: 1	
Analysis Bate												Prep Batch	
							Total						
					DU	DU	Uncert.						RE
	Sample	e Sample											
Analyte		e Sample It Qual			Result	Qual	(2σ+/-)		MDC			RE	R Lim
Analyte Radium-228		t Qual			<b>Result</b> 0.1179					Unit pCi/L		<b>RE</b>	
	Resul	t Qual											

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

Lab Sample ID	D: MB 160-	165620/1	- <b>A</b>								<b>Client Sa</b>	mple ID: Metho	d Blanl
Matrix: Water												Prep Type: 1	Total/N/
Analysis Batc	h: 167123											Prep Batch:	: 16562
						Count	Total						
			MB	MB	I	Uncert.	Uncert.						
Analyte			Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	P	repared	Analyzed	Dil Fa
Strontium-90		-0.	.04484	U		0.176	0.176	0.321	pCi/L	12/2	9/14 18:01	01/07/15 15:55	
Carrier		MB %Yield	MB Qualifi	ior	Limits					-	repared	Analyzed	Dil Fa
Sr Carrier		90.0	Quaim		40 - 110						29/14 18:01	01/07/15 15:55	Dii Fa
Y Carrier		90.0 89.3			40 - 110						29/14 18:01	01/07/15 15:55	
r Camer		09.5			40 - 110					12/2	.9/14 18.01	01/07/15 15.55	
Lab Sample IE	D: LCS 160	-165620/	2-A							Client	Sample I	D: Lab Control	
Matrix: Water												Prep Type: 1	
Analysis Batc	h: 167123											Prep Batch	: 165620
				• "			Total					~ <b>D</b>	
				Spike		LCS	Uncert.				~ -	%Rec.	
Analyte				Added	Result	Qual	(2σ+/-)		MDC		%Rec	Limits	
Strontium-90				8.95	8.768		0.905		0.298	pCi/L	98	90 - 134	
<b>.</b> .	LCS												
Carrier		Qualifier		Limits	-								
Sr Carrier	88.6			40 - 110									
Y Carrier	92.7			40 - 110									
Lab Sample ID	D: 440-9659	94-A-2-G	DU								Clier	nt Sample ID: D	uplicate
Matrix: Water												Prep Type: 1	otal/N/
Analysis Batc	h: 167123											Prep Batch:	: 16562
							Total						
	Sample	e Sample			DU	DU	Uncert.						RE
Analyte	Resul	t Qual			Result	Qual	(2σ+/-)		MDC	Unit		REI	R Limi
Strontium-90	-0.255	5 U			-0.01446	U	0.155		0.281	pCi/L		0.7	9
	DU	DU											
Carrier	%Yield	Qualifier		Limits									
Sr Carrier	88.2			40 - 110	-								
Y Carrier	90.8			40 - 110									
lethod: 906.	0 - Tritiu	m Tota	1/15	(C)									
	v - mau	, יטנפ		~)									
Lab Sample IE	D: MB 160-	166399/1	- <b>A</b>								<b>Client Sa</b>	mple ID: Metho	d Blan
Matrix: Water												Prep Type: 1	otal/N/
Analysis Batc	h: 166478											Prep Batch:	: 16639
						Count	Total						

	MB	MB	Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2 <b>σ+/-</b> )	MDC	Unit	Pre	pared	Analyzed	Dil Fac
Tritium	158.1	U	187	187	304	pCi/L	01/02/	15 08:35	01/02/15 14:05	1

Lab Sample ID: LCS 160-166399/2-A

Matrix: Water

Method: 906.0 - Tritium, Total (LSC) (Continued)

## 2 3 4 5 6 7

1

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166399

matrixer frater											
<b>Analysis Batcl</b>	h: <b>1664</b> 78									Prep Batch: 1	l 66399
						Total					
			Spike	LCS	LCS	Uncert.				%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Tritium			3440	3383		509	306	pCi/L	98	74 - 114	
- Lab Sample ID	D: 280-63961	1-C-3-B MS							Client S	ample ID: Matrix	Spike
Matrix: Water										Prep Type: To	tal/NA
<b>Analysis Batcl</b>	h: <b>16647</b> 8									Prep Batch: 1	66399
						Total					
	Sample	Sample	Spike	MS	MS	Uncert.				%Rec.	
Analyte	Result	Qual	Added	Result	Qual	(2σ+/-)	MDC	Unit	%Rec	Limits	
Tritium	1050		3450	4424		603	306	pCi/L	98	67 - 130	
-											
Lab Sample ID	D: 280-63670	)-A-3-D DU							Clier	it Sample ID: Du	plicate
Lab Sample ID Matrix: Water	D: 280-63670	)-A-3-D DU							Clier	It Sample ID: Du Prep Type: To	
		J-A-3-D DU							Clier	Prep Type: To	tal/NA
Matrix: Water		)-A-3-D DU				Total			Clier		tal/NA
Matrix: Water	h: 166478	Sample		DU	DU	Total Uncert.			Clier	Prep Type: To	tal/NA

Analyte	Result Qual	Result	Qual (2σ+/-)	MDC	Unit	RER	Lin
Tritium	2030	1865	366	307	pCi/L	 0.22	

Lab Sample ID:	MB 160-	165361/1-A								<b>Client Sa</b>	mple ID: Metho	d Blank
Matrix: Water											Prep Type: 1	otal/NA
Analysis Batch:	166357										Prep Batch:	165361
					Count	Total						
		MB	MB	ι	Jncert.	Uncert.						
Analyte		Result	Qualifier		(2σ+/-)	(2σ+/-)	MDC	Unit	F	Prepared	Analyzed	Dil Fac
Total Uranium		0.03958	U	0	.06314	0.06318	0.0995	pCi/L	12/2	24/14 10:49	12/31/14 14:22	1
Lab Sample ID:	LCS 160	-165361/2-A							Clien	t Sample I	D: Lab Control	Sample
Matrix: Water											Prep Type: 1	otal/NA
Analysis Batch:	166358										Prep Batch:	165361
						Total						
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)		MDC	Unit	%Rec	Limits	
Uranium-234			12.7	13.13		1.57		0.0712	pCi/L	103	84 - 120	
Uranium-238			13.0	14.40		1.68		0.108	pCi/L	111	83 - 121	
	LCS	LCS										
Tracer	%Yield	Qualifier	Limits									
Uranium-232	83.7		30 - 110									
Lab Sample ID:	440-972 <sup>,</sup>	11-2 DU								Client	Sample ID: Tri	ip Blank
Matrix: Water											Prep Type: 1	otal/NA
Analysis Batch:	166370										Prep Batch	165361
						Total						
		e Sample			DU	Uncert.						RER
Analyte		t Qual		Result		(2σ+/-)			Unit		REF	
Total Uranium	0.0479	9 U		0.2654	U	0.274		0.343	pCi/L		0.62	2 1

#### HPLC/IC

#### Analysis Batch: 225477

Client Sample ID	Prep Type	Matrix	Method	Prep Batch
Matrix Spike	Total/NA	Water	300.0	
Matrix Spike Duplicate	Total/NA	Water	300.0	
Outfall009_20141217_Comp	Total/NA	Water	300.0	
Lab Control Sample	Total/NA	Water	300.0	
Method Blank	Total/NA	Water	300.0	
Client Sample ID	Prep Type	Matrix	Method	Prep Batc
Outfall009_20141217_Comp	Total/NA	Water	NO3NO2 Calc	
	Matrix Spike Duplicate Outfall009_20141217_Comp Lab Control Sample Method Blank Client Sample ID	Matrix Spike Duplicate     Total/NA       Outfall009_20141217_Comp     Total/NA       Lab Control Sample     Total/NA       Method Blank     Total/NA       Client Sample ID     Prep Type	Matrix Spike Duplicate     Total/NA     Water       Outfall009_20141217_Comp     Total/NA     Water       Lab Control Sample     Total/NA     Water       Method Blank     Total/NA     Water       Client Sample ID     Prep Type     Matrix	Matrix Spike Duplicate       Total/NA       Water       300.0         Outfall009_20141217_Comp       Total/NA       Water       300.0         Lab Control Sample       Total/NA       Water       300.0         Method Blank       Total/NA       Water       300.0         Client Sample ID       Prep Type       Matrix       Method

#### Analysis Batch: 4364015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total	Water	1613B	
H4L300000015B	Method Blank	Total	Water	1613B	
H4L300000015C	Lab Control Sample	Total	Water	1613B	
rep Batch: 4364015	_P				
rep Batch: 4364015	_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
· · · · · · · · · · · · · · · · · · ·	-	Prep Type Total	Matrix Water	Method 1613	Prep Batch
Lab Sample ID	Client Sample ID				Prep Batch

#### **Metals**

#### Prep Batch: 225851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96316-G-1-F MS	Matrix Spike	Total/NA	Water	245.1	
440-96316-G-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	245.1	
LCS 440-225851/2-A	Lab Control Sample	Total/NA	Water	245.1	
MB 440-225851/1-A	Method Blank	Total/NA	Water	245.1	

#### Analysis Batch: 225915

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-96316-G-1-F MS	Matrix Spike	Total/NA	Water	245.1	225851
440-96316-G-1-G MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	225851
LCS 440-225851/2-A	Lab Control Sample	Total/NA	Water	245.1	225851
MB 440-225851/1-A	Method Blank	Total/NA	Water	245.1	225851

#### Analysis Batch: 225931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	245.1	225851

#### Filtration Batch: 226565

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-96606-R-1-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
440-96606-R-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-96606-R-1-G MS	Matrix Spike	Dissolved	Water	FILTRATION	

#### **Metals (Continued)**

LCSD 440-227112/3-A

MB 440-227112/1-A

Lab Control Sample Dup

Method Blank

#### Filtration Batch: 226565 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96606-R-1-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	
440-97211-1	Outfall009_20141217_Comp	Dissolved	Water	FILTRATION	
LCS 440-226565/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-226565/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
MB 440-226565/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 440-226565/1-D	Method Blank	Dissolved	Water	FILTRATION	
rep Batch: 226624					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-96606-R-1-C MS	Matrix Spike	Dissolved	Water	245.1	22656
440-96606-R-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	22656
440-97211-1	Outfall009_20141217_Comp	Dissolved	Water	245.1	22656
LCS 440-226565/2-B	Lab Control Sample	Dissolved	Water	245.1	226565
MB 440-226565/1-B	Method Blank	Dissolved	Water	245.1	226565
rep Batch: 226703					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
440-96606-R-1-G MS	Matrix Spike	Dissolved	Water	200.2	22656
440-96606-R-1-H MSD	Matrix Spike Duplicate	Dissolved	Water	200.2	22656
440-97211-1	Outfall009_20141217_Comp	Dissolved	Water	200.2	22656
_CS 440-226565/2-D	Lab Control Sample	Dissolved	Water	200.2	22656
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	200.2	22656
MB 440-226565/1-D	Method Blank	Dissolved	Water	200.2	22656
nalysis Batch: 226988					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batcl
440-96606-R-1-G MS	Matrix Spike	Dissolved	Water	200.8	22670
440-96606-R-1-H MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	226703
440-97211-1	Outfall009_20141217_Comp	Dissolved	Water	200.8	22670
LCS 440-226565/2-D	Lab Control Sample	Dissolved	Water	200.8	22670
LCSD 440-226565/3-B	Lab Control Sample Dup	Dissolved	Water	200.8	22670
MB 440-226565/1-D	Method Blank	Dissolved	Water	200.8	226703
nalysis Batch: 227057					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batc
440-96606-R-1-C MS	Matrix Spike	Dissolved	Water	245.1	22662
440-96606-R-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	22662
440-97211-1	Outfall009_20141217_Comp	Dissolved	Water	245.1	22662
LCS 440-226565/2-B	Lab Control Sample	Dissolved	Water	245.1	22662
MB 440-226565/1-B	Method Blank	Dissolved	Water	245.1	22662
rep Batch: 227112					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batc
440-97211-1	Outfall009_20141217_Comp	Total Recoverable	Water	200.2	
440-97790-A-2-B MS ^5	Matrix Spike	Total Recoverable	Water	200.2	
440-97790-A-2-D MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	200.2	
LCS 440-227112/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
1000 440 007440/0 4				000.0	

TestAmerica Irvine

**Total Recoverable** 

Total Recoverable

Water

Water

200.2

200.2

Prep Type

Total Recoverable

**Total Recoverable** 

Total Recoverable

**Total Recoverable** 

Total Recoverable

Total Recoverable

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Water

Water

Water

Water

Water

Water

Matrix

Water

Water

Water

Water

**Client Sample ID** 

Matrix Spike Duplicate

Lab Control Sample Dup

Lab Control Sample

Matrix Spike

Method Blank

**Client Sample ID** 

Lab Control Sample

Method Blank

Lab Control Sample Dup

Outfall 009\_20141217\_Grab

Outfall009\_20141217\_Comp

Metals (Continued) Analysis Batch: 227345

440-97790-A-2-B MS ^5

LCS 440-227112/2-A

MB 440-227112/1-A

LCSD 440-227112/3-A

**General Chemistry** 

Prep Batch: 226034

LCS 440-226034/2-A

MB 440-226034/1-A

LCSD 440-226034/3-A

440-97027-1

440-97790-A-2-D MSD ^5

Lab Sample ID

440-97211-1

Method

200.8

200.8

200.8

200.8

200.8

200.8

Method

1664A

1664A

1664A

1664A

Prep Batch

227112

227112

227112

227112

227112

227112

Prep Batch

## 6 7 8 9 10 11

Analysis Batch: 226039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
440-97027-1	Outfall 009_20141217_Grab	Total/NA	Water	1664A	226034	
LCS 440-226034/2-A	Lab Control Sample	Total/NA	Water	1664A	226034	
LCSD 440-226034/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	226034	
MB 440-226034/1-A	Method Blank	Total/NA	Water	1664A	226034	

#### Analysis Batch: 226269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	SM 2540D	
440-97384-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	
LCS 440-226269/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-226269/2	Method Blank	Total/NA	Water	SM 2540D	

#### Analysis Batch: 226535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97110-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	SM 2540C	
LCS 440-226535/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-226535/1	Method Blank	Total/NA	Water	SM 2540C	

#### Prep Batch: 226574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	Distill/CN	
440-97518-O-1-B MS	Matrix Spike	Total/NA	Water	Distill/CN	
440-97518-O-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/CN	
LCS 440-226574/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
MB 440-226574/1-A	Method Blank	Total/NA	Water	Distill/CN	

#### Analysis Batch: 226768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	SM 4500 CN E	226574
440-97518-O-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 CN E	226574
440-97518-O-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CN E	226574

#### **QC Association Summary**

#### Client: Haley & Aldrich, Inc. Project/Site: Routine Outfall 009 Grab

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
LCS 440-226574/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	226574
MB 440-226574/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	226574

#### Rad

#### Prep Batch: 164776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	PrecSep-21	
440-97211-2	Trip Blank	Total/NA	Water	PrecSep-21	
480-73271-AA-5-A DU	Duplicate	Total/NA	Water	PrecSep-21	
LCS 160-164776/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-164776/1-A	Method Blank	Total/NA	Water	PrecSep-21	
rep Batch: 164779					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	PrecSep_0	
440-97211-2	Trip Blank	Total/NA	Water	PrecSep_0	
480-73271-AA-5-B DU	Duplicate	Total/NA	Water	PrecSep_0	
LCS 160-164779/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-164779/1-A	Method Blank	Total/NA	Water	PrecSep_0	
rep Batch: 165361					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	ExtChrom	
440-97211-2	Trip Blank	Total/NA	Water	ExtChrom	
440-97211-2 DU	Trip Blank	Total/NA	Water	ExtChrom	
LCS 160-165361/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-165361/1-A	Method Blank	Total/NA	Water	ExtChrom	

#### Prep Batch: 165591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-97209-R-1-E MS	Matrix Spike	Total/NA	Water	Evaporation	
440-97209-R-1-F MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-97209-R-1-G DU	Duplicate	Total/NA	Water	Evaporation	
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	Evaporation	
440-97211-2	Trip Blank	Total/NA	Water	Evaporation	
LCS 160-165591/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-165591/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
MB 160-165591/1-A	Method Blank	Total/NA	Water	Evaporation	

#### Prep Batch: 165620

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method Prep Batch
440-96594-A-2-G DU	Duplicate	Total/NA	Water	PrecSep-7
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	PrecSep-7
440-97211-2	Trip Blank	Total/NA	Water	PrecSep-7
LCS 160-165620/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7
MB 160-165620/1-A	Method Blank	Total/NA	Water	PrecSep-7

5

9

TestAmerica Job ID: 440-97027-1

#### Rad (Continued)

#### Prep Batch: 166399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-63670-A-3-D DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	
280-63961-C-3-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
440-97211-1	Outfall009_20141217_Comp	Total/NA	Water	LSC_Dist_Susp	
LCS 160-166399/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
MB 160-166399/1-A	Method Blank	Total/NA	Water	LSC Dist Susp	
rep Batch: 166424			<b></b>	·	
rep Batch: 166424 Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
rep Batch: 166424 Lab Sample ID 440-97209-R-1-J DU	Duplicate	Total/NA	Water	Fill_Geo-0	Prep Batch
rep Batch: 166424 Lab Sample ID 440-97209-R-1-J DU	·				Prep Batch
rep Batch: 166424 Lab Sample ID 440-97209-R-1-J DU 440-97211-1	Duplicate	Total/NA	Water	Fill_Geo-0	Prep Batch
	Duplicate Outfall009_20141217_Comp	Total/NA Total/NA	Water Water	Fill_Geo-0 Fill_Geo-0	Prep Batch

Duplicate error ratio (normalized absolute difference)

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)

Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

**Dilution Factor** 

Decision level concentration

Minimum detectable activity

Minimum detectable concentration

Estimated Detection Limit

Method Detection Limit

Minimum Level (Dioxin)

Practical Quantitation Limit

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Not Calculated

**Quality Control** 

Relative error ratio

Qualifiers

DER

DLC

MDA

EDL

MDC

MDL

ML

NC

ND

PQL

QC RER

RL

RPD

TEF

TEQ

Dil Fac

DL, RA, RE, IN

Quannoio		
DIOXIN		
Qualifier	Qualifier Description	
J	Estimated result. Result is less than the reporting limit.	5
Q	Estimated maximum possible concentration (EMPC).	J
В	Method blank contamination. The associated method blank contains the target analyte at a reportable level.	
Metals		
Qualifier	Qualifier Description	
IB	CCV recovery above limit; analyte not detected	
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL	8
QP	Holding time Immediate. Analyzed as close to receipt as possible	
LQ	LCS/LCSD recovery above method control limits	
MB	Analyte present in the method blank	Э
Rad		10
Qualifier	Qualifier Description	
U	Result is less than the sample detection limit.	
Glossary		
Abbreviation	These commonly used abbreviations may or may not be present in this report.	13
¤	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	

#### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Naska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
ławaii	State Program	9	N/A	01-29-15 *
evada	State Program	9	CA015312007A	07-31-15
ew Mexico	State Program	6	N/A	01-29-15 *
lorthern Mariana Islands	State Program	9	MP0002	01-29-15 *
Dregon	NELAP	10	4005	01-29-15 *
ISDA	Federal		P330-09-00080	06-06-15
SEPA UCMR	Federal	1	CA01531	01-31-15

#### Laboratory: TestAmerica Knoxville

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0688	06-17-15
California	State Program	9	2423	06-30-16
Colorado	State Program	8	N/A	02-28-15
Connecticut	State Program	1	PH-0223	09-30-15
Florida	NELAP	4	E87177	06-30-15
Georgia	State Program	4	906	04-13-17
Hawaii	State Program	9	N/A	04-13-15
Kentucky (DW)	State Program	4	90101	12-31-15
L-A-B	DoD ELAP		L2311	02-13-16
Louisiana	NELAP	6	83979	06-30-15
Louisiana	NELAP	6	LA110001	12-31-15
Maryland	State Program	3	277	03-31-15
Michigan	State Program	5	9933	04-13-17
Nevada	State Program	9	TN00009	07-31-15
New Jersey	NELAP	2	TN001	06-30-15
New York	NELAP	2	10781	03-31-15
North Carolina (DW)	State Program	4	21705	07-31-15
North Carolina (WW/SW)	State Program	4	64	12-31-15
Ohio VAP	State Program	5	CL0059	03-26-15
Oklahoma	State Program	6	9415	08-31-15
Pennsylvania	NELAP	3	68-00576	12-31-15
South Carolina	State Program	4	84001	06-30-15
Tennessee	State Program	4	2014	04-13-17
Texas	NELAP	6	T104704380-TX	08-31-15
USDA	Federal		P330-13-00260	08-29-16
Utah	NELAP	8	QUAN3	07-31-15
Virginia	NELAP	3	460176	09-14-15
Virginia	State Program	3	165	06-30-15
Washington	State Program	10	C593	01-19-16
West Virginia (DW)	State Program	3	9955C	12-31-14
West Virginia DEP	State Program	3	345	04-30-15
Wisconsin	State Program	5	998044300	08-31-15

#### Laboratory: TestAmerica St. Louis

\* Certification renewal pending - certification considered valid.

#### Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Iorida	NELAP	4	E87689	06-30-15
linois	NELAP	5	200023	11-30-15
owa	State Program	7	373	12-01-14 *
ansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-14 *
-A-B	DoD ELAP		L2305	01-10-16
ouisiana	NELAP	6	LA150017	12-31-16
laryland	State Program	3	310	09-30-15
lissouri	State Program	7	780	06-30-15
levada	State Program	9	MO000542013-1	07-31-15
lew Jersey	NELAP	2	MO002	06-30-15
lew Mexico	State Program	6		06-30-10 *
ew York	NELAP	2	11616	03-31-15 *
lorth Dakota	State Program	8	R207	06-30-15
IRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
ennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
exas	NELAP	6	T104704193-13-6	07-31-15
ISDA	Federal		P330-07-00122	01-09-17
ltah	NELAP	8	MO000542013-5	07-31-15
/irginia	NELAP	3	460230	06-14-15
Vashington	State Program	10	C592	08-30-15
Vest Virginia DEP	State Program	3	381	08-31-15

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Sample Receipt Documentation	16

12 13 14

TestAmerica Laboratories, Inc.

#### **ANALYTICAL REPORT**

**TestAmerica** 

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT NO. 440-97027-1

Routine Outfall 009

Lot #: H4L290401

Debby Wilson

TestAmerica Irvine 17461 Derian Ave Suite 100 Irvine, CA 92614-5817

TESTAMERICA LABORATORIES, INC.

Terry Wasmund Project Manager

January 19, 2015

#### ANALYTICAL METHODS SUMMARY

#### H4L290401

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	ANALYTICAL METHODS SUMMA	PV		
	H4L290401			
	HHIZ JOIOT			
		ANALYTICAL		5
PARAMET	ER	METHOD		
Dioxins,	/Furans, HRGC/HRMS	EPA-5 1613B		
Referen	ces:			8
EPA-5	"Method 1613: Tetra- through Octa- Chlori Furans by Isotope Dilution, HRGC/HRMS, Re EPA, OCTOBER 1994			9
	,			
				12
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SAMPLE SUMMARY			2
H4L290401			3
		<b>6</b>	4
WO # SAMPLE# CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME	5
M5T3X 001 OUTFALL009_20141217_COMP	12/17/14	08:21	6
NOTE (S) : - The analytical results of the samples listed above are presented on the following pages.			7
<ul> <li>All calculations are performed before rounding to avoid round-off errors in calculated results.</li> <li>Results noted as "ND" were not detected at or above the stated limit.</li> </ul>			8
- This report must not be reproduced, except in full, without the written approval of the laboratory. - Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,			9
paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.			10
			11
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The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

#### The original chain of custody documentation is included with this report.

#### **Sample Receipt**

There were no problems with the condition of the samples received.

#### **Quality Control and Data Interpretation**

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

Comments:

Several Estimated Detection Limits (EDL's) for the total homolog groups were changed to the lowest EDL from each group. This was done per request of the client.

The following flags are used to qualify results for chlorinated dioxin and furan results:

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report, the ML is qualitatively defined as described above, and quantitatively defined as follows:

**Minimum Level**: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

Example: The lowest calibration level for TCDD in the initial calibration is 0.5 pg/uL. A mass of 10 pg of 2,3,7,8-TCDD in the sample would result in a concentration of 0.5 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the lowest calibration standard, the 10 pg mass in the sample components is the ML. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The ML for 2,3,7,8-TCDD becomes 100 pg rather than the default of 10 pg.

**E** – The reported result is an estimate. The amount reported is above the Upper Calibration Level (UCL) described below. The quantitative definition of the UCL is listed below:

**Upper Calibration Level:** The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Example: The maximum calibration level for TCDD in the initial calibration is 200 pg/uL. A mass of 4000 pg of 2,3,7,8-TCDD in the sampling components would result in a concentration of 200 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the highest calibration standard, the 4000 pg mass in the sample components is the UCL. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The UCL for 2,3,7,8-TCDD becomes 40,000 pg rather than the default of 4000 pg. In this example, all positive 2,3,7,8-TCDD results above 40,000 pg are flagged with an E.

**B** – The analyte is present in the associated method blank at a detectable level. For this analysis, there is no method specified reporting level other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of  $\geq$ 2.5 to 1. Therefore, the presence of any reportable amount of the analyte in the blank will result in a B qualifier on all associated samples.

 $\mathbf{Q}$  – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. These may include one or more of the following:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio).
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).
- Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.
- 2,3,7,8-TCDF result is reported from the non-isomer specific Rtx-5 column.
- Polychlorinated dibenzofuran purity. An interference may be present on the indicated polychlorinated dibenzofuran when a polychlorinated diphenyl ether peak is present and maximizes within +/- 3 seconds of the dibenzofuran candidate.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity due to a matrix-borne interference.

**C** – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer.

**X** – Other. See explanation in narrative.

Laboratory studies supporting risk assessment and Total Maximum Daily Load (TMDL) evaluations, frequently use qualified data reported as low as the Method Detection Limit (MDL), or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL.<sup>1,2,3</sup> The EDL is based on a direct measurement of the signal-to-noise (S/N) ratio acquired during sample analysis. This S/N measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the S/N obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample than is an MDL run periodically on a reference matrix.

The EDL is typically calculated according to the following equation:

Estimated Detection Limit =  $\frac{N \times 2.5 \times Qis}{His \times RRF \times W \times S}$ 

Where:

nore.		
N	Ξ	peak to peak noise of quantitation ion signal in the region of the ion chromatogram where the compound of interest is expected to elute
His	=	peak height of quantitation ion for appropriate internal standard
Qis	=	ng of internal standard added to sample
0413		-
RRF	=	mean relative response factor of compound obtained during initial calibration
W	Ξ	amount of sample extracted (grams or liters)
0		
S	=	percent solids (optional, if results are requested to be reported on dry weight
		basis)
		Nasis)

(The area of the internal standard is sometimes used instead of height, along with an area-to-height conversion factor.)

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often closer to the true value than an assumption that the target analyte is present at the detection or reporting limits. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

Analyte Concentration =  $\frac{As \times Qis}{Ais \times RRF \times W \times S}$ 

Where:

As = Sum of areas of the target peaks

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- Qis = ng of internal standard added to sample
- Ais = Sum of areas of the internal standard peaks
- RRF = mean relative response factor of compound obtained during initial calibration
- W = amount of sample extracted (grams or liters)
- S = percent solids (optional, if results are requested to be reported on dry weight basis)

In sample data, peaks must have an intensity of  $\geq$ 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 times the noise on the calibration. This is the result of normal variability. Because the source methods for the EDL (SW-846 8290 and 8280A) do not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

#### Footnotes:

- 1. Code of Federal Regulations, Part 136, Chapter 1, Appendix 1, October 1994: Method 1613 Tetra- Through Octa-Chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography/High Resolution Mass Spectrometry.
- 2. U.S. EPA. Test Methods for Evaluating Solid Waste, Volume II, SW-846, Update III, December 1996. Method 8280A: The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/Low Resolution Mass Spectrometry.
- 3. U.S. EPA. Test Methods for Evaluating Solid Waste, SW-846. Third Edition. March 1995 Method 8290: Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/High Resolution Mass Spectrometry.

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	L-A-B	DoD ELAP		L2311
TestAmerica Knoxville	Arkansas DEQ	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana DOHH	State Program	6	LA110001
TestAmerica Knoxville	Louisiana DEQ	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina DENR	State Program	4	64
TestAmerica Knoxville	North Carolina DHHS	State Program	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	Federal	USDA	· · ·	P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	NELAC	3	460176
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia DEP	State Program	3	345
TestAmerica Knoxville	West Virginia DHHR	State Program	3	9955C

#### **CERTIFICATION SUMMARY**

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## Sample Data Summary

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#### TestAmerica Irvine Sample ID: OUTFALL009\_20141217\_COMP Trace Level Organic Compounds

PARAMETER	RESULT		NIMUM VEL	ESTIMA1 DETECTI	`ED ON LIMIT UNI'
Initial Wgt/Vol : Analyst ID:	995 mL Patricia(Trish) M. Parsly	Instrument ID:	M2A	Method:	EPA-5 1613B
Prep Batch #;	4364015				
Prep Date:	12/30/14	Analysis Date:	01/16/15		
Date Sampled:	12/17/14	Date Received:	12/27/14	Dilution F	actor: 1
Lot - Sample #:	H4L290401 - 001	Work Order #:	M5T3X1AA	Matrix:	WATER

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
2,3,7,8-TCDD	ND		0.0000100	0,00000208	ug/L
Total TCDD	ND		0.0000100	0.00000208	ug/L
1,2,3,7,8-PeCDD	0.00000161	QJ	0.0000502	0.00000117	ug/L
Total PeCDD	0.00000478	QJ	0.0000502	0.00000117	ug/L
1,2,3,4,7,8-HxCDD	ND		0.0000502	0.00000101	ug/L
1,2,3,6,7,8-HxCDD	0.00000846	J	0.0000502	0.000000930	ug/L
1,2,3,7,8,9-HxCDD	0.00000610	J	0.0000502	0.000000900	ug/L
Total HxCDD	0,0000421	J	0.0000502	0.000000900	ug/L
1,2,3,4,6,7,8-HpCDD	0.000146		0.0000502	0.00000170	ug/L
Total HpCDD	0.000360		0.0000502	0.00000170	ug/L
OCDD	0.00198	В	0.000100	0.00000248	ug/L
2,3,7,8-TCDF	ND		0.0000100	0.00000148	ug/L
Total TCDF	0.00000954	JQ	0.0000100	0.00000148	ug/L
1,2,3,7,8-PeCDF	ND		0.0000502	0.000000830	ug/L
2,3,4,7,8-PeCDF	ND		0.0000502	0.000000740	ug/L
Total PeCDF	0.0000195	QJ	0.0000502	0.000000740	ug/L
1,2,3,4,7,8-HxCDF	0.00000164	QJ	0.0000502	0.000000670	ug/L
1,2,3,6,7,8-HxCDF	0.00000466	QJ	0.0000502	0.000000650	ug/L
2,3,4,6,7,8-HxCDF	ND		0.0000502	0.000000650	ug/L
1,2,3,7,8,9-HxCDF	ND		0.0000502	0.000000980	ug/L
Total HxCDF	0.0000949	JQ	0.0000502	0.000000650	ug/L
1,2,3,4,6,7,8-HpCDF	0.0000234	J	0.0000502	0.000000820	ug/L
1,2,3,4,7,8,9-HpCDF	ND		0.0000502	0.00000144	ug/L
Total HpCDF	0.0000699	Q J	0.0000502	0.00000820	ug/L
OCDF	0.0000593	J	0.000100	0.00000111	ug/L

#### **Trace Level Organic Compounds**

Lot - Sample #: Date Sampled: Prep Date: Prep Batch #:	H4L290401 - 001 12/17/14 12/30/14 4364015	Work Order #: Date Received: Analysis Date:	M5T3X1AA 12/27/14 01/16/15	Matrix: WATER Dilution Factor: 1		
Initial Wgt/Vol : Analyst ID:	995 mL Patricia(Trish) M. Parsly	Instrument ID:	M2A	Method: EPA-5 1613B		
INTERNAL STAND	ARDS	PERCENT RECOVEF		RECOVERY LIMITS		
13C-2,3,7,8-TCDD		70		25 - 164		
13C-1,2,3,7,8-PeCDD		76		25 - 181		
13C-1,2,3,4,7,8-HxCE	D	82		32 - 141		
13C-1,2,3,6,7,8-HxCE	DD	88		28 - 130		
13C-1,2,3,4,6,7,8-HpC	CDD	79		23 - 140		
13C-OCDD		77		17 - 157		
13C-2,3,7,8-TCDF		68		24 - 169		
13C-1,2,3,7,8-PeCDF		68		24 - 185		
13C-2,3,4,7,8-PeCDF		66		21 - 178		
13C-1,2,3,4,7,8-HxCD	)F	72		26 - 152		
13C-1,2,3,6,7,8-HxCD	)F	76		26 - 123		
13C-2,3,4,6,7,8-HxCD	)F	79		28 - 136		
13C-1,2,3,7,8,9-HxCD	)F	69		29 - 147		
13C-1,2,3,4,6,7,8-HpC	CDF	79		28 - 143		
13C-1,2,3,4,7,8,9-HpC	CDF	67		26 - 138		
13C-OCDF		75		17 - 157		
SURROGATE	-	PERCENT RECOVER		RECOVERY LIMITS		

80

37Cl4-2,3,7,8-TCDD

#### **QUALIFIERS**

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

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#### Method Blank Report

#### Trace Level Organic Compounds

Lot - Sample #:	H4L300000 - 015B	Work Order #:	M5T6F1AA	Matrix:	WATER
<b>Dilution Factor:</b>	1				
Prep Date:	12/30/14	Analysis Date:	01/15/15		
Prep Batch #:	4364015				
Initial Wgt/Vol :	1000 mL	Instrument ID:	M2A	Method:	EPA-5 1613B
Analyst ID:	Patricia(Trish) M. Parsly				

PARAMETER	RESULT	MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
2,3,7,8-TCDD	ND	0.0000100	0.00000222	ug/L
Total TCDD	ND	0.0000100	0.00000222	ug/L
1,2,3,7,8-PeCDD	ND	0.0000500	0.00000105	ug/L
Total PeCDD	ND	0.0000500	0.00000105	ug/L
1,2,3,4,7,8-HxCDD	ND	0.0000500	0.00000850	ug/L
1,2,3,6,7,8-HxCDD	ND	0.0000500	0.00000890	ug/L
1,2,3,7,8,9-HxCDD	ND	0.0000500	0.00000810	ug/L
Total HxCDD	ND	0.0000500	0.00000850	ug/L
1,2,3,4,6,7,8-HpCDD	ND	0.0000500	0.00000113	ug/L
Total HpCDD	ND	0.0000500	0.00000113	ug/L
OCDD	0.00000202 Q J	0.000100	0.00000970	ug/L
2,3,7,8-TCDF	ND	0.0000100	0.00000144	ug/L
Total TCDF	ND	0.0000100	0.00000144	ug/L
1,2,3,7,8-PeCDF	ND	0.0000500	0.00000820	ug/L
2,3,4,7,8-PeCDF	ND	0.0000500	0.000000710	ug/L
Total PeCDF	ND	0.0000500	0.00000710	ug/L
1,2,3,4,7,8-HxCDF	ND	0.0000500	0.00000500	ug/L
1,2,3,6,7,8-HxCDF	ND	0.0000500	0.00000490	ug/L
2,3,4,6,7,8-HxCDF	ND	0.0000500	0.00000500	ug/L
1,2,3,7,8,9-HxCDF	ND	0.0000500	0.00000600	ug/L
Total HxCDF	ND	0.0000500	0.000000490	ug/L
1,2,3,4,6,7,8-HpCDF	ND	0.0000500	0.00000680	ug/L
1,2,3,4,7,8,9-HpCDF	ND	0.0000500	0.00000960	ug/L
Total HpCDF	ND	0.0000500	0.00000680	ug/L
OCDF	ND	0.000100	0.00000103	ug/L

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#### Method Blank Report

#### **Trace Level Organic Compounds**

Lot - Sample #:	H4L300000 - 015B	Work Order #;	M5T6F1AA	Matrix:	WATER
<b>Dilution Factor</b> ;	1				
Prep Date:	12/30/14	Analysis Date:	01/15/15		
Prep Batch #;	4364015				
Initial Wgt/Vol :	1000 mL	Instrument ID:	M2A	Method:	EPA-5 1613B
Analyst ID:	Patricia(Trish) M. Parsly				

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	83	25 - 164
13C-1,2,3,7,8-PeCDD	89	25 - 181
13C-1,2,3,4,7,8-HxCDD	86	32 - 141
13C-1,2,3,6,7,8-HxCDD	94	28 - 130
13C-1,2,3,4,6,7,8-HpCDD	91	23 - 140
13C-OCDD	89	17 - 157
13C-2,3,7,8-TCDF	84	24 - 169
13C-1,2,3,7,8-PeCDF	83	24 - 185
13C-2,3,4,7,8-PeCDF	79	21 - 178
13C-1,2,3,4,7,8-HxCDF	77	26 - 152
13C-1,2,3,6,7,8-HxCDF	79	26 - 123
13C-2,3,4,6,7,8-HxCDF	86	28 - 136
13C-1,2,3,7,8,9-HxCDF	89	29 - 147
13C-1,2,3,4,6,7,8-HpCDF	84	28 - 143
13C-1,2,3,4,7,8,9-HpCDF	87	26 - 138
13C-OCDF	81	17 - 157

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
37Cl4-2,3,7,8-TCDD	94	35 - 197

#### **QUALIFIERS**

.

J Estimated Result.

Q . Estimated maximum possible concentration (EMPC).

#### LABORATORY CONTROL SAMPLE DATA REPORT

#### **Trace Level Organic Compounds**

Client Lot #: LCS Lot-Sample# :	H4L29( H4L30(	0401 0000 - 015	Work Order	#: M5T6F1A	C-LCS		Matrix:	WATER
Prep Date:	12/30/1	4	Analysis Date: 01/15/15					
Prep Batch #: Dilution Factor :	436401	5						
	] Kothuum	DIAN	To a star					
Analyst ID: Initial Wgt/Vol:	Kathryn 1000 ml	•	Instrument I	D: M2A		Method:	EPA-5 1613B	
inicial wgu voi;	1000 m	L						
PARAMETER		SPIKE AMOUNT	MEASURED AMOUNT	UNITS		CENT OVERY	RECOVERY LIMITS	
2,3,7,8-TCDD		0.0002	0.0001	ug/L	98		(67 - 158)	
1,2,3,7,8-PeCDD		0.0010	0.0009	ug/L	99		(70 - 142)	
1,2,3,4,7,8-HxCDD		0.0010	0.0009	ug/L	97		(70 - 164)	
1,2,3,6,7,8-HxCDD		0.0010	0.0009	ug/L	94		(76 - 134)	
1,2,3,7,8,9-HxCDD		0.0010	0.0009	ug/L	94		(64 - 162)	
1,2,3,4,6,7,8-HpCDI	)	0.0010	0.0009	ug/L	92		(70 - 140)	
OCDD		0.0020	0.0017	ug/L	90	В	(78 - 144)	
2,3,7,8-TCDF		0.0002	0.0002	ug/L	108		(75 - 158)	
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF		0.0010	0.0009	ug/L	95 00		(80 - 134)	
1,2,3,4,7,8-HxCDF		0.0010	0.0009	ug/L	99		(68 - 160)	
1,2,3,6,7,8-HxCDF		0.0010 0.0010	0.0009 0.0009	ug/L	98 00		(72 - 134)	
2,3,4,6,7,8-HxCDF		0.0010	0.0009	ug/L	99 00		(84 - 130)	
1,2,3,7,8,9-HxCDF		0.0010	0.0009	ug/L ug/L	99 98		(70 - 156)	
1,2,3,4,6,7,8-HpCDF	•	0.0010	0.0009	ug/L ug/L	98 93		(78 - 130) (82 - 122)	
1,2,3,4,7,8,9-HpCDF		0.0010	0.0009	ug/L	93 96		(32 - 122) (78 - 138)	
OCDF		0.0020	0.0017	ug/L	89		(63 - 170)	
				-	02			
INTERNAL STANDAR	2D			PERCENT RECOVERY			RECOVERY LIMITS	
13C-2,3,7,8-TCDD				79			(20 - 175)	
13C-1,2,3,7,8-PeCDE				85			(21 - 227)	
13C-1,2,3,4,7,8-HxCI				82			(21 - 193)	
13C-1,2,3,6,7,8-HxCI				90			(25 - 163)	
13C-1,2,3,4,6,7,8-Hp	CDD			87			(26 - 166)	
13C-OCDD	-			65			(13 - 199)	
13C-2,3,7,8-TCDF				71			(22 - 152)	
13C-1,2,3,7,8-PeCDF				80			(21 - 192)	
13C-2,3,4,7,8-PeCDF				76			(13 - 328)	
13C-1,2,3,4,7,8-HxCI				77			(19 - 202)	
13C-1,2,3,6,7,8-HxCI				84			(21 - 159)	
13C-2,3,4,6,7,8-HxCI				80			(22 - 176)	
13C-1,2,3,7,8,9-HxCI				67 74			(17 - 205)	
13C-1,2,3,4,6,7,8-Hp				74			(21 - 158)	
13C-1,2,3,4,7,8,9-Hp	JUL			58			(20 - 186)	
13C-OCDF				49			(13 - 199)	
SURROGATE				PERCENT RECOVERY			RECOVERY LIMITS	
37C14-2,3,7,8-TCDD				82			(31 - 191)	

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#### LABORATORY CONTROL SAMPLE DATA REPORT

**Trace Level Organic Compounds** 

#### Notes:

Calculations are performed before rounding to avoid round-off errors in calculated results. Bold print denotes control parameters

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

15 of 18

# Sample Receipt Documentation

16 of 18

TestAmerica Irvine		194062744		Tott A monine	
1/461 Derian Ave Suite 100 Irvine. CA 92614-5817	Chain of Cus	of Custody Record			
Phone (949) 261-1022 Fax (949) 260-3297				the leader in Environmental Testing	
Client Information (Sub Contract Lab)	Sampler.	Lab PM: Wilson, Debby S	Carrier Tracking No(s):	COC No: 440-71868.1	
Client Contact Shipping/Receiving	Phone:	E-Mail: debby wilson@testamericainc.com		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Analysis	Analysis Requested	Job #; 440-97077_1	
Address: 5815 Middlebrook Pike,	Due Date Requested: 1/6/2015			Preservation Codes:	
Cly: Knoxville	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None	
State, zp: TN, 37921					
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	, HO4			F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 U Accordio Acid T TCC D-1	
Email:	WO #:	(0)		n - Ascoluic Acid   - Ice J - Di Water	
Project Name: Routine Outfall 009 Grab	Project #, 44009879	10.se	·	· K - EDTA L - EDA	
Site	SSOW#:	vy) as		Other:	
		Matrix Matrix (w=wate, s=seate, s=seate, (1613 dioxic	, Number o		
Sample Identification - Client ID (Lab ID)	ate Time	Field Field		Special Instructions/Note:	
	1	ł			
Outfall009_20141217_Comp (440-97211-1)	12/17/14 00.4 Pacific	Water × AVN	(H)	See QAS,Boeing_w/u to zero. ug/L	r
				RT: 0.1. c CT: 0.0°C	. 1
				Custode real inter	,
-				10	
				$  \subseteq$	
				1 Calor KU 21271	14
					-
Possible Hazard Identification		Sample Disposal ( A fee may	essed if samples are n	ed longer than 1 month)	
Deliverable Requested: V, N, III, IV, Other (specify)		Special Instructions/QC Requirements.	osai by Lan		
Empty Kit Relinquished by	Date:	Time:	Method of Shipment:		
	Date/Time: try. M ily. OU	Company Received by: KI > W+	DaterTime:	K with Company	
			Date/Time.		17
	Date/Time:	Company Received by:	Date/Time:	Company	of 1
Custody Seals Intact. Custody Seal No.: A Yes A No		Cooler Temperature(s) <sup>*</sup> C.and Other Remarks:	ther Remarks:		8
		4	78901	1 2 3 4 5 6	

1/19/2015

		Lot Nu	mber:	Lot Number: HYL290401	
Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC?				□ 1a Do not match COC	
(IDs, Dates, Times)	<u></u>			□ 1b Incomplete information	
	`			□ 1c Marking smeared	
				□ 1d Label torn	
			. <u> </u>		
2. Is the cooler temperature within limits? (> freezing				□ 2a Temn Blank =	
temp. of water to 6°C, VOST: 10°C)				<b>2b</b> Cooler Temp =	
Thermometer ID : <u><b>S</b></u> ( <b>S</b> )				□ 2c Cooling initiated for recently	
Correction factor: -0.1				collected samples, ice present.	
3. Were samples received with correct chemical				□ 3a See box 3A for pH Preservation	
preservative (excluding Encore)?	-	,		□ 3b Other:	
4. Were custody seals present/intact on cooler and/or				□ 4a Not present	
containers?	\			□ 4b Not intact	
	~		_	□ 4c Other:	
5. Were all of the samples listed on the COC received?				□ 5a Samples received-not on COC	
				□ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?				🗆 6a Leaking	
			-	□ 6b Broken	
7. Were VOA samples received without headspace?		-		□ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?				□ 8a Improper container	
9. Did you check for residual chlorine, if necessary?	<u> </u>	-		□ 9a Could not be determined due to	
(e.g. 1613B, 1668)				matrix interference	
Chlorine test strip lot number: Chlorine test strip					
10. Were samples received within holding time?				□ 10a Holding time expired	
		<u> </u>		□ Incomplete information	
12. For 1613B water samples is pH<9?			,       .	If no, was pH adjusted to pH 7 - 9 with sulfirric acid?	pH test strip lot number: HC 4)L&L9
13 Are the shinning containers intact?				🗆 13a İ aəlina	Rov 3A. nH Rov 0A. Davidnel
	<u>`</u>			D 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)				□ 14a Not relinquished	
15. Are tests/parameters listed for each sample?				15a Incomplete information	Lot Number:
16. Is the matrix of the samples noted?				□ 15a Incomplete information	Exp Date:
17. Is the date/time of sample collection noted?				□ 15a Incomplete information	Analyst:
18. Is the client and project name/# identified?				□ 15a Incomplete information	Date:
19. Was the sampler identified on the COC?				□ 19a Other	Lime:
Quote #: 90493 PM Instructions: NA	**			π 1 1	
	-				
Sample Receiving Associate:	ļ	بط 	Date: 1	Date: 12-29-14	QA026R28.doc, 042414 G
-	•				

# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST 1.04 Number: HML249140

Provide Continues of the Solution of the Solut		12/18/14											Sample I.D	618.22 Fiel 818.32		
Comments Com		15	COC Page : These must be added						12.15 IL 1821				Sempling Deta/Tame	Phone Number 5,7132, 858,337,4081(cell) d Manager, Jeff Barnon 0,7340, 818,414,5606(cell)	Routine Octatil 009 COMPOSITE Sommeter at SW-13	Project:
Commons         Commons <td< th=""><th>2</th><th>120</th><th>to the same wor</th><th></th><th>+</th><th>H</th><th>+</th><th>+</th><th>+</th><th>1.1.</th><th></th><th>1.1</th><th>Presente But</th><th></th><th></th><th></th></td<>	2	120	to the same wor		+	H	+	+	+	1.1.		1.1	Presente But			
Comments Com	4	22	t order		P	N	4	¥	1		A REAL		Tota	l Recoverable M	letais. Sb, Cd, Cu, Pb,	H
Commons         Commons <td< td=""><th></th><td>535</td><td>tor CO</td><td>++++</td><td>+</td><td>Н</td><td>+</td><td>+</td><td>÷</td><td>H</td><td>-</td><td>+</td><td>-</td><td></td><td>anors)</td><td>11</td></td<>		535	tor CO	++++	+	Н	+	+	÷	H	-	+	-		anors)	11
Commons         Commons <td< td=""><th></th><td>2 8</td><td>C Page</td><td></td><td>+</td><td>H</td><td></td><td>T</td><td>1</td><td>Ħ</td><td></td><td>1</td><td>-</td><td>-</td><td></td><td>11</td></td<>		2 8	C Page		+	H		T	1	Ħ		1	-	-		11
Commons         Commons <td< td=""><th>17</th><td>53</td><td>1 of 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>T</td><td></td><td>105</td><td></td><td></td><td></td></td<>	17	53	1 of 2							×	T		105			
Commons         Commons <td< td=""><th>ef</th><td></td><td>for Q</td><td><math>\left  + + \right </math></td><td>×</td><td>H</td><td>-</td><td>+</td><td>-</td><td>H</td><td>+</td><td>+</td><td></td><td></td><td>de Sh Cd Cu Ph</td><td>11</td></td<>	ef		for Q	$\left  + + \right $	×	H	-	+	-	H	+	+			de Sh Cd Cu Ph	11
Commons         Commons <td< td=""><th>G MAQ</th><td>7/18/14 13</td><td>this storm event thill 009 for the s</td><td></td><td></td><td></td><td></td><td>м</td><td>R.</td><td>Ħ</td><td></td><td>T</td><td></td><td></td><td>Gross Beta(900 0), , Sr-90 (905 0), Total 228 (903 D or 903 1) &amp; , Urantum (908 0), K- w 901 1)</td><td></td></td<>	G MAQ	7/18/14 13	this storm event thill 009 for the s					м	R.	Ħ		T			Gross Beta(900 0), , Sr-90 (905 0), Total 228 (903 D or 903 1) & , Urantum (908 0), K- w 901 1)	
Image: State stat	Ĥ	12 18					×	T		Π	T		Chr	oloc Texast	ZF 121	30
Commons Commons Fibre values of menda et las Unificand and uncommon Unificand br>Unificand and uncommon Unificand	10.	3 6 8		+ + +	-	×	-	+	-	11	+	+	Суа	nida		AN
Custody Lister Liste	K			440-97211 0											-	YSIS REQUIRED
Comments Fibre with 2 kins of mondar citize Influence and unpreserved understand the year or with the year of the				Thain of Custod				+	+		+					
		12.1. 12.1. 13.0 IR6			1		Only test If first or second rain events of the year								Commente	
A FER		t				13	14	S S	20							-

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CHAIN OF CUSTODY FORM

Floid readings (Include units) UH4VAADK Time of readings 0735	PH Le. Cd pH unit	Temp & AL CIF	Fleid readings QC	Chacked by OLS UN ANITYLA RICE Deterting. 12.17.14 1 09 00	Comments					440-97027 Chain of Custody	e added to this work order.	Vin Andrand Blinn (Chack) Vin Andra 22 Hour = 10 Day Blivins 5 Tau Normal		Serrich Holgory (Chead) Irland — On tea	Dain Provintements (2)metr) No Lovel IV	THET OR OR	A var
			NEH+		9 % LO	×					These Samples are the Greb Portion of Outfall 009 for this storm event. Composite samples will follow and are to be added to this work order.	Long Delotting Delotting - 17-14 tourner		Semple, interest	PARTY PRATTING (17 100 PAGE PAGE)	JUS LATE STUH BARBJ	
					Prevenuative Bottle #	HCI 1A, 1B					all 009 for this storm (	Recolved By	Recolved By		Rincelvind By		
Boeing-SSFL NPDES Routine Outfall 009 GRAB Stommaler et SW-13		Phone Number 649 285 7132 858 337 4061/cell)	Field Manager, Jeff Bannon	818 350,7340, 818,414,5608(cell)	Sampling Digle/Time	05-10-14 0730	-				are the Grab Portion of Out			14 / 1336			
			<u>,</u> ш		: Sample   D	Outrail 009_2014   2   7 Grab					These Samples	j.		H-E1-21 I	õ		
	/ Wilson	diner	٤	•	iner Far e Cent	2	-	-+		-		Rollinuished By RILE 12.17.14	Date/Time.	and S. I.	DaleAT		
tuite 220 08-5860	Test America Contact Debby Wilson	Project Manager Nancy Gardiner	Sampler, B. Donson	L Z	ple Containe	1L Amber			_			ILE.	1	イド	ý		
Haley & Aldrich 9040 Friers Road Suite 220 San Diego, CA 92108-5860	rica Conta	enager h	ц Б	Э	on Matrix			- -		+		1 2 2 2	2 ja	R	1 By		
Haley & Aldrich 9040 Friars Road Sut San Diego, CA 92108	Test Ame	Project N	Sampler,	ι.	Sample Description	Outfall 009							Rollinguisting	)	Relinquished By		



4TC, Shaffarast

とも Filter win 24hrs of receipt at lab Unfiltered and unpreserved analy<del>sis</del> Comments NPDES Level N Vormel. 440-97211 Chain of Custody A Level IV 72 Hear 6 Day \_\_\_\_ Al Hour Data Requirements (Check) 80 menund time (Check ANALYSIS REOL t Hour No Lovel IV ų 22 COC Page 2 of 2 list the Composite Samples for Outstall 003 for this storm event. These must be added to the same work order for COC Page 1 of 2 for Outstall 005 for the same event Received By Date/Time. ebine(C) 12/18/ × Αμορίο Τοχάστη Gross Alpha(900 0), Gross Beta(900 0), Trbun (H-3) (906), S-60 906 0), N-Combined Redium 228 (903 0 v 903 1) & Redium 228 (904.0), Viranhun (906 0), N-Redium 228 (904.0), Viranhun (906 0), N-Compined Redium 228 (901.0), S-Redium 228 (901.0), S-Red 12/18/17 × 26 JABI Total Dissofved Melais: Sb, Cd, Cu, Pb, Hg. Ti × × SSI VuB Lul sat CL' 20" NO3+NO-N (stopD (and all congeners) Tolal Recoverable Melais Sp, Cd, Cu, Pb, Hg, TI V4A, 4BV , , 7. A.L ¥ ۳ 200 ° ceived B Bottle # A36 A54 çţ 5 ង 17,201 Preservative None None HORN о̂л Н None None None None None None 9:40au Outlaii 003\_2014 1~17\_00mp | 12+1 7.14 | 082| Fleid Manager, Jeff Bannon, 818.350.7340, 818.414.5608(cell) 619.285.7132, 858.337,4061(cell) Project: Boeing-SSFL NPDES Routine Outfall 009 COMPOSITE Stormwater at SW-13 Sampling Date/Time Phone Number 14 × 12/18/14 2 Sample I.D AN. 169 RILE 5 Date/Thme. 김 영 ٣ --Test America Contact: Debby Wilson Dawson 500 mL Poly 500 mL Poly Benen 2.5 Gel Cube 500 mL Amber 1 Gal Poly 11. Poly 1L Poly Vancy Gardine 1L Poly 1L Amber 8d/L Client Name/Address: Haley & Aldrich 9040 Frans Road Suite 220 San Diego, CA 92108-5850 Sample Matrix ≥ ≥ ≥ ≩ ₹ ≥ ₹ ≥ ≥ ία, Project Manager Sample Description Outfall 009 Outfail 008 Outfail 009 Outfall 009 Outfall 009 Outfall 009 Outfall 009 Outfall 009 Outfall 009 Sampler:

CHAIN OF CUSTODY FORM

Page \$ of

Test America version 1 october 2014

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 97027 List Number: 1

Creator: Soderblom, Tim

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

Job Number: 440-97027-1

List Source: TestAmerica Irvine

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

## Login Number: 97211 List Number: 1

Creator: Blocker, Kristina M

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

Job Number: 440-97027-1

List Source: TestAmerica Irvine

Client: Haley & Aldrich, Inc.

#### Login Number: 97211 List Number: 2

Creator: Clarke, Jill C

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.	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	5.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 440-97027-1

List Source: TestAmerica St. Louis

List Creation: 12/20/14 11:56 AM

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

Matrix: Water			Prep Type: Total/NA
Γ			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(40-110)	
440-97211-1	Outfall009_20141217_Comp	92.9	
440-97211-2	Trip Blank	95.6	
480-73271-AA-5-A DU	Duplicate	89.4	
LCS 160-164776/2-A	Lab Control Sample	94.7	
MB 160-164776/1-A	Method Blank	89.7	
Tracer/Carrier Legend			
Ba = Ba Carrier			

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

Matrix: Water Prep Type: Total/NA Percent Yield (Acceptance Limits) Ва Υ (40-110) (40-110) Client Sample ID Lab Sample ID 440-97211-1 Outfall009\_20141217\_Comp 92.9 84.5 440-97211-2 Trip Blank 84.1 95.6 480-73271-AA-5-B DU Duplicate 89.4 86.4 LCS 160-164779/2-A Lab Control Sample 94.7 84.1 MB 160-164779/1-A Method Blank 89.7 88.6 Tracer/Carrier Legend Ba = Ba Carrier Y = Y Carrier

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

Matrix: Water

				Percent Yield (
		Sr (C)	Y	
Lab Sample ID	Client Sample ID	(40-110)	(40-110)	
440-96594-A-2-G DU	Duplicate	88.2	90.8	
440-97211-1	Outfall009_20141217_Comp	86.6	92.7	
440-97211-2	Trip Blank	76.1	94.2	
LCS 160-165620/2-A	Lab Control Sample	88.6	92.7	
MB 160-165620/1-A	Method Blank	90.0	89.3	
Tracer/Carrier Legend				
Sr (C) = Sr Carrier				
Y = Y Carrier				

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

			Per	rcent Yield (Acc
		U-232		
Lab Sample ID	Client Sample ID	(30-110)		
440-97211-2 DU	Trip Blank	31.1		
LCS 160-165361/2-A	Lab Control Sample	83.7		
MB 160-165361/1-A	Method Blank	87.1		

TestAmerica Irvine

Prep Type: Total/NA

Prep Type: Total/NA

# **Tracer/Carrier Summary**

Client: Haley & Aldrich, Inc. Project/Site: Routine Outfall 009 Grab

#### Tracer/Carrier Legend

U-232 = Uranium-232

TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-93180-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

# I. INTRODUCTION

Task Order Title:	Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order:	1272.003H.01 001
Sample Delivery Group:	440-93180-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

## Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
ArroyoSimi_20141113	440-93180-1	N/A	Water	11/13/2014 8:20:00 AM	SM2340

# II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice and within the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ . According to the case narrative for this SDG, the sample container was received intact and properly preserved, as applicable. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were intact.

The sample ID listed on the COC was ArroyoSimi\_2014. A revised COC, dated 12/11/2014, accounted for the ID change.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

# Data Qualifier Reference Table

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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

# **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

# III. Method Analyses

# A. EPA METHOD SM2340B—Hardness

Reviewed By: P. Meeks Date Reviewed: December 10, 2014

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

- Holding Times: The analytical holding time, six months, was met.
- Calibration: The ICV and CCV recoveries were within the control limits of 90-110%. The CRI recoveries were within the control limits of 70-130%.
- Blanks: The method blank and CCBs had no detects affecting sample results.
- Interference Check Samples: Recoveries were within 80-120%.
- Blank Spikes and Laboratory Control Samples: The recoveries were within the laboratory control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG for calcium and magnesium. As the sample results were more than 4x the spike amount, the results were not assessed.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-," otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples.

Following are findings associated with field QC samples:

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

# Validated Sample Result Forms: 440931801

Analysis Metho	od SM	2340							
Sample Name	ArroyoSir	mi_20141113	Matrix Ty	pe: WM		Resu	t Type: TR	G	
Sample Date:         11/13/2014 8:20:00 AM         Validation Level: 3									
Lab Sample Name:	440-93180-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	Т	HARDNESSCA CO3	710	0.33	0.17	mg/L			



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: 440-93180-1

Client Project/Site: Boeing SSFL outfalls

# For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

# Attn: Nancy Gardiner

Debby Wilson

Authorized for release by: 11/28/2014 3:47:05 PM

Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@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.

LINKS **Review your project** results through **Total** Access Have a Question? Ask-The Expert

Visit us at: www.testamericainc.com

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# Sample Summary

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

Lab Sample ID 440-93180-1

				3
Client Sample ID	Matrix	Collected	Received	
ArroyoSimi_20141113	Water	11/13/14 08:20	11/13/14 12:15	4

#### Job ID: 440-93180-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-93180-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 11/13/2014 12:15 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

#### GC/MS Semi VOA

Method(s) 525.2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 218473. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

#### GC Semi VOA

Method(s) 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 218074 and 218586. (LCS 440-218586/4-A)The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

#### Metals

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

#### **Organic Prep**

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

RL

MDL Unit

D

Prepared

# Client Sample ID: ArroyoSimi\_20141113

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

Result Qualifier

Date Collected: 11/13/14 08:20 Date Received: 11/13/14 12:15

Analyte

Lab Sample ID: 440-93180-1

Analyzed

Matrix: Water

Dil Fac

Analyte	Result	Quanner			onne		ricparca	Analyzeu	Dirruc
Chlorpyrifos	ND		0.98	0.49	ug/L		11/13/14 14:32	11/13/14 23:09	1
Diazinon	ND		0.24	0.12	ug/L		11/13/14 14:32	11/13/14 23:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,3-Dimethyl-2-nitrobenzene	101		70 - 130				11/13/14 14:32	11/13/14 23:09	1
Perylene-d12	96		70 - 130				11/13/14 14:32	11/13/14 23:09	1
Triphenylphosphate	120		70 _ 130				11/13/14 14:32	11/13/14 23:09	1
Method: 608 - Organochlorine	Pesticides in Wa	iter							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.087	0.070	ug/L		11/14/14 09:49	11/14/14 20:44	1
Dieldrin	ND		0.0043	0.0017	ug/L		11/14/14 09:49	11/14/14 20:44	1
Toxaphene	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 20:44	1
4,4'-DDD	ND		0.0043	0.0035	ug/L		11/14/14 09:49	11/14/14 20:44	1
4,4'-DDE	ND		0.0043	0.0026	ug/L		11/14/14 09:49	11/14/14 20:44	1
4,4'-DDT	ND		0.0087	0.0035	ug/L		11/14/14 09:49	11/14/14 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	50		10 - 139				11/14/14 09:49	11/14/14 20:44	1
Method: 608 - Polychlorinated	Binhenvis (PCB)	s) (GC)							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 15:38	1
Aroclor 1221	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 15:38	1
Aroclor 1232	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 15:38	1
Aroclor 1242	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 15:38	1
Aroclor 1248	ND		0.43	0.22	ug/L		11/14/14 09:49	11/14/14 15:38	1
							11/14/14 09:49	11/14/14 15:38	
Aroclor 1254	ND		0.43	0.22	ug/L		11/11/11/00.10	11/14/14 10.00	1
	ND ND		0.43 0.43		ug/L ug/L		11/14/14 09:49	11/14/14 15:38	1
Aroclor 1254 Aroclor 1260 <i>Surrogate</i>		Qualifier							

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable							
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	710	0.33	0.17 mg/L			11/24/14 10:04	1

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

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

Method Description

EPA = US Environmental Protection Agency

Semivolatile Organic Compounds (GC/MS)

Organochlorine Pesticides in Water

Polychlorinated Biphenyls (PCBs) (GC)

Total Hardness (as CaCO3) by calculation

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

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

Method

SM 2340B

Protocol References:

subsequent revisions.

Laboratory References:

525.2

608

608

Protocol

40CFR136A

40CFR136A SM

EPA

Laboratory

TAL IRV

TAL IRV

TAL IRV

TAL IRV

5
6
8
9

TestAmerica Irvine

Lab Sample ID: 440-93180-1

Matrix: Water

# Client Sample ID: ArroyoSimi\_20141113

#### Date Collected: 11/13/14 08:20 Date Received: 11/13/14 12:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	525.2			1025 mL	1 mL	218399	11/13/14 14:32	CN	TAL IRV
Total/NA	Analysis	525.2		1	1025 mL	1 mL	218473	11/13/14 23:09	CN	TAL IRV
Total/NA	Prep	608			1150 mL	2 mL	218586	11/14/14 09:49	AP	TAL IRV
Total/NA	Analysis	608		1	1150 mL	2 mL	218656	11/14/14 20:44	JM	TAL IRV
Total/NA	Prep	608			1150 mL	2 mL	218586	11/14/14 09:49	AP	TAL IRV
Total/NA	Analysis	608		1	1150 mL	2 mL	218306	11/14/14 15:38	JM	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			215947	11/24/14 10:04	DT	TAL IRV

#### Laboratory References:

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

RL

MDL Unit

D

Prepared

Lab Sample ID: MB 440-218399/1-A

Matrix: Water

Analyte

Perylene-d12

Triphenylphosphate

Analysis Batch: 218473

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

MB MB Result Qualifier

Analyzed

# **Client Sample ID: Method Blank** Prep Type: Total/NA Prep Batch: 218399 5 Dil Fac

8
9

Analyte	Resul	Quaimer				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		U F	repareu	Allalyz	eu	DirFac
Chlorpyrifos	NE	)	1.0		0.50 L	ıg/L		11/1	3/14 14:32	11/13/14 2	21:19	1
Diazinon	NE	)	0.25		0.12 ι	ıg/L		11/1	3/14 14:32	11/13/14 2	21:19	1
	МЕ	3 MB										
Surrogate	%Recovery	/ Qualifier	Limits					P	repared	Analyz	ed	Dil Fac
1,3-Dimethyl-2-nitrobenzene	95	5	70 - 130					11/1	3/14 14:32	11/13/14	21:19	1
Perylene-d12	94	4	70 - 130					11/1	3/14 14:32	11/13/14	21:19	1
Triphenylphosphate	109	9	70 - 130					11/1	3/14 14:32	11/13/14	21:19	1
Lab Sample ID: LCS 440-218	399/2-A							Client	Sample	ID: Lab Co	ontrol S	ample
Matrix: Water											ype: To	
Analysis Batch: 218473										Prep E	Batch: 2	18399
-			Spike	LCS	LCS					%Rec.		
Analyte			Added	Result	Qualif	ier l	Unit	D	%Rec	Limits		
Chlorpyrifos			5.00	5.62			ug/L		112	70 - 130		
Diazinon			5.00	4.65		ι	ug/L		93	70 _ 130		
	LCS LC	s										
Surrogate	%Recovery Qu	alifier	Limits									
1,3-Dimethyl-2-nitrobenzene	100		70 - 130									
Perylene-d12	101		70 - 130									
Triphenylphosphate	112		70 - 130									
Lab Sample ID: LCSD 440-21	8399/3-A						Clie	ent Sam	ple ID: L	.ab Contro	I Sampl	e Dup
Matrix: Water										Prep T	ype: To	tal/NA
Analysis Batch: 218473										Prep E	Batch: 2	18399
			Spike	LCSD	LCSD					%Rec.		RPD
Analyte			Added	Result	Qualif	ier l	Unit	D	%Rec	Limits	RPD	Limit
Chlorpyrifos			5.00	5.55			ug/L		111	70 - 130	1	30
Diazinon			5.00	3.83		ι	ug/L		77	70 - 130	20	30
	LCSD LC	SD										
Surrogate	%Recovery Qu	alifier	Limits									
1,3-Dimethyl-2-nitrobenzene	98		70 - 130									
Devide an aldo			70 100									

## Method: 608 - Organochlorine Pesticides in Water

99

113

Lab Sample ID: MB 440-218586/1 Matrix: Water Analysis Batch: 218656		мв					Client Sa	mple ID: Metho Prep Type: T Prep Batch:	otal/NA
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		11/14/14 09:49	11/14/14 18:26	1
Dieldrin	ND		0.0050	0.0020	ug/L		11/14/14 09:49	11/14/14 18:26	1
Toxaphene	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 18:26	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		11/14/14 09:49	11/14/14 18:26	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		11/14/14 09:49	11/14/14 18:26	1
4,4'-DDT	ND		0.010	0.0040	ug/L		11/14/14 09:49	11/14/14 18:26	1

70 - 130

70 - 130

**TestAmerica** Irvine

Matrix: Water

Analyte Dieldrin 4,4'-DDD 4,4'-DDE 4,4'-DDT

Analysis Batch: 218656

Lab Sample ID: MB 440-218586/1-A

**Client Sample ID: Method Blank** 

Prep Type: Total/NA Prep Batch: 218586 8

35

5

		MB MB										
Surrogate	%Reco	very Qua	alifier	Limits				P	repared	Analyz	ed	Dil Fac
Tetrachloro-m-xylene		56		10 - 139				11/1	4/14 09:49	11/14/14	18:26	1
 Lab Sample ID: LCS 440-218586/2-A								Client	Sample	ID: Lab Co	ontrol S	ample
Matrix: Water											ype: To	
Analysis Batch: 218656											Batch: 2	
-				Spike	LCS	LCS				%Rec.		
Analyte				Added	Result	Qualifier	Unit	D	%Rec	Limits		
Dieldrin				0.250	0.155		ug/L		62	32 - 139		
4,4'-DDD				0.250	0.157		ug/L		63	37 _ 142		
4,4'-DDE				0.250	0.147		ug/L		59	33 - 139		
4,4'-DDT				0.250	0.161		ug/L		64	36 <sub>-</sub> 145		
	LCS	LCS										
Surrogate %Re	ecovery	Qualifier	I	Limits								
Tetrachloro-m-xylene	49		1	10 - 139								
 Lab Sample ID: LCSD 440-218586/3	A						CI	ient Sam	nple ID: I	Lab Contro	l Sampl	e Dup
Matrix: Water											ype: To	
Analysis Batch: 218656											Batch: 2	
-				Spike	LCSD	LCSD				%Rec.		RPD
Analyte				Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Dieldrin				0.250	0.160		ug/L		64	32 - 139	3	35
4,4'-DDD				0.250	0.163		ug/L		65	37 - 142	0	35
4,4'-DDE				0.250	0.152		ug/L		61	33 - 139	1	35

0.167

ug/L

67

36 - 145

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Tetrachloro-m-xylene	52		10 - 139

Method: 608 - Organochlorine Pesticides in Water (Continued)

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

Lab Sample ID: MB 440-218586 Matrix: Water Analysis Batch: 218306		МВ					Client Sa	mple ID: Metho Prep Type: 1 Prep Batch:	otal/NA
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1221	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1232	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1242	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1248	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1254	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
Aroclor 1260	ND		0.50	0.25	ug/L		11/14/14 09:49	11/14/14 14:31	1
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	62		29 - 115				11/14/14 09:49	11/14/14 14:31	1

0.250

**TestAmerica** Irvine

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

Lab Sample ID: LCS 440-218	586/4-A						Client	Sample	ID: Lab Co		
Matrix: Water										ype: To	
Analysis Batch: 218306			Spike	LCS	LCS				%Rec.	Batch: 2	18586
Analyte			Added		Qualifier	Unit	D	%Rec	Limits		
Aroclor 1016			4.00	2.50		ug/L		63	39 - 145		
Aroclor 1260			4.00	2.54		ug/L		64	37 _ 137		
	LCS	LCS									
Surrogate	%Recovery	Qualifier	Limits								
	61 <b>8586/5-A</b>		29 - 115			Clie	ent Sam	ple ID:	Lab Contro	ol Sampl	e Du
Lab Sample ID: LCSD 440-21 Matrix: Water			29 - 115			Clie	ent Sam	iple ID:	Prep T	ype: To	tal/NA
Lab Sample ID: LCSD 440-21 Matrix: Water			29 - 115 Spike	LCSD	LCSD	Clie	ent Sam	nple ID:	Prep T		tal/NA 1858
Lab Sample ID: LCSD 440-21 Matrix: Water Analysis Batch: 218306					LCSD Qualifier	Clie	ent Sam D	nple ID:   %Rec	Prep T Prep I	ype: To	tal/NA 18586 RPI
Lab Sample ID: LCSD 440-21 Matrix: Water Analysis Batch: 218306 Analyte			Spike						Prep T Prep I %Rec.	ype: To Batch: 2	tal/NA 18586 RPC Limi
Lab Sample ID: LCSD 440-21 Matrix: Water Analysis Batch: 218306 Analyte Aroclor 1016			Spike Added	Result		Unit		%Rec	Prep T Prep I %Rec. Limits	ype: To Batch: 2	tal/NA 18586 RPC Limi 30
Lab Sample ID: LCSD 440-21 Matrix: Water Analysis Batch: 218306 Analyte Aroclor 1016	8586/5-A		Spike Added 4.00	Result 2.53		Unit			Prep T Prep I %Rec. Limits 39 - 145	ype: To Batch: 2	tal/NA 18586 RPC Limi 30
DCB Decachlorobiphenyl (Surr) Lab Sample ID: LCSD 440-21 Matrix: Water Analysis Batch: 218306 Analyte Aroclor 1016 Aroclor 1260 Surrogate	8586/5-A		Spike Added 4.00	Result 2.53		Unit			Prep T Prep I %Rec. Limits 39 - 145	ype: To Batch: 2	tal/NA

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Water

Water

Water

Water

Matrix

Water

Water

Water

Water

**Client Sample ID** 

ArroyoSimi\_20141113

Lab Control Sample Dup

Lab Control Sample

Method Blank

**Client Sample ID** 

Method Blank

ArroyoSimi\_20141113

Lab Control Sample Dup

Lab Control Sample

GC/MS Semi VOA Prep Batch: 218399

440-93180-1

LCS 440-218399/2-A

MB 440-218399/1-A

Lab Sample ID

LCS 440-218399/2-A

LCSD 440-218399/3-A

MB 440-218399/1-A

GC Semi VOA

440-93180-1

LCSD 440-218399/3-A

Analysis Batch: 218473

Method

525.2

525.2

525.2

525.2

Method

525.2

525.2

525.2

525.2

#### 218399 218399 218399 218399 218399 10

Prep Batch

Prep Batch

# Analysis Batch: 218306

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-93180-1	ArroyoSimi_20141113	Total/NA	Water	608	218586
LCS 440-218586/4-A	Lab Control Sample	Total/NA	Water	608	218586
LCSD 440-218586/5-A	Lab Control Sample Dup	Total/NA	Water	608	218586
MB 440-218586/1-A	Method Blank	Total/NA	Water	608	218586

#### Prep Batch: 218586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-93180-1	ArroyoSimi_20141113	Total/NA	Water	608	
LCS 440-218586/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 440-218586/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-218586/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 440-218586/5-A	Lab Control Sample Dup	Total/NA	Water	608	
MB 440-218586/1-A	Method Blank	Total/NA	Water	608	

#### Analysis Batch: 218656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-93180-1	ArroyoSimi_20141113	Total/NA	Water	608	218586
LCS 440-218586/2-A	Lab Control Sample	Total/NA	Water	608	218586
LCSD 440-218586/3-A	Lab Control Sample Dup	Total/NA	Water	608	218586
MB 440-218586/1-A	Method Blank	Total/NA	Water	608	218586

#### **Metals**

#### Analysis Batch: 215947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-93180-1	ArroyoSimi_20141113	Total Recoverable	Water	SM 2340B	

**TestAmerica** Irvine

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

# Glossary

Client: Haley & Project/Site: Bo	د Aldrich, Inc. oeing SSFL outfalls	TestAmerica Job ID: 440-93180-1	
Glossary			
Abbreviation	These commonly used abbreviations may or may not be present in this report.		
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis		
%R	Percent Recovery		5
CFL	Contains Free Liquid		-37
CNF	Contains no Free Liquid		
DER	Duplicate error ratio (normalized absolute difference)		
Dil Fac	Dilution Factor		
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample		
DLC	Decision level concentration		
MDA	Minimum detectable activity		8
EDL	Estimated Detection Limit		
MDC	Minimum detectable concentration		9
MDL	Method Detection Limit		
ML	Minimum Level (Dioxin)		10
NC	Not Calculated		
ND	Not detected at the reporting limit (or MDL or EDL if shown)		
PQL	Practical Quantitation Limit		
QC	Quality Control		
RER	Relative error ratio		
RL	Reporting Limit or Requested Limit (Radiochemistry)		
RPD	Relative Percent Difference, a measure of the relative difference between two points		
TEF	Toxicity Equivalent Factor (Dioxin)		
TEQ	Toxicity Equivalent Quotient (Dioxin)		

# **Certification Summary**

#### Laboratory: TestAmerica Irvine

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

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

\* Certification renewal pending - certification considered valid.

**TestAmerica** Irvine

Client Name/Address:			Project	-				ANALY:	ANALYSIS REQUIRED		Field Readings	Meter serial #	
Haley & Aldrich 9040 Friars Road Sutte 220 San Diego, CA 92108-5660	X 88		Boeing-SSFL NPDES Quanterly Arroyo Siml-Frontler Park	ar Park				<u>,000</u> ≁,			Field readings: (Include units) Turne of readings $0020$		Г
Test America Contact: Debby Wilson	Debby Wils	ĕ					<u> </u>	* '(905			PH 2.71 PH HON		
Project Manager. Nancy Gardiner	y Gardiner		Phone Number:			[	(6 565)				Temp <u>3.57</u> ccrr Velocity 0.0 friesc		
Sampler: Silling Drught	高高		Fleid Manager. Jeff Bannon 818.350.7340, 818.414.5508(cell)	(œil)		£00900 88 869	(808) 	DE, 4,4-00T tane, Dieldrin, To 		<u>.</u>	Field reactings acc checked by: 50 / DE DetarTime: 11 - 13 / 14 CA24	20	<u>,                                     </u>
Sample Sample Description Matrix	Container Type	# of Cont	Sample I.D.	Sempling Dete/Time	Premissative Bottle #	1		CHING			Comments	1	r n
M	1L Poly	-		12/13/14		×	$\left  - \right $						T
M	1L, Amber	~	ArroyoSimi_2014		None 24, 28	+	×			+			- <u>r</u> -
3 3	1L Amber	~		(Fi)20	╈	ĺ	×  						Τ
	IL Amper	N			T		$\left  \right $						Т
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							$\left  \cdot \right $						П
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							+						-
Dallharith Dal		Oata/Time.			Received Bv			Data/Time:	5-mn_1	Turn-eround time: (Check)			-i-
L'Lanel Ear	× Ea		h1/21/11	1015	Le.	eith	1	1/13/14 1	0	24 Hour, 72 Hour, 48 Hour, 5 Day,	10 Dayr Namwt X		
Reproduzitor By	1/1	Dete/Time:	1	12: 15	Received By	<u>ک</u>		Deta/Time*	Sample Integ	Sample Integrity, (Check) Sample Integrity, (Check) (muct On ice'			
Refinquished By	0	Data/Time:			Received B	L'ALA	1-	Date/Time:	Data F	Data Requirementa, (Chack) No Level IV <sup>,</sup> All Level IV <sup>,</sup> .	NPDES Laval N		
								11/13,	11/13/19 13.15	15			
			18-64 - 3.3	3, 0/2, 4° (	ر ۋ (								
		,			)								

CHAIN OF CUSTODY FORM

11/28/2014

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12

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440-93180 Chain of Custody

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 93180 List Number: 1

Creator: Gonzales, Steve

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

Job Number: 440-93180-1

List Source: TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-94939-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

### I. INTRODUCTION

Task Order Title:	Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order:	1272.003H.01 001
Sample Delivery Group:	440-94939-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

#### Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
ArroyoSimi_20141203	440-94939-1	N/A	Water	12/3/2014 8:50:00 AM	SM2340

### II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice and within the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ . According to the case narrative for this SDG, the sample container was received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were intact.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

## Data Qualifier Reference Table

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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

### **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

#### III. Method Analyses

#### A. EPA METHOD SM2340B—Hardness

Reviewed By: P. Meeks Date Reviewed: January 9, 2015

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

- Holding Times: The analytical holding time, six months, was met.
- Calibration: The ICV and CCV recoveries were within the control limits of 90-110%. The CRI recoveries were within the control limits of 70-130%.
- Blanks: The method blank and CCBs had no detects affecting sample results.
- Interference Check Samples: Recoveries were within 80-120%.
- Blank Spikes and Laboratory Control Samples: The recoveries were within the laboratory control limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG for calcium and magnesium. As the sample results were more than 4x the spike amount, the results were not assessed.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-," otherwise, bias was not indicated in the qualification. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples.

Following are findings associated with field QC samples:

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

# Validated Sample Result Forms: 440949391

Analysis Metho	od SM	2340							
Sample Name	ArroyoSir	mi_20141203	Matrix Ty	pe: WM		Resu	t Type: TRO	<u>G</u>	
<b>Sample Date:</b> 12/3/20	14 8:50:00 AM	Valida	tion Level:	3					
Lab Sample Name:	440-94939-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	Ν	HARDNESSCA CO3	220	0.33	0.17	mg/L			



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: 440-94939-1

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

## For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

## Attn: Nancy Gardiner

Debby Wilson

Authorized for release by: 12/17/2014 2:32:43 PM

Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@testamericainc.com

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

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

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



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Method Summary	6
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Receipt Checklists	13

## Sample Summary

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Arroyo Simi-Frontier TestAmerica Job ID: 440-94939-1

ab Sample ID	Client Sample ID	Matrix	Collected	Received
40-94939-1	ArroyoSimi_20141203	Water	12/03/14 08:50	12/03/14 21:00

#### Job ID: 440-94939-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-94939-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 12/3/2014 9:00 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3° C.

#### Metals

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

## **Client Sample Results**

	Client	Sample R	esults					1
Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDE	S Arroyo Simi-Frontier				TestAme	rica Job ID: 440-	94939-1	2
Client Sample ID: ArroyoS	imi_20141203				Lab San	nple ID: 440-9	4939-1	
Date Collected: 12/03/14 08:50 Date Received: 12/03/14 21:00						Matrix	x: Water	
Method: SM 2340B - Total Hard	dness (as CaCO3) by calculat Result Qualifier	tion - Total Red RL	coverable MDL Unit	D	Prepared	Analyzed	Dil Fac	5
Hardness, as CaCO3	220	0.33	0.17 mg/L			12/15/14 16:43	1	6
								8
								9

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

TestAmerica Job ID: 440-94939-1

Mathad	Nothed Description	Brotocol	Loboratory
Method	Method Description	Protocol	Laboratory
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV

#### Protocol References:

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

#### Laboratory References:

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

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

Client Sample	ID: Arroy	oSimi_2014′	1203					Lab Samp	ole ID: 44	40-94939-1
Date Collected: 12	te Collected: 12/03/14 08:50						N	Atrix: Water		
Date Received: 12	2/03/14 21:0	0								
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Analysis	SM 2340B		1			221687	12/15/14 16:43	DT	TAL IRV

#### Laboratory References:

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

# **QC Association Summary**

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

TestAmerica Job ID: 440-94939-1

Metals

Anal	ysis	Batch:	221687
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Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-94939-1	ArroyoSimi_20141203	Total Recoverable	Water	SM 2340B	

## **Definitions/Glossary**

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

TestAmerica Job ID: 440-94939-1

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

## **Certification Summary**

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

#### Laboratory: TestAmerica Irvine

USDA

USEPA UCMR

Federal

Federal

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

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P330-09-00080

CA01531

06-06-15

01-31-15

**TestAmerica** Irvine

nge	Heid Marie 18,350,73	1 2 3 4 troyo Simi-Fro troyo Simi-Fro
sample	laid Maneger: Jeff Bennon 18.350,7340, 818.414.5606(cell) monoStim _2014 []3.03 88 //2./3./14	FL NPDES FF norder Park (F
nge sample ID to Arroyusimi_20141203	samping Dearth	Y     5     6     7     8     9     1       bringes: Inoping-SSFL NPDES Inoping Simi-Fronkler Park (Footnote 2 E-28 with effluent)     9     1
	Threader By Hardness as CaCO3	11
0/41&02	Hardiness as CaCO3	
		AVALYSIS REQUIRED
ZE 10/11/14		
440-94939 Chain of Custody	Titury and the (Crimed) Hear 72 Hear Birrisk Hear 72 Hear Barrisk Hear 72 Hear Hear Chudo Hear Chudo Hear Chudo	
Custody	Velocity <b>D</b> I their Field readings CC Charcled by <u>I</u> <del>C</del> ConterTime: <u>I</u> <del>C</del> <del>S</del> <del>-</del> <u>V</u> ConterTime: <u>I</u> <del>C</del> <del>S</del> <del>S</del> <del>-</del> <u>V</u> ConterTime: <u>I</u> <del>C</del> <del>S</del>	Field Readings N Field Readings (Include units) & Time of medings <b>D T S D</b>
	nets ans only pet and haldhows must be amile. Valculy was added for c 1 R-64	og50
		2F 10-14



		-								-		 	 	-	 -	 <b>.</b>	- ,				
Meter sertal #	20. 200	20 0120	-					-/oest	ents	tes only pH and hardness must be	samples. Velochy was added for									00 [R-64	
Field Readings	Field readings: (Include units)	Time of readings	<i>لا _ کا</i>	pH		Velocity D. 1 Marc	Field readings OC	Checked by: 12-5 - 14 /0650	Comments	Foothole 2 page E-29 of the permit states only pH and hardness must be	collected at the same fime as effluent informational purposes.								10 Day:	4.11 2.300 12-64	NPDES Laval N
IRED																			11/07=00/nd Sime (Create) 4 Hour: 72 Hour - 79 Hour	Sample Intragitty: (Check)	Data Requirementa. (Check) No Lovel IV All Lovel IV
ANALYSIS REQUIRED			·			<u> </u>													Data-Time: 12/3/14 14 25 1401 - 72 Hour - 72 Hour - 72 Hour - 25 Day -	Derertime: Dec/14 2100 Served tradity (Check)	Date/Time
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										+	-		 _						Received By	Received By	Received By
											SAL HNOS					 +	-		4	2	
	tnote 2 E-26 with effluent)									Sempting Dete/Time	Bo Prati								55.4.	· 2/ , ac	
Project	Boeing-SSFL NPDES Arroyo Simi-Frontler Park (Footnote 2 E-26 with effluent)				Phone Number.		Fleid Maneger: Jeff Bannon 1949 250 7240 249 444 5500(2010			Sample I.D	ArrayoSimi_2014							4	12/3/14	12/3/14	
				son	-					f of Conc	÷								Date/Time	ste/Time'	Date/Time:
	1220	5860		Debby Wilk	cy Gardiner	,	8	555	Container	Type	1L Poly								1 E 9.	J.I.F	
Cllent Name/Address;	Haley & Aldrich 9040 Friars Road Sulte 220	San Diego, CA 92108-5860		Test America Contact: Debby Wilson	Project Manager. Nancy Gardiner	5	Sampler: P· C AL	B. Berron	Sample		M								e e	N /M	3
Cllent Nan	Haley & Aldrich 9040 Friars Road (	San Díego		Test Amer	Project Ma		Sampler:	~	Sample	Description	Arroyo Simi								Relinquished By	Relinquished By	Relinquished By

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#### Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 94939 List Number: 1

Creator: Blocker, Kristina M

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

12

List Source: TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-96485-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

### I. INTRODUCTION

Task Order Title:	Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order:	1272.003H.01 001
Sample Delivery Group:	440-96485-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

#### Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
ArroyoSimi_20141212	440-96485-1	N/A	Water	12/12/2014 1:50:00 PM	SM2340

### II. Sample Management

No anomalies were observed regarding sample management. Sample receipt temperatures were noted to be 3.6 and 0.5. As the sample was not noted to be frozen or damaged, no qualification was required. The sample in this SDG was received at the laboratory on ice. According to the case narrative for this SDG, the sample container was received intact and properly preserved. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were intact.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

# Data Qualifier Reference Table

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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

### **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

#### **III. Method Analyses**

#### A. EPA METHOD SM2340B—Hardness

Reviewed By: P. Meeks Date Reviewed: January 9, 2015

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

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

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

# Validated Sample Result Forms: 440964851

Analysis Metho	od SM	12340							
Sample Name	ArroyoSir	mi_20141212	Matrix Ty	pe: WM		Resu	t Type: TRO	3	
<b>Sample Date:</b> 12/12/20	014 1:50:00 PM	I Valida	tion Level:	3					
Lab Sample Name:	440-96485-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	Ν	HARDNESSCA CO3	290	0.33	0.17	mg/L			



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: 440-96485-1

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

## For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

## Attn: Nancy Gardiner

Debby Wilson

Authorized for release by: 12/24/2014 9:07:48 AM

Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@testamericainc.com

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

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

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



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## Sample Summary

Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Arroyo Simi-Frontier TestAmerica Job ID: 440-96485-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-96485-1	ArroyoSimi_20141212	Water	12/12/14 13:50	12/12/14 16:39

#### Job ID: 440-96485-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-96485-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/12/2014 4:39 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were  $0.5^{\circ}$  C and  $3.6^{\circ}$  C.

#### Metals

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

## **Client Sample Results**

		Client	Sample R	esults	5					
Client: Haley & Aldrich, Inc. Project/Site: Boeing SSFL NPDES Arroyo Simi-Frontier							TestAmerica Job ID: 440-96485-1			
Client Sample ID: ArroyoSimi_20141212 Date Collected: 12/12/14 13:50 Date Received: 12/12/14 16:39						Lab Sample ID: 440-96485-1 Matrix: Water				
– Method: SM 2340B - Total Har Analyte		by calculati Qualifier	on - Total Red RL		e Unit	D	Prepared	Analyzed	Dil Fac	5
Hardness, as CaCO3	290		0.33		mg/L			12/23/14 13:24	1	6
										8
										9

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

TestAmerica Job ID: 440-96485-1

5
6
8
9

TestAmerica Irvine

Method	Method Description	Protocol	Laboratory
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV

#### Protocol References:

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

#### Laboratory References:

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

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

Client Sample	ID: Arroy	oSimi_2014′	1212					Lab Samp	ole ID: 44	40-96485-1
Date Collected: 12	2/12/14 13:	50							N	Aatrix: Water
Date Received: 12	2/12/14 16:3	39								
Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Analysis	SM 2340B		1			221687	12/23/14 13:24	DT	TAL IRV

#### Laboratory References:

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

RL

0.10

0.020

Spike

Added

2.50

2.50

MDL Unit

0.050 mg/L

0.010 mg/L

LCS LCS

2.36

2.38

Result Qualifier

D

Unit

mg/L

mg/L

Prepared

12/19/14 14:09

12/19/14 14:09

%Rec

95

95

D

MB MB Result Qualifier

ND

ND

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-225839/1-A

Lab Sample ID: LCS 440-225839/2-A

Matrix: Water

Analyte

Calcium

Analyte

Calcium

Magnesium

Magnesium

Matrix: Water

Analysis Batch: 226193

Analysis Batch: 226193

Analyzed

12/22/14 11:50

12/22/14 11:50

%Rec.

Limits

85 - 115

85 - 115

# **Client Sample ID: Method Blank** Prep Type: Total Recoverable Prep Batch: 225839 Dil Fac 1 1

**Client Sample ID: Lab Control Sample** 8 Prep Type: Total Recoverable Prep Batch: 225839 **Client Sample ID: Matrix Spike** Prep Type: Total Recoverable

Lab Sample ID: 440-96219-G-2-B MS Matrix: Water

Analysis Batch: 226193									Prep B	atch: 225839
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Calcium	52		2.50	54.2	BB	mg/L		104	70 - 130	
Magnesium	8.9		2.50	11.4		mg/L		101	70 - 130	

Lab Sample ID: 440-96219-G-	2-C MSD						<b>Client S</b>	ample IE	): Matrix S	pike Dup	licate
Matrix: Water								Prep	Type: Tota	I Recove	erable
Analysis Batch: 226193									Prep	Batch: 2	25839
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	52		2.50	54.4	BB	mg/L		113	70 - 130	0	20
Magnesium	8.9		2.50	11.2		mg/L		95	70 - 130	1	20

# **QC Association Summary**

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

TestAmerica Job ID: 440-96485-1

#### Metals

#### Analysis Batch: 221687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96485-1	ArroyoSimi_20141212	Total Recoverable	Water	SM 2340B	

# **Definitions/Glossary**

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

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	
CFL	Contains Free Liquid	
CNF	Contains no Free Liquid	
DER	Duplicate error ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision level concentration	
MDA	Minimum detectable activity	3
EDL	Estimated Detection Limit	
MDC	Minimum detectable concentration	9
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	1
NC	Not Calculated	_
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative error ratio	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	

# **Certification Summary**

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

#### Laboratory: TestAmerica Irvine

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

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

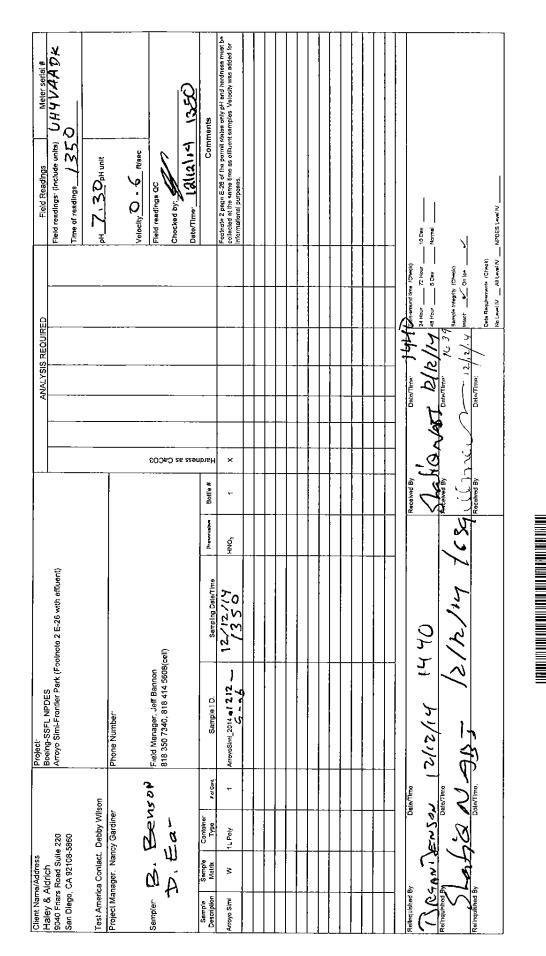
\* Certification renewal pending - certification considered valid.

ANALYSIS REGUIRED	• * CTCOJ	Provensken Dotte #	Image: Second By     Data frame       Realand By     Data frame       Realand By     Data frame       Image: Second By     Data frame	
Project <sup>.</sup> Beolog.S.F.L. NPDES Arrayo Simi-Frantier Park (Foolnolo 2 E-26 with efficient)	Phone Number Field Manager. Jeff Barmon 818 350 7340, 818 414 5608(ceff)	Sample 10. Bernaling Coentime Annostimi, 2014 at 2.12 - 12/12/14 2011 at 2.12 - 12/12/14	12/12/12/ 15/14/0 12/12/12/	T P
uo	Project Manager Namy Garciner Sampler B., BENSON	Sample Sample Contenter recent Destriction Watt The recent	Rangistened By DeskTime Reinguistical By DeskTime Reinguistical By DeskTime	* please remove the word "grab" from the sample It

# CHAIN OF CUSTODY FORM

Test America Version 1 October 2014

12/24/2014



CHAIN OF CUSTODY FORM

Test America Version 1 October 2014

Page I of 1

12/24/2014

# 5 7 5/3 h-13

440-96485 Chain of Custody

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1.

1.3 6/05

8 9 10

1

**12** 13

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 96485 List Number: 1

Creator: Blocker, Kristina M

Answer	Comment
True	
N/A	
True	
N/A	
True	
True	
N/A	
	True True True True True True True True

13

Job Number: 440-96485-1

List Source: TestAmerica Irvine



# DATA VALIDATION REPORT

Haley & Aldrich Boeing SSFL Stormwater

SAMPLE DELIVERY GROUP: 440-97153-1

Prepared by

MEC<sup>x</sup> 12269 East Vassar Drive Aurora, CO 80014

# I. INTRODUCTION

Task Order Title:	Haley & Aldrich Boeing SSFL Stormwater
Contract Task Order:	1272.003H.01 001
Sample Delivery Group:	440-97153-1
Project Manager:	K. Miller
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica Irvine

## Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
ArroyoSimi_20141217	440-97153-1	N/A	Water	12/17/2014 9:45:00 AM	SM2340

# II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory on ice below the temperature limits of  $4^{\circ}C \pm 2^{\circ}C$ , at  $1^{\circ}C$ ; however, as the sample was not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the sample container was received intact and properly preserved, as applicable. The COC was appropriately signed and dated by field and laboratory personnel. Custody seals were not utilized as the samples were delivered by courier.

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

# Data Qualifier Reference Table

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

# **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*  , *	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*11, *111	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

# III. Method Analyses

# A. EPA METHOD SM2340B—Hardness

Reviewed By: P. Meeks Date Reviewed: January 12, 2015

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

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

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

# Validated Sample Result Forms: 440971531

Analysis Metho	od SM	2340							
Sample Name	ArroyoSir	mi_20141217	Matrix Ty	pe: WS		Resu	t Type: TR	Ĵ	
<b>Sample Date:</b> 12/17/2	014 9:45:00 AM	1 Valida	tion Level:	3					
Lab Sample Name:	440-97153-1								
Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	Т	HARDNESSCA CO3	280	0.33	0.17	mg/L			



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: 440-97153-1 Client Project/Site: Arroyro Simi-Frontier Park

# For:

Haley & Aldrich, Inc. 5333 Mission Center Road Suite 300 San Diego, California 92108

# Attn: Nancy Gardiner

Debby Wilson

Authorized for release by: 1/5/2015 6:41:56 PM

Debby Wilson, Manager of Project Management (949)261-1022 debby.wilson@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.

LINKS **Review your project** results through **Total** Access Have a Question? Ask-The Expert Visit us at: www.testamericainc.com

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# Sample Summary

Matrix

Water

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

Client Sample ID

ArroyoSimi\_20141217

Lab Sample ID

440-97153-1

Collected

12/17/14 09:45

440 07452 4	
440-97153-1	2
	3
Received	
12/17/14 13:36	4
	5
	6
	7
	8
	9
	10
	11
	12
	13

#### Job ID: 440-97153-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-97153-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 12/17/2014 1:36 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

#### Metals

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

# **Client Sample Results**

5

#### Client Sample ID: ArroyoSimi\_20141217 Lab Sample ID: 440-97153-1 Date Collected: 12/17/14 09:45 Matrix: Water Date Received: 12/17/14 13:36 Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable MDL Unit Analyte Result Qualifier RL D Prepared Analyzed Dil Fac 0.33 Hardness, as CaCO3 280 0.17 mg/L 12/31/14 12:16 1

#### Client: Haley & Aldrich, Inc. Project/Site: Arroyro Simi-Frontier Park

Method Description

Total Hardness (as CaCO3) by calculation

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

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

Method

SM 2340B

Protocol References:

Laboratory References:

Laboratory

TAL IRV

Protocol

SM

5	
6	
8	
9	

# Client Sample ID: ArroyoSimi\_20141217 Date Collected: 12/17/14 09:45 Date Received: 12/17/14 13:36

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			Ľ
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total Recoverable	Analysis	SM 2340B		1			221687	12/31/14 12:16	DT	TAL IRV	

#### Laboratory References:

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

Lab Sample ID: MB 440-226721/1-A

Matrix: Water

Analyte

Calcium

Magnesium

Analysis Batch: 226974

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyzed

12/24/14 17:12

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

# **Client Sample ID: Method Blank** Prep Type: Total Recoverable Prep Batch: 226721 Dil Fac 1

## 12/24/14 17:12 1 **Client Sample ID: Lab Control Sample** 8 le 1

Matrix: Water						Prep	Type: Total	Recoveral
Analysis Batch: 226974							Prep B	atch: 2267
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Calcium	2.50	2.63		mg/L		105	85 _ 115	
<i>l</i> agnesium	2.50	2.51		mg/L		100	85 <sub>-</sub> 115	
	Analysis Batch: 226974 Analyte Calcium	Analysis Batch: 226974 Spike Analyte Added Calcium 2.50	Analysis Batch: 226974 Spike LCS Added Result Calcium 2.50 2.63	Analysis Batch: 226974 Spike LCS LCS Added Result Qualifier Calcium 2.50 2.63	Analysis Batch: 226974 Spike LCS LCS Added Result Qualifier Unit Calcium 2.50 2.63 2.63	Analysis Batch: 226974           Spike         LCS         LCS           Analysis Batch: 226974         Added         Result         Qualifier         Unit         D           Calcium         2.50         2.63         mg/L         Maily         Maily	Analysis Batch: 226974 Spike LCS LCS Added Result Qualifier Unit D %Rec Calcium 2.50 2.63 mg/L 105	Analysis Batch: 226974           Spike         LCS         LCS         Mailysis         Mailysis

RL

0.10

0.020

MDL Unit

0.050 mg/L

0.010 mg/L

D

Prepared

12/24/14 10:59

12/24/14 10:59

MB MB Result Qualifier

ND

ND

#### Lab Sample ID: 440-97240-H-1-B MS Matrix: Water

Lab Sample ID: LCS 440-226721/2-A

Analysis	Batch:	226974	

Analysis Batch: 226974									Prep	Batch: 226721
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Calcium	520		2.50	513	BB	mg/L		-142	70 - 130	
Magnesium	260		2.50	248	BB	mg/L		-361	70 <sub>-</sub> 130	

Lab Sample ID: 440-97240-H-1	Client Sample ID: Matrix Spike Duplicat										
Matrix: Water					Prep	Type: Tota	I Recov	erable			
Analysis Batch: 226974									Prep I	Batch: 2	26721
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	520		2.50	528	BB	mg/L		440	70 - 130	3	20
Magnesium	260		2.50	257	BB	mg/L		-15	70 - 130	3	20

#### **Metals**

#### Analysis Batch: 221687

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-97153-1	ArroyoSimi_20141217	Total Recoverable	Water	SM 2340B	

#### Client: Haley & Aldrich, Inc. Project/Site: Arroyro Simi-Frontier Park

# Glossary

Client: Haley & Aldrich, Inc. TestAmerica Job ID: 440-97153 Project/Site: Arroyro Simi-Frontier Park						
Glossary	Blossary					
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		R			
CFL	Contains Free Liquid		5			
CNF	Contains no Free Liquid					
DER	Duplicate error ratio (normalized absolute difference)					
Dil Fac	Dilution Factor					
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample					
DLC	Decision level concentration					
MDA	Minimum detectable activity		6			
EDL	Estimated Detection Limit					
MDC	Minimum detectable concentration		9			
MDL	Method Detection Limit	_				
ML	Minimum Level (Dioxin)	<b>[</b> /	10			
NC	Not Calculated	_				
ND	Not detected at the reporting limit (or MDL or EDL if shown)					
PQL	Practical Quantitation Limit					
QC	Quality Control					
RER	Relative error ratio					
RL	Reporting Limit or Requested Limit (Radiochemistry)					
RPD	Relative Percent Difference, a measure of the relative difference between two points					
TEF	Toxicity Equivalent Factor (Dioxin)					
TEQ	Toxicity Equivalent Quotient (Dioxin)					

# **Certification Summary**

#### Client: Haley & Aldrich, Inc. Project/Site: Arroyro Simi-Frontier Park

#### Laboratory: TestAmerica Irvine

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

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

\* Certification renewal pending - certification considered valid.



Client Name/Address'	Project		
Haley & Aldrich	Boeing-SSFL NPDES		
9040 Fnars Road Suite 220	Arroyo Simi-Frontier Park (Footnote 2 E-26 with effluent)		
3411 Mikdo, CA 32 100-3000		<u></u>	Time of readings
Test America Contact: Debby Wilson			H 7.18 pH unk
Project Manager Nancy Gardiner	Phone Number.		Tomp 10.41 Cor
Sampler & Benson			Velocity <u>O. 2</u> ft// ft/sec
D. Ear	818.350 7340, 818.414 5608(cell)	2 	Checked by AN PAULER RICE
Sample Sample Container	Samolo I Samolo Preservative		Date/Time: 12-17-14 /07-06 Comments
Altra M	1-Grub 12/1-111 10945	2 X	Footpate 2 page E-26 of the permit states only pH and hardness must be collected at the same time as effluent samples. Velocity was added for informational numbers
Relinquished By AV1744 . Date/Time		Received BY Datem Pro- 1 Jun-around time (Check)	
не 12-17	1.14/133	Stable ABT 10:30 Lather - 2 Have - 10	10 Day Normal 20
Resultatives By / Dated Time	12-12-14 /1851	μ.	
Reinquisitied By Date (1) (m) Start Inte		Received By Check OntestTime Instant On Lea	
		Na Level IVAll Level IV	MPDES Lavel IV
=		The de hand	102 1
	440-97153 Chain of Custody	2012 D - 2	
		CT 0 0110	ct -
		、 二 し ジ	

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		Resignation of PANTPAT USE Constitutes		Sample Earnple Container Description Matrix Type avisual Annoya Stim W IL Pay 1	sampler B. Benson D. Ear	Test America Contact: Debby Witson Project Manager Nuncy Gardiner	Client Name/Address* Haley & Aldrich 9040 Frans Road Surle 220 San Diego, CA 92108-5860	
440-97153 Cham of Custody		17.14/1030 t 12-17-14 /1356	tal factor	Sample ID         Sample Description         Innovation           Amove:unit_2014 12 17         The sample Description         Image: Sample Description         Image: Sample Description	Field Manager: Jeff Bannon 518,350 7340, 818,414 5606(cell)	Phone Number,	Project Boeing-SSFL NPDES Arrayo Smi-Franker Park (Footnate 2 E-26 with effluent)	
· p	nTC shaft	$\label{eq:rescaled_rescale} \begin{array}{ c c c c c c c c c c c c c c c c c c c$			nesi at CaCO3		AVALYSIS REQUIRED	
·0 P 73	shahanaat ana	Tyminened the (Creat) 24 Hau <u>7</u> 2 Hae <u>10 Dey</u> 44 Hau <u>50 Pri herma</u> <u>19</u> 45 Januar <u>10</u> 46 Januar <u>70</u> 46 Januar <u>10</u> 46 Januar <u>10</u> 47 Januar <u>10</u> 48 Januar <u>10</u> 49 Januar <u>10</u> 49 Januar <u>10</u> 49 Januar <u>10</u> 49 Januar <u>10</u> 40 Janu		Comments Feature 2 page E-26 of the permit statue only pri and hardmass must be collected at the same time as attuent samples. Valocity was added for Informational surposes	Nelocity 0. 2 Nace Field readings OC Checked by APL ANITER ALLO DesorTime 12-17. 14 10958	pH 7.18 pH unit	Field Readings Meter sensi #	

Test America Version 1 October 2014 CHAIN OF CUSTODY FORM

1/5/2015

Page 1 of 1

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

#### Login Number: 97153 List Number: 1

Creator: Soderblom, Tim

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

List Source: TestAmerica Irvine

# **APPENDIX F**

Fourth Quarter 2014 Reasonable Potential Analysis (RPA) Summary Tables

#### Notes:

- 1. The following Reasonable Potential Analysis (RPA) provides the analytical results as performed by the procedures outlined in *Reasonable Potential Analysis Methodology Technical Memo* (MWH and Flow Science, 2006).
- 2. The monitoring data set utilized to conduct the RPA consists of all applicable and relevant data from the present reporting quarter.
- 3. As directed by the CTR and the Regional Water Control Board 2,3,7,8-TCDD (Dioxin) values are to be expressed in NPDES permitting and this RPA as TCDD Total Equivalence units (TEQs). A TCDD TEQ is determined by multiplying each of the seventeen dioxin and furan congeners by their respective toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF), and summing the results of those products. For the purposes of this RPA, the resulting TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 37, of the NPDES Permit Effective June 3, 2010.
- 4. In calculating the average, standard deviation, coefficient of variation, and projected maximum effluent concentration (99/99), one-half of the MDL was used for concentration results reported as ND. Data reported with qualifiers were not included in this RPA as Boeing believes qualified data are not "appropriate, valid, relevant, (nor) representative"<sup>1</sup> of storm water constituents and are therefore not utilized in its RPA.
- 5. All of the following abbreviations and/or notes may not occur on every table.

>=	Greater than or equal to	
*	Freshwater aquatic life criteria for metals are expressed as a function of	
	total hardness (mg/L) in the water body. The equations are provided in the	
	CTR, (US EPA, 2000). Values displayed correspond to a total hardness of	
	100 mg/l.	
μg/L	Concentration units, micrograms per liter	
All Data Qualified	All available monitoring data are qualified and no statistical analysis is	
	performed.	
Annually	The 2010 NPDES Permit requires annual monitoring.	
Available Data < DL	All available monitoring data that are not qualified are below detection	
	limits.	
В	Background	
С	Concentration	
CCC	Criterion Continuous Concentration	
CMC	Criterion Maximum Concentration	
CTR	California Toxics Rule	
CV	Coefficient of Variation	
DL	Detection Limit	
EPA TSD	EPA's Technical Support Document for Water Quality Based Toxics	
	Control, (see references).	
Fibers/L	Units for asbestos concentration, fibers per liter	
Definition of Acronyms, Abbreviations, and Terminology Used (Continued)		

Definition of Acronyms, Abbreviations, and Terminology Used

<sup>1</sup> SIP, p. 5.

ННО	Human Health criteria for consumption of Organisms only
HH W&O	Human Health criteria for consumption of Water and Organisms
MEC	Maximum Observed Effluent Concentration
Min	Minimum
NA	Not Applicable
Narrative	Water quality criteria are expressed as a narrative objective rather than a
	numeric objective, and therefore are not part of the statistical RPA
	calculations.
None	No available CTR or Basin Plan criteria.
pH Dependent	CTR Criteria are based on pH.
Once Per Discharge	The 2010 NPDES Permit requires monitoring once per discharge event.
Qualified Data	Data qualifier definitions are: (a) J- The reported result is an estimate. The
	value is less than the minimum calibration level but greater than the
	estimated detection limit (EDL), (b) U/UJ- The analyte was not detected in
	the sample at the detection limit /estimated detection limit (EDL), (c) B -
	Analyte found in sample and associated blank, and (d) DNQ- Detected Not
	Quantified.
Reserved	EPA has reserved the CTR criteria.
RPA	Reasonable Potential Analysis
SIP	
SIF	The State Water Resources Control Board "Policy for Implementation of
	Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries
	of California," (see references).
Tot	Total

#### Priority Pollutant RPA Column Explanation

CTR	Provides CTR constituent reference number.				
Constituent	Provides CTR constituent common name.				
Units	Provides the data set's concentration units as referenced by 2010 NPDES				
	Permit.				
MEC	Provides the outfall monitoring group's maximum value from the applicable				
	data set.				
CV	Equal to the standard deviation divided by the average of the applicable				
	data set. If the number of samples is less than 10, the CV is assumed to be				
	0.6.				
	icable water quality criteria.				
CTR Criteria	Concentration criteria as listed in the CTR.				
CMC = Acute	The Freshwater CMC is listed as the acute concentration criterion.				
CCC = Chronic	The Freshwater CCC is listed as the chronic concentration criterion.				
HH W&O (Not App)	The HH W&O is deemed not applicable based on past Regional Board				
	RPAs.				
HH O = HH The HH O is listed as the CTR human health concentration criteri					
Basin Plan Criteria	Applicable Basin Plan Criteria are listed for the Los Angeles River and/or				
	Calleguas Creek watersheds.				
C = Lowest Criteria	The comparison concentration (C) is equal to the lowest criterion for a				
	constituent based on the CMC, CCC, HH O, and Basin Plan Criteria listed.				
Step 2 defines the applicable data set.					
Is Effluent Data	If all data is qualified, then NO. If not, then YES.				
Available					
Priority Pollutant RPA Column Explanation (Continued)					
Step 3 determines the maximum observed effluent concentration.					

Was Constituent	If the constituent was detected, then YES. If all monitoring data are non-				
Detected in Effluent Data	detect or qualified then NO.				
Are all DL >C	If constituent was detected in effluent data then not applicable (NA). If				
	constituent was not detected and all analysis detection limits are greater				
	than the comparison concentration, then YES, if not then NO.				
If $DL > C$ , $MEC = Min$	If the previous cell answer was yes, then the MEC is equal to the minimum				
(DL)	detection limit. If not, then NA.				
Step 4 compares the MEC	Step 4 compares the MEC to the lowest applicable water quality criteria.				
MEC >= C	If the MEC is greater than or equal to the comparison concentration then				
	YES, if not then NO.				

Note: Steps 5 and 6 of the Priority Pollutant RPA do not apply to Boeing SSFL because the Regional Board gives no consideration for receiving water background constituent concentrations. Furthermore, Boeing SSFL defers the application of best professional judgment in Step 7 and final determination of reasonable potential in Step 8 to the Regional Board Staff.

Non-priority Pollutant RPA Column Explanation

Non phone rollatant Ri A	
Constituent	Provides the Non Priority Pollutant constituent common name
Monitoring	Provides the 2010 NPDES Permit directed monitoring frequency
Units	Provides the data set's concentration units as referenced by 2009 NPDES
	Permit
Number of Samples	Provides the number of available samples that are not qualified
MEC	Provides the outfall monitoring group's maximum value from the applicable
	data set
CV	Equal to the standard deviation divided by the average of the applicable
	data set. If the number of samples is less than 10, the CV is assumed to be
	0.6.
Multiplier	Utilizes the EPA's TSD calculation to determine multiplier for which the
	maximum effluent concentration is calculated. (MWH and Flow Science,
	2006, or EPA TSD, 1991)
Projected Maximum	Utilizes the product of the multiplier and the MEC as an estimate for the
Effluent Concentration	projected maximum effluent concentration.
Dilution Ratio	The Regional Board allocates no dilution ratio to Boeing SSFL.
Background	The Regional Board allocates no background concentration to Boeing
Concentration	SSFL.
Projected Maximum	The Regional Board estimates the projected maximum receiving water
Receiving Water	concentration as equal to the projected maximum effluent concentration.
Concentration	
Step 1, Determine Water	The water quality objective is based on appropriate Basin Plan criteria as
Quality Objectives	noted in the Reasonable Potential Analysis Methodology Technical Memo.
BU – Beneficial Use	This is the Regional Board's Basis for determining if reasonable potential
Protection, NC – Human	should be evaluated for a non-priority pollutant.
Non-carcinogen, AP-	
Aquatic Life Protection,	
TMDL – Total Maximum	
Daily Load	
Nata: Daaing CCEL has as	mploted appropriate statistical calculations, but defore the application of host

Note: Boeing SSFL has completed appropriate statistical calculations, but defers the application of best professional judgment and the final determination of reasonable potential to the Regional Board Staff.

#### References:

- 1. Los Angeles Regional Water Quality Control Board, "Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan)." June 13, 1994.
- 2. MWH and Flow Science, "Reasonable Potential Analysis Methodology Technical Memo- Version 1, Final, Santa Susan Field Laboratory, Ventura County, California." April 28, 2006.
- 3. State Water Resources Control Board, "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (SIP)" Resolution No. 2005-0019, February 24, 2005.
- 4. US EPA, 40CFR part 131, Water Quality Standards; Establishment of numeric Criteria for Priority Toxic Pollutants for the State of California,(CTR) Federal Registry, 2011, pp. 496 - 507
- 5. US EPA, "Technical Support Document for Water Quality-based Toxics Control." EPA/505/2-90-001, PB-91-127415, March 1991.

						Step 1: Water Qual	ity Criteria, Dete	rmine C			Step 2		Step 3		Step 4
						CTR CRITE			Basin Plan		ls	Was Constituent	Are all		
-					Fres	hwater	Human	Health		C = Lowest	Effluent	Detected in	Detection	If $DL > C$ ,	MEC >= C
CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
001	Antimony	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>14</td><td>4,300</td><td></td><td>6</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	14	4,300		6	Yes	No	No	NA	No
002	Arsenic	ug/L	All Data Qualified	0.60	340	150	NONE	NONE	50	50	No	No	No	NA	No
003	Beryllium	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>4</td><td>4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	4	4	Yes	No	No	NA	No
004	Cadmium	ug/L	Available Data <dl< td=""><td>0.60</td><td>4.3</td><td>2.2</td><td>Narrative</td><td>Narrative</td><td>5</td><td>2.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	4.3	2.2	Narrative	Narrative	5	2.2	Yes	No	No	NA	No
005a	Chromium	ug/L	Available Data <dl< td=""><td>0.60</td><td>550</td><td>180</td><td>Narrative</td><td>Narrative</td><td>50</td><td>50</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	550	180	Narrative	Narrative	50	50	Yes	No	No	NA	No
005b	Chromium VI	ug/L	Available Data <dl< td=""><td>0.60</td><td>16</td><td>11</td><td>Narrative</td><td>Narrative</td><td>NONE</td><td>11</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	16	11	Narrative	Narrative	NONE	11	Yes	No	No	NA	No
006	Copper	ug/L	3.2	0.60	13	9	1,300	NONE	-	9	Yes	Yes	NA	NA	No
007	Lead	ug/L	Available Data <dl< td=""><td>0.60</td><td>65</td><td>2.5</td><td>Narrative</td><td>Narrative</td><td>NONE</td><td>2.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	65	2.5	Narrative	Narrative	NONE	2.5	Yes	No	No	NA	No
008	Mercury	ug/L	Available Data <dl< td=""><td>0.60</td><td>Reserved</td><td>Reserved</td><td>0.05</td><td>0.051</td><td>2</td><td>0.051</td><td>Yes</td><td>No</td><td>Yes</td><td>0.051</td><td>No</td></dl<>	0.60	Reserved	Reserved	0.05	0.051	2	0.051	Yes	No	Yes	0.051	No
009	Nickel	ug/L	Available Data <dl< td=""><td>0.60</td><td>470</td><td>52</td><td>610</td><td>4,600</td><td>100</td><td>52</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	470	52	610	4,600	100	52	Yes	No	No	NA	No
010	Selenium	ug/L	Available Data <dl< td=""><td>0.60</td><td>Reserved</td><td>5</td><td>Narrative</td><td>Narrative</td><td>50</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
011	Silver	ug/L	Available Data <dl< td=""><td>0.60</td><td>3.4</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>3.4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	No	NA	No
012	Thallium	ug/L	All Data Qualified	0.60	NONE	NONE	1.7	6.3	2	2	No	No	No	NA	No
013	Zinc	ug/L	All Data Qualified	0.60	120	120	NONE	NONE	NONE	120	No	No	No	NA	No
014	Total Cyanide	ug/L	Available Data <dl< td=""><td>0.60</td><td>22</td><td>5.2</td><td>700</td><td>220,000</td><td>200</td><td>5.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	22	5.2	700	220,000	200	5.2	Yes	No	No	NA	No
015	Asbestos	Fibers/L	Not Analyzed	0.60	NONE	NONE	7,000,000	NONE	7,000,000	7000000	No	NA	NA	NA	NA
016	TCDD TEQ_NoDNQ	ug/L	Not Analyzed	0.60	NONE	NONE	1.30E-08	1.40E-08	3.00E-08	0.00000014	No	NA	NA	NA	NA
017	Acrolein	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>320</td><td>780</td><td>NONE</td><td>780</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	320	780	NONE	780	Yes	No	No	NA	No
018	Acrylonitrile	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.059</td><td>0.66</td><td>NONE</td><td>0.66</td><td>Yes</td><td>No</td><td>Yes</td><td>0.66</td><td>No</td></dl<>	0.60	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	0.66	No
019	Benzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.2</td><td>71</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1.2	71	1	1	Yes	No	No	NA	No
020	Bromoform	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>4.3</td><td>360</td><td>NONE</td><td>360</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	4.3	360	NONE	360	Yes	No	No	NA	No
021	Carbon Tetrachloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.25</td><td>4.4</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	No	NA	No
022	Chlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>680</td><td>21,000</td><td>70</td><td>70</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	680	21,000	70	70	Yes	No	No	NA	No
023	Dibromochloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.401</td><td>34</td><td>NONE</td><td>34</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.401	34	NONE	34	Yes	No	No	NA	No
024	Chloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
025	2-Chloroethylvinylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
026	Chloroform	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Reserved</td><td>Reserved</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	No	NA	No
027	Bromodichloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.56</td><td>46</td><td>NONE</td><td>46</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.56	46	NONE	46	Yes	No	No	NA	No
028	1,1-Dichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
029	1,2-Dichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.38</td><td>99</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.38	99	0.5	0.5	Yes	No	No	NA	No
030	1,1-Dichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.057</td><td>3.2</td><td>6</td><td>3.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.057	3.2	6	3.2	Yes	No	No	NA	No
031	1,2-Dichloropropane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.52</td><td>39</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.52	39	5	5	Yes	No	No	NA	No
032	cis-1,3-Dichloropropene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>10</td><td>1,700</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No
032a	trans-1,3-Dichloropropene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>10</td><td>1,700</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	10	1,700	0.5	0.5	Yes	No	No	NA	No

						Step 1: Water Qual	ity Criteria, Dete	ermine C			Step 2		Step 3		Step 4
						CTR CRITE			Basin Plan		ls	Was Constituent	Are all		
<b></b>					Fres	hwater	Human			C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	cv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
033	Ethylbenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>3,100</td><td>29,000</td><td>700</td><td>700</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	3,100	29,000	700	700	Yes	No	No	NA	No
034	Bromomethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>48</td><td>4,000</td><td>NONE</td><td>4000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	48	4,000	NONE	4000	Yes	No	No	NA	No
035	Chloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	No	NA	No
036	Methylene chloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>4.7</td><td>1,600</td><td>NONE</td><td>1600</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	4.7	1,600	NONE	1600	Yes	No	No	NA	No
037	1,1,2,2-Tetrachloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.17</td><td>11</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.17	11	1	1	Yes	No	No	NA	No
038	Tetrachloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.8</td><td>8.85</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.8	8.85	5	5	Yes	No	No	NA	No
039	Toluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>6,800</td><td>200,000</td><td>150</td><td>150</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	6,800	200,000	150	150	Yes	No	No	NA	No
040	trans-1,2-Dichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>700</td><td>140,000</td><td>10</td><td>10</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	700	140,000	10	10	Yes	No	No	NA	No
041	1,1,1-Trichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>200</td><td>200</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
042	1,1,2-trichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.6</td><td>42</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.6	42	5	5	Yes	No	No	NA	No
043	Trichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2.7</td><td>81</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	2.7	81	5	5	Yes	No	No	NA	No
044	Vinyl chloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2</td><td>525</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	2	525	0.5	0.5	Yes	No	No	NA	No
045	2-chlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>120</td><td>400</td><td>NONE</td><td>400</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	120	400	NONE	400	Yes	No	No	NA	No
046	2,4-Dichlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>93</td><td>790</td><td>NONE</td><td>790</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	93	790	NONE	790	Yes	No	No	NA	No
047	2,4-dimethylphenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>540</td><td>2,300</td><td>NONE</td><td>2300</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	540	2,300	NONE	2300	Yes	No	No	NA	No
048	2-Methyl-4,6-dinitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>13.4</td><td>765</td><td>NONE</td><td>765</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	13.4	765	NONE	765	Yes	No	No	NA	No
049	2,4-dinitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>70</td><td>14,000</td><td>NONE</td><td>14000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	70	14,000	NONE	14000	Yes	No	No	NA	No
050	2-nitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
051	4-nitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
052	4-Chloro-3-methylphenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
053	Pentachlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>pH dependent</td><td>pH dependent</td><td>0.28</td><td>8.2</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>Yes</td><td>1</td><td>No</td></dl<>	0.60	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	Yes	1	No
054	Phenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>21,000</td><td>4,600,000</td><td>NONE</td><td>4600000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	21,000	4,600,000	NONE	4600000	Yes	No	No	NA	No
055	2,4,6-Trichlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2.1</td><td>6.5</td><td>NONE</td><td>6.5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	2.1	6.5	NONE	6.5	Yes	No	No	NA	No
056	Acenaphthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,200</td><td>2,700</td><td>NONE</td><td>2700</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1,200	2,700	NONE	2700	Yes	No	No	NA	No
057	Acenaphthylene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
058	Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>9,600</td><td>110,000</td><td>NONE</td><td>110000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	9,600	110,000	NONE	110000	Yes	No	No	NA	No
059	Benzidine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00012</td><td>0.00054</td><td>NONE</td><td>0.00054</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00054</td><td>No</td></dl<>	0.60	NONE	NONE	0.00012	0.00054	NONE	0.00054	Yes	No	Yes	0.00054	No
060	Benzo(a)Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
061	Benzo(a)Pyrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>0.2</td><td>0.049</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	0.2	0.049	Yes	No	No	NA	No
062	Benzo(b)Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
063	Benzo(g,h,i)Perylene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
064	Benzo(k)Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
065	Bis(2-Chloroethoxy) methane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
066	bis (2-Chloroethyl) ether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.031</td><td>1.4</td><td>NONE</td><td>1.4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.031	1.4	NONE	1.4	Yes	No	No	NA	No

						Step 1: Water Qual	ity Criteria, Dete	rmine C			Step 2		Step 3		Step 4
						CTR CRITE			Basin Plan		ls	Was Constituent	Are all		
					Fres	hwater	Human	Health		C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
067	Bis(2-Chloroisopropyl) Ether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,400</td><td>170,000</td><td>NONE</td><td>170000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1,400	170,000	NONE	170000	Yes	No	No	NA	No
068	bis (2-ethylhexyl) Phthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.8</td><td>5.9</td><td>4</td><td>4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1.8	5.9	4	4	Yes	No	No	NA	No
069	4-Bromophenylphenylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
070	Butylbenzylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>3,000</td><td>5,200</td><td>NONE</td><td>5200</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	3,000	5,200	NONE	5200	Yes	No	No	NA	No
071	2-Chloronaphthalene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,700</td><td>4,300</td><td>NONE</td><td>4300</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1,700	4,300	NONE	4300	Yes	No	No	NA	No
072	4-Chlorophenylphenylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
073	Chrysene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
074	Dibenzo(a,h)Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
075	1,2-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2,700</td><td>17,000</td><td>600</td><td>600</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	2,700	17,000	600	600	Yes	No	No	NA	No
076	1,3-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>400</td><td>2,600</td><td>NONE</td><td>2600</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	400	2,600	NONE	2600	Yes	No	No	NA	No
077	1,4-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>400</td><td>2,600</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	400	2,600	5	5	Yes	No	No	NA	No
078	3,3'-Dichlorobenzidine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.04</td><td>0.077</td><td>NONE</td><td>0.077</td><td>Yes</td><td>No</td><td>Yes</td><td>0.077</td><td>No</td></dl<>	0.60	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	0.077	No
079	Diethylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>23,000</td><td>120,000</td><td>NONE</td><td>120000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	23,000	120,000	NONE	120000	Yes	No	No	NA	No
080	Dimethylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>313,000</td><td>2,900,000</td><td>NONE</td><td>2900000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	313,000	2,900,000	NONE	2900000	Yes	No	No	NA	No
081	Di-n-butylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2,700</td><td>12,000</td><td>NONE</td><td>12000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	2,700	12,000	NONE	12000	Yes	No	No	NA	No
082	2,4-Dinitrotoluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.11</td><td>9.1</td><td>NONE</td><td>9.1</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.11	9.1	NONE	9.1	Yes	No	No	NA	No
083	2,6-Dinitrotoluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
084	Di-n-octylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
085	1,2-Diphenylhydrazine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.04</td><td>0.54</td><td>NONE</td><td>0.54</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.04	0.54	NONE	0.54	Yes	No	No	NA	No
086	Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>300</td><td>370</td><td>NONE</td><td>370</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	300	370	NONE	370	Yes	No	No	NA	No
087	Fluorene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,300</td><td>14,000</td><td>NONE</td><td>14000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1,300	14,000	NONE	14000	Yes	No	No	NA	No
088	Hexachlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00075</td><td>0.00077</td><td>1</td><td>0.00077</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00077</td><td>No</td></dl<>	0.60	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.00077	No
089	Hexachlorobutadiene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.44</td><td>50</td><td>NONE</td><td>50</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.44	50	NONE	50	Yes	No	No	NA	No
090	Hexachlorocyclopentadiene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>240</td><td>17,000</td><td>50</td><td>50</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	240	17,000	50	50	Yes	No	No	NA	No
091	Hexachloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.9</td><td>8.9</td><td>NONE</td><td>8.9</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	No	NA	No
092	Indeno(1,2,3-cd)Pyrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
093	Isophorone	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>8.4</td><td>600</td><td>NONE</td><td>600</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	8.4	600	NONE	600	Yes	No	No	NA	No
094	Naphthalene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
095	Nitrobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>17</td><td>1,900</td><td>NONE</td><td>1900</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	17	1,900	NONE	1900	Yes	No	No	NA	No
096	N-Nitrosodimethylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00069</td><td>8.1</td><td>NONE</td><td>8.1</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.00069	8.1	NONE	8.1	Yes	No	No	NA	No
097	n-Nitroso-di-n-propylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.005</td><td>1.4</td><td>NONE</td><td>1.4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	No	NA	No
098	N-Nitrosodiphenylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>5</td><td>16</td><td>NONE</td><td>16</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	5	16	NONE	16	Yes	No	No	NA	No
099	Phenanthrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
100	Pyrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>960</td><td>11,000</td><td>NONE</td><td>11000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	960	11,000	NONE	11000	Yes	No	No	NA	No

						Step 1: Water Qual		ermine C			Step 2		Step 3		Step 4
						CTR CRITE			Basin Plan		ls	Was Constituent	Are all		
	1	<u>г г</u>			Fres	hwater	Human		Title 22	C = Lowest Criteria	Effluent	Detected in	Detection	If DL > C, MEC = Min (DL)	MEC >= C
CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = MIN(DL)	
101	1,2,4-Trichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>70</td><td>70</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No
102	Aldrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>3</td><td>NONE</td><td>0.00013</td><td>0.00014</td><td>NONE</td><td>0.00014</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00014</td><td>No</td></dl<>	0.60	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
103	alpha-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0039</td><td>0.013</td><td>NONE</td><td>0.013</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.0039	0.013	NONE	0.013	Yes	No	No	NA	No
104	beta-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.014</td><td>0.046</td><td>NONE</td><td>0.046</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	No	NA	No
105	Lindane (gamma-BHC)	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.95</td><td>NONE</td><td>0.019</td><td>0.063</td><td>0.2</td><td>0.063</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	No	NA	No
106	delta-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
107	Chlordane	ug/L	Available Data <dl< td=""><td>0.60</td><td>2.4</td><td>0.0043</td><td>0.00057</td><td>0.00059</td><td>0.1</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.00059	No
108	4,4'-DDT	ug/L	Available Data <dl< td=""><td>0.60</td><td>1.1</td><td>0.001</td><td>0.00059</td><td>0.00059</td><td>NONE</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
109	4,4'-DDE	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00059</td><td>0.00059</td><td>NONE</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
110	4,4'-DDD	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00083</td><td>0.00084</td><td>NONE</td><td>0.00084</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00084</td><td>No</td></dl<>	0.60	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.00084	No
111	Dieldrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.24</td><td>0.056</td><td>0.00014</td><td>0.00014</td><td>NONE</td><td>0.00014</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00014</td><td>No</td></dl<>	0.60	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
112	Endosulfan I	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.22</td><td>0.056</td><td>110</td><td>240</td><td>NONE</td><td>0.056</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
113	Endosulfan II	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.22</td><td>0.056</td><td>110</td><td>240</td><td>NONE</td><td>0.056</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	0.22	0.056	110	240	NONE	0.056	Yes	No	No	NA	No
114	Endosulfan Sulfate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>110</td><td>240</td><td>NONE</td><td>240</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	110	240	NONE	240	Yes	No	No	NA	No
115	Endrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.086</td><td>0.036</td><td>0.76</td><td>0.81</td><td>2</td><td>0.036</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	0.086	0.036	0.76	0.81	2	0.036	Yes	No	No	NA	No
116	Endrin Aldehyde	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.76</td><td>0.81</td><td>NONE</td><td>0.81</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	No	NA	No
117	Heptachlor	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.52</td><td>0.0038</td><td>0.00021</td><td>0.00021</td><td>0.01</td><td>0.00021</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00021</td><td>No</td></dl<>	0.60	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.00021	No
118	Heptachlor Epoxide	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.52</td><td>0.0038</td><td>0.0001</td><td>0.00011</td><td>0.01</td><td>0.00011</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00011</td><td>No</td></dl<>	0.60	0.52	0.0038	0.0001	0.00011	0.01	0.00011	Yes	No	Yes	0.00011	No
119	Aroclor-1016	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
120	Aroclor-1221	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
121	Aroclor-1232	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
122	Aroclor-1242	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
123	Aroclor-1248	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
124	Aroclor-1254	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
125	Aroclor-1260	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
126	Toxaphene	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.73</td><td>0.0002</td><td>0.00073</td><td>0.00075</td><td>3</td><td>0.0002</td><td>Yes</td><td>No</td><td>Yes</td><td>0.0002</td><td>No</td></dl<>	0.60	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.0002	No
127	E. Coli	MPN/100ml	540	0.60	NA	NA	NA	NA	235	235	Yes	Yes	NA	NA	Yes

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	сv	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection
1, 2, 11, 18	Barium	Annual	mg/L	1	13	0.60	13.2	171.6	0	0	171.6	1	BU
1, 2, 11, 18	Biochemical Oxygen Demand (BOD 5 day)	Discharge	mg/L	2	3.7	0.60	7.4	27.38	0	0	27.38	30	BU
1, 2, 11, 18	Chloride	Discharge	mg/L	2	5.5	0.60	7.4	40.7	0	0	40.7	150	BU
1, 2, 11, 18	Fluoride	Annual	mg/L	1	0.18	0.60	13.2	2.376	0	0	2.376	1.6	BU
1, 2, 11, 18	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	2	3.5	0.60	7.4	25.9	0	0	25.9	8	BU/TMDL
1, 2, 11, 18	Oil & Grease	Discharge	mg/L	2	Available Data <dl< td=""><td>0.60</td><td>Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<></td></dl<>	0.60	Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<>	Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<>	0	0	NA	10	BU
1, 2, 11, 18	Sulfate	Discharge	mg/L	2	10	0.60	7.4	74	0	0	74	300	BU
1, 2, 11, 18	Surfactants (MBAS)	Discharge	mg/L	2	All Data Qualified	0.60	All Data Qualified	All Data Qualified	0	0	NA	0.5	BU
1, 2, 11, 18	Total Dissolved Solids	Discharge	mg/L	2	170	0.60	7.4	1258	0	0	1258	150	BU
1, 2, 11, 18	Total Settleable Solids	Discharge	ml/L	2	Available Data <dl< td=""><td>0.60</td><td>Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>0.3</td><td>BU</td></dl<></td></dl<></td></dl<>	0.60	Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>0.3</td><td>BU</td></dl<></td></dl<>	Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>0.3</td><td>BU</td></dl<>	0	0	NA	0.3	BU
1, 2, 11, 18	Total Suspended Solids	Discharge	mg/L	2	4.3	0.60	7.4	31.82	0	0	31.82	45	BU

						Step 1: Water Qua	lity Criteria, Det	ermine C			Step 2		Step 3		Step 4
						CTR CRITE	RIA		Basin Plan		ls	Was Constituent	Are all		
	1				Fres	hwater	Human			C = Lowest	Effluent	Detected in	Detection	If $DL > C$ ,	MEC >= C
CTR	Constituent	Units	MEC	cv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
001	Antimony	ug/L	All Data Qualified	0.60	NONE	NONE	14	4,300	6	6	No	No	No	NA	No
002	Arsenic	ug/L	Not Analyzed	0.60	340	150	NONE	NONE	50	50	No	NA	NA	NA	NA
003	Beryllium	ug/L	Not Analyzed	0.60	NONE	NONE	Narrative	Narrative	4	4	No	NA	NA	NA	NA
004	Cadmium	ug/L	All Data Qualified	0.60	4.3	2.2	Narrative	Narrative	5	2.2	No	No	No	NA	No
005a	Chromium	ug/L	Not Analyzed	0.60	550	180	Narrative	Narrative	50	50	No	NA	NA	NA	NA
005b	Chromium VI	ug/L	Not Analyzed	0.60	16	11	Narrative	Narrative	NONE	11	No	NA	NA	NA	NA
006	Copper	ug/L	9	0.60	13	9	1,300	NONE	NONE	9	Yes	Yes	NA	NA	No
007	Lead	ug/L	13	0.60	65	2.5	Narrative	Narrative	NONE	2.5	Yes	Yes	NA	NA	Yes
008	Mercury	ug/L	0.11	0.60	Reserved	Reserved	0.05	0.051	2	0.051	Yes	Yes	NA	NA	Yes
009	Nickel	ug/L	Not Analyzed	0.60	470	52	610	4,600	100	52	No	NA	NA	NA	NA
010	Selenium	ug/L	Not Analyzed	0.60	Reserved	5	Narrative	Narrative	50	5	No	NA	NA	NA	NA
011	Silver	ug/L	Not Analyzed	0.60	3.4	NONE	NONE	NONE	NONE	3.4	No	NA	NA	NA	NA
012	Thallium	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.7</td><td>6.3</td><td>2</td><td>2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1.7	6.3	2	2	Yes	No	No	NA	No
013	Zinc	ug/L	Not Analyzed	0.60	120	120	NONE	NONE	NONE	120	No	NA	NA	NA	NA
014	Total Cyanide	ug/L	Available Data <dl< td=""><td>0.60</td><td>22</td><td>5.2</td><td>700</td><td>220,000</td><td>200</td><td>5.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	22	5.2	700	220,000	200	5.2	Yes	No	No	NA	No
015	Asbestos	Fibers/L	Not Analyzed	0.60	NONE	NONE	7,000,000	NONE	7,000,000	7000000	No	NA	NA	NA	NA
016	TCDD TEQ_NoDNQ	ug/L	8.93E-08	0.60	NONE	NONE	1.30E-08	1.40E-08	3.00E-08	1.40E-08	Yes	Yes	No	NA	Yes
017	Acrolein	ug/L	Not Analyzed	0.60	NONE	NONE	320	780	NONE	780	No	NA	NA	NA	NA
018	Acrylonitrile	ug/L	Not Analyzed	0.60	NONE	NONE	0.059	0.66	NONE	0.66	No	NA	NA	NA	NA
019	Benzene	ug/L	Not Analyzed	0.60	NONE	NONE	1.2	71	1	1	No	NA	NA	NA	NA
020	Bromoform	ug/L	Not Analyzed	0.60	NONE	NONE	4.3	360	NONE	360	No	NA	NA	NA	NA
021	Carbon Tetrachloride	ug/L	Not Analyzed	0.60	NONE	NONE	0.25	4.4	0.5	0.5	No	NA	NA	NA	NA
022	Chlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	680	21,000	70	70	No	NA	NA	NA	NA
023	Dibromochloromethane	ug/L	Not Analyzed	0.60	NONE	NONE	0.401	34	NONE	34	No	NA	NA	NA	NA
024	Chloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
025	2-Chloroethylvinylether	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
026	Chloroform	ug/L	Not Analyzed	0.60	NONE	NONE	Reserved	Reserved	NONE	NONE	No	NA	NA	NA	NA
027	Bromodichloromethane	ug/L	Not Analyzed	0.60	NONE	NONE	0.56	46	NONE	46	No	NA	NA	NA	NA
028	1,1-Dichloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	5	5	No	NA	NA	NA	NA
029	1,2-Dichloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	0.38	99	0.5	0.5	No	NA	NA	NA	NA
030	1,1-Dichloroethene	ug/L	Not Analyzed	0.60	NONE	NONE	0.057	3.2	6	3.2	No	NA	NA	NA	NA
031	1,2-Dichloropropane	ug/L	Not Analyzed	0.60	NONE	NONE	0.52	39	5	5	No	NA	NA	NA	NA
032	cis-1,3-Dichloropropene	ug/L	Not Analyzed	0.60	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
032a	trans-1,3-Dichloropropene	ug/L	Not Analyzed	0.60	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA

						Step 1: Water Qua	lity Criteria, Det	ermine C			Step 2		Step 3		Step 4
						CTR CRITE	RIA		Basin Plan		ls	Was Constituent	Are all		
					Fres	hwater	Human	Health		C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	сv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
033	Ethylbenzene	ug/L	Not Analyzed	0.60	NONE	NONE	3,100	29,000	700	700	No	NA	NA	NA	NA
034	Bromomethane	ug/L	Not Analyzed	0.60	NONE	NONE	48	4,000	NONE	4000	No	NA	NA	NA	NA
035	Chloromethane	ug/L	Not Analyzed	0.60	NONE	NONE	Narrative	Narrative	NONE	NONE	No	NA	NA	NA	NA
036	Methylene chloride	ug/L	Not Analyzed	0.60	NONE	NONE	4.7	1,600	NONE	1600	No	NA	NA	NA	NA
037	1,1,2,2-Tetrachloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	0.17	11	1	1	No	NA	NA	NA	NA
038	Tetrachloroethene	ug/L	Not Analyzed	0.60	NONE	NONE	0.8	8.85	5	5	No	NA	NA	NA	NA
039	Toluene	ug/L	Not Analyzed	0.60	NONE	NONE	6,800	200,000	150	150	No	NA	NA	NA	NA
040	trans-1,2-Dichloroethene	ug/L	Not Analyzed	0.60	NONE	NONE	700	140,000	10	10	No	NA	NA	NA	NA
041	1,1,1-Trichloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	Narrative	Narrative	200	200	No	NA	NA	NA	NA
042	1,1,2-trichloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	0.6	42	5	5	No	NA	NA	NA	NA
043	Trichloroethene	ug/L	Not Analyzed	0.60	NONE	NONE	2.7	81	5	5	No	NA	NA	NA	NA
044	Vinyl chloride	ug/L	Not Analyzed	0.60	NONE	NONE	2	525	0.5	0.5	No	NA	NA	NA	NA
045	2-chlorophenol	ug/L	Not Analyzed	0.60	NONE	NONE	120	400	NONE	400	No	NA	NA	NA	NA
046	2,4-Dichlorophenol	ug/L	Not Analyzed	0.60	NONE	NONE	93	790	NONE	790	No	NA	NA	NA	NA
047	2,4-dimethylphenol	ug/L	Not Analyzed	0.60	NONE	NONE	540	2,300	NONE	2300	No	NA	NA	NA	NA
048	2-Methyl-4,6-dinitrophenol	ug/L	Not Analyzed	0.60	NONE	NONE	13.4	765	NONE	765	No	NA	NA	NA	NA
049	2,4-dinitrophenol	ug/L	Not Analyzed	0.60	NONE	NONE	70	14,000	NONE	14000	No	NA	NA	NA	NA
050	2-nitrophenol	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
051	4-nitrophenol	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
052	4-Chloro-3-methylphenol	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
053	Pentachlorophenol	ug/L	Not Analyzed	0.60	pH dependent	pH dependent	0.28	8.2	1	1	No	NA	NA	NA	NA
054	Phenol	ug/L	Not Analyzed	0.60	NONE	NONE	21,000	4,600,000	NONE	4600000	No	NA	NA	NA	NA
055	2,4,6-Trichlorophenol	ug/L	Not Analyzed	0.60	NONE	NONE	2.1	6.5	NONE	6.5	No	NA	NA	NA	NA
056	Acenaphthene	ug/L	Not Analyzed	0.60	NONE	NONE	1,200	2,700	NONE	2700	No	NA	NA	NA	NA
057	Acenaphthylene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
058	Anthracene	ug/L	Not Analyzed	0.60	NONE	NONE	9,600	110,000	NONE	110000	No	NA	NA	NA	NA
059	Benzidine	ug/L	Not Analyzed	0.60	NONE	NONE	0.00012	0.00054	NONE	0.00054	No	NA	NA	NA	NA
060	Benzo(a)Anthracene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
061	Benzo(a)Pyrene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	NA	NA
062	Benzo(b)Fluoranthene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
063	Benzo(g,h,i)Perylene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
064	Benzo(k)Fluoranthene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
065	Bis(2-Chloroethoxy) methane	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
066	bis (2-Chloroethyl) ether	ug/L	Not Analyzed	0.60	NONE	NONE	0.031	1.4	NONE	1.4	No	NA	NA	NA	NA

						Step 1: Water Qua	lity Criteria, Det	ermine C			Step 2		Step 3		Step 4
						CTR CRITE	RIA		Basin Plan		ls	Was Constituent	Are all		
					Fres	hwater	Human	Health	Dasili Fiali	C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	сv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C	MEC = Min (DL)	
067	Bis(2-Chloroisopropyl) Ether	ug/L	Not Analyzed	0.60	NONE	NONE	1,400	170,000	NONE	170000	No	NA	NA	NA	NA
068	bis (2-ethylhexyl) Phthalate	ug/L	Not Analyzed	0.60	NONE	NONE	1.8	5.9	4	4	No	NA	NA	NA	NA
069	4-Bromophenylphenylether	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
070	Butylbenzylphthalate	ug/L	Not Analyzed	0.60	NONE	NONE	3,000	5,200	NONE	5200	No	NA	NA	NA	NA
071	2-Chloronaphthalene	ug/L	Not Analyzed	0.60	NONE	NONE	1,700	4,300	NONE	4300	No	NA	NA	NA	NA
072	4-Chlorophenylphenylether	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
073	Chrysene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
074	Dibenzo(a,h)Anthracene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
075	1,2-Dichlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	2,700	17,000	600	600	No	NA	NA	NA	NA
076	1,3-Dichlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	400	2,600	NONE	2600	No	NA	NA	NA	NA
077	1,4-Dichlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	400	2,600	5	5	No	NA	NA	NA	NA
078	3,3'-Dichlorobenzidine	ug/L	Not Analyzed	0.60	NONE	NONE	0.04	0.077	NONE	0.077	No	NA	NA	NA	NA
079	Diethylphthalate	ug/L	Not Analyzed	0.60	NONE	NONE	23,000	120,000	NONE	120000	No	NA	NA	NA	NA
080	Dimethylphthalate	ug/L	Not Analyzed	0.60	NONE	NONE	313,000	2,900,000	NONE	2900000	No	NA	NA	NA	NA
081	Di-n-butylphthalate	ug/L	Not Analyzed	0.60	NONE	NONE	2,700	12,000	NONE	12000	No	NA	NA	NA	NA
082	2,4-Dinitrotoluene	ug/L	Not Analyzed	0.60	NONE	NONE	0.11	9.1	NONE	9.1	No	NA	NA	NA	NA
083	2,6-Dinitrotoluene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
084	Di-n-octylphthalate	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
085	1,2-Diphenylhydrazine	ug/L	Not Analyzed	0.60	NONE	NONE	0.04	0.54	NONE	0.54	No	NA	NA	NA	NA
086	Fluoranthene	ug/L	Not Analyzed	0.60	NONE	NONE	300	370	NONE	370	No	NA	NA	NA	NA
087	Fluorene	ug/L	Not Analyzed	0.60	NONE	NONE	1,300	14,000	NONE	14000	No	NA	NA	NA	NA
088	Hexachlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	0.00075	0.00077	1	0.00077	No	NA	NA	NA	NA
089	Hexachlorobutadiene	ug/L	Not Analyzed	0.60	NONE	NONE	0.44	50	NONE	50	No	NA	NA	NA	NA
090	Hexachlorocyclopentadiene	ug/L	Not Analyzed	0.60	NONE	NONE	240	17,000	50	50	No	NA	NA	NA	NA
091	Hexachloroethane	ug/L	Not Analyzed	0.60	NONE	NONE	1.9	8.9	NONE	8.9	No	NA	NA	NA	NA
092	Indeno(1,2,3-cd)Pyrene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
093	Isophorone	ug/L	Not Analyzed	0.60	NONE	NONE	8.4	600	NONE	600	No	NA	NA	NA	NA
094	Naphthalene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
095	Nitrobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	17	1,900	NONE	1900	No	NA	NA	NA	NA
096	N-Nitrosodimethylamine	ug/L	Not Analyzed	0.60	NONE	NONE	0.00069	8.1	NONE	8.1	No	NA	NA	NA	NA
097	n-Nitroso-di-n-propylamine	ug/L	Not Analyzed	0.60	NONE	NONE	0.005	1.4	NONE	1.4	No	NA	NA	NA	NA
098	N-Nitrosodiphenylamine	ug/L	Not Analyzed	0.60	NONE	NONE	5	16	NONE	16	No	NA	NA	NA	NA
099	Phenanthrene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
100	Pyrene	ug/L	Not Analyzed	0.60	NONE	NONE	960	11,000	NONE	11000	No	NA	NA	NA	NA

						Step 1: Water Qual		ermine C		-	Step 2		Step 3	-	Step 4
					Eroo		RIA Human	Ucolth	Basin Plan	C = Lowest	ls Effluent	Was Constituent	Are all	If DL > C,	
	1	г			Fres	hwater			Title 00	C = Lowest Criteria	Data	Detected in	Detection	MEC - Min (DL)	MEC >= C
CTR	Constituent	Units	MEC	cv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	ontonia	Available	Effluent Data	Limits > C		
101	1,2,4-Trichlorobenzene	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	70	70	No	NA	NA	NA	NA
102	Aldrin	ug/L	Not Analyzed	0.60	3	NONE	0.00013	0.00014	NONE	0.00014	No	NA	NA	NA	NA
103	alpha-BHC	ug/L	Not Analyzed	0.60	NONE	NONE	0.0039	0.013	NONE	0.013	No	NA	NA	NA	NA
104	beta-BHC	ug/L	Not Analyzed	0.60	NONE	NONE	0.014	0.046	NONE	0.046	No	NA	NA	NA	NA
105	Lindane (gamma-BHC)	ug/L	Not Analyzed	0.60	0.95	NONE	0.019	0.063	0.2	0.063	No	NA	NA	NA	NA
106	delta-BHC	ug/L	Not Analyzed	0.60	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
107	Chlordane	ug/L	Not Analyzed	0.60	2.4	0.0043	0.00057	0.00059	0.1	0.00059	No	NA	NA	NA	NA
108	4,4'-DDT	ug/L	Not Analyzed	0.60	1.1	0.001	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
109	4,4'-DDE	ug/L	Not Analyzed	0.60	NONE	NONE	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
110	4,4'-DDD	ug/L	Not Analyzed	0.60	NONE	NONE	0.00083	0.00084	NONE	0.00084	No	NA	NA	NA	NA
111	Dieldrin	ug/L	Not Analyzed	0.60	0.24	0.056	0.00014	0.00014	NONE	0.00014	No	NA	NA	NA	NA
112	Endosulfan I	ug/L	Not Analyzed	0.60	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
113	Endosulfan II	ug/L	Not Analyzed	0.60	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
114	Endosulfan Sulfate	ug/L	Not Analyzed	0.60	NONE	NONE	110	240	NONE	240	No	NA	NA	NA	NA
115	Endrin	ug/L	Not Analyzed	0.60	0.086	0.036	0.76	0.81	2	0.036	No	NA	NA	NA	NA
116	Endrin Aldehyde	ug/L	Not Analyzed	0.60	NONE	NONE	0.76	0.81	NONE	0.81	No	NA	NA	NA	NA
117	Heptachlor	ug/L	Not Analyzed	0.60	0.52	0.0038	0.00021	0.00021	0.01	0.00021	No	NA	NA	NA	NA
118	Heptachlor Epoxide	ug/L	Not Analyzed	0.60	0.52	0.0038	0.0001	0.00011	0.01	0.00011	No	NA	NA	NA	NA
119	Aroclor-1016	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
120	Aroclor-1221	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
121	Aroclor-1232	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
122	Aroclor-1242	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
123	Aroclor-1248	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
124	Aroclor-1254	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
125	Aroclor-1260	ug/L	Not Analyzed	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
126	Toxaphene	ug/L	Not Analyzed	0.60	0.73	0.0002	0.00073	0.00075	3	0.0002	No	NA	NA	NA	NA
127	E. Coli	MPN/100ml	Not Analyzed	0.60	NA	NA	NA	NA	235	235	No	NA	NA	NA	NA

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	cv	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection
3-7, 9, 10	Boron	Annual	mg/L	0	Not Analyzed	0.60	Not Analyzed	Not Analyzed	0	0	NA	1	BU
3-7, 9, 10	Chloride	Discharge	mg/L	3	18	0.60	5.6	100.8	0	0	100.8	150	BU
3-7, 9, 10	Fluoride	Annual	mg/L	0	Not Analyzed	0.60	Not Analyzed	Not Analyzed	0	0	NA	1.6	BU
3-7, 9, 10	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	3	3.0	0.60	5.6	16.8	0	0	16.8	8	BU/TMDL
3-7, 9, 10	Oil & Grease	Discharge	mg/L	3	Available Data <dl< td=""><td>0.60</td><td>Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<></td></dl<>	0.60	Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<>	Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<>	0	0	NA	10	BU
3-7, 9, 10	Sulfate	Discharge	mg/L	3	8.8	0.60	5.6	49.28	0	0	49.28	300	BU
3-7, 9, 10	Total Dissolved Solids	Discharge	mg/L	3	160	0.60	5.6	896	0	0	896	150	BU
3-7, 9, 10	Total Suspended Solids	Annual	mg/L	3	78	0.60	5.6	436.8	0	0	436.8	45	BU

						Step 1: Water Qua	lity Criteria, Det	ermine C			Step 2		Step 3		Step 4
						CTR CRITE	RIA		Basin Plan		ls	Was Constituent	Are all		
					Fres	shwater	Human	Health	Dasin Plan	C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	cv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C		
001	Antimony	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>14</td><td>4,300</td><td>6</td><td>6</td><td>Yes</td><td>No</td><td>Yes</td><td>4,300</td><td>No</td></dl<>	0.60	NONE	NONE	14	4,300	6	6	Yes	No	Yes	4,300	No
002	Arsenic	ug/L	Available Data <dl< td=""><td>0.60</td><td>340</td><td>150</td><td>NONE</td><td>NONE</td><td>50</td><td>50</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	340	150	NONE	NONE	50	50	Yes	No	No	NA	No
003	Beryllium	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>4</td><td>4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	4	4	Yes	No	No	NA	No
004	Cadmium	ug/L	Available Data <dl< td=""><td>0.60</td><td>4.3</td><td>2.2</td><td>Narrative</td><td>Narrative</td><td>5</td><td>2.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	4.3	2.2	Narrative	Narrative	5	2.2	Yes	No	No	NA	No
005a	Chromium	ug/L	Available Data <dl< td=""><td>0.60</td><td>550</td><td>180</td><td>Narrative</td><td>Narrative</td><td>50</td><td>50</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	550	180	Narrative	Narrative	50	50	Yes	No	No	NA	No
005b	Chromium VI	ug/L	Available Data <dl< td=""><td>0.60</td><td>16</td><td>11</td><td>Narrative</td><td>Narrative</td><td>NONE</td><td>11</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	16	11	Narrative	Narrative	NONE	11	Yes	No	No	NA	No
006	Copper	ug/L	5.2	0.60	13	9	1,300	NONE	NONE	9	Yes	Yes	NA	NA	No
007	Lead	ug/L	2	0.60	65	2.5	Narrative	Narrative	NONE	2.5	Yes	Yes	NA	NA	No
008	Mercury	ug/L	Available Data <dl< td=""><td>0.60</td><td>Reserved</td><td>Reserved</td><td>0.05</td><td>0.051</td><td>2</td><td>0.051</td><td>Yes</td><td>No</td><td>Yes</td><td>0.051</td><td>No</td></dl<>	0.60	Reserved	Reserved	0.05	0.051	2	0.051	Yes	No	Yes	0.051	No
009	Nickel	ug/L	Available Data <dl< td=""><td>0.60</td><td>470</td><td>52</td><td>610</td><td>4,600</td><td>100</td><td>52</td><td>Yes</td><td>No</td><td>Yes</td><td>4,600</td><td>No</td></dl<>	0.60	470	52	610	4,600	100	52	Yes	No	Yes	4,600	No
010	Selenium	ug/L	Available Data <dl< td=""><td>0.60</td><td>Reserved</td><td>5</td><td>Narrative</td><td>Narrative</td><td>50</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
011	Silver	ug/L	Available Data <dl< td=""><td>0.60</td><td>3.4</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>3.4</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	No	NA	No
012	Thallium	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.7</td><td>6.3</td><td>2</td><td>2</td><td>Yes</td><td>No</td><td>Yes</td><td>6.3</td><td>No</td></dl<>	0.60	NONE	NONE	1.7	6.3	2	2	Yes	No	Yes	6.3	No
013	Zinc	ug/L	31	0.60	120	120	NONE	NONE	NONE	120	Yes	Yes	NA	NA	No
014	Total Cyanide	ug/L	Available Data <dl< td=""><td>0.60</td><td>22</td><td>5.2</td><td>700</td><td>220,000</td><td>200</td><td>5.2</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	22	5.2	700	220,000	200	5.2	Yes	No	No	NA	No
015	Asbestos	Fibers/L	Not Analyzed	0.60	NONE	NONE	7,000,000	NONE	7,000,000	7000000	No	NA	NA	NA	NA
016	TCDD TEQ_NoDNQ	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.30E-08</td><td>1.40E-08</td><td>3.00E-08</td><td>0.00000014</td><td>Yes</td><td>No</td><td>No</td><td>220,000</td><td>No</td></dl<>	0.60	NONE	NONE	1.30E-08	1.40E-08	3.00E-08	0.00000014	Yes	No	No	220,000	No
017	Acrolein	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>320</td><td>780</td><td>NONE</td><td>780</td><td>Yes</td><td>No</td><td>Yes</td><td>1.40E-08</td><td>No</td></dl<>	0.60	NONE	NONE	320	780	NONE	780	Yes	No	Yes	1.40E-08	No
018	Acrylonitrile	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.059</td><td>0.66</td><td>NONE</td><td>0.66</td><td>Yes</td><td>No</td><td>Yes</td><td>780</td><td>No</td></dl<>	0.60	NONE	NONE	0.059	0.66	NONE	0.66	Yes	No	Yes	780	No
019	Benzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.2</td><td>71</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>Yes</td><td>0.66</td><td>No</td></dl<>	0.60	NONE	NONE	1.2	71	1	1	Yes	No	Yes	0.66	No
020	Bromoform	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>4.3</td><td>360</td><td>NONE</td><td>360</td><td>Yes</td><td>No</td><td>Yes</td><td>71</td><td>No</td></dl<>	0.60	NONE	NONE	4.3	360	NONE	360	Yes	No	Yes	71	No
021	Carbon Tetrachloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.25</td><td>4.4</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>Yes</td><td>360</td><td>No</td></dl<>	0.60	NONE	NONE	0.25	4.4	0.5	0.5	Yes	No	Yes	360	No
022	Chlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>680</td><td>21,000</td><td>70</td><td>70</td><td>Yes</td><td>No</td><td>Yes</td><td>4.4</td><td>No</td></dl<>	0.60	NONE	NONE	680	21,000	70	70	Yes	No	Yes	4.4	No
023	Dibromochloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.401</td><td>34</td><td>NONE</td><td>34</td><td>Yes</td><td>No</td><td>Yes</td><td>21,000</td><td>No</td></dl<>	0.60	NONE	NONE	0.401	34	NONE	34	Yes	No	Yes	21,000	No
024	Chloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>Yes</td><td>34</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	Yes	34	No
025	2-Chloroethylvinylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
026	Chloroform	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Reserved</td><td>Reserved</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Reserved	Reserved	NONE	NONE	Yes	No	No	NA	No
027	Bromodichloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.56</td><td>46</td><td>NONE</td><td>46</td><td>Yes</td><td>No</td><td>Yes</td><td>46</td><td>No</td></dl<>	0.60	NONE	NONE	0.56	46	NONE	46	Yes	No	Yes	46	No
028	1,1-Dichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	5	5	Yes	No	No	NA	No
029	1,2-Dichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.38</td><td>99</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>Yes</td><td>99</td><td>No</td></dl<>	0.60	NONE	NONE	0.38	99	0.5	0.5	Yes	No	Yes	99	No
030	1,1-Dichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.057</td><td>3.2</td><td>6</td><td>3.2</td><td>Yes</td><td>No</td><td>Yes</td><td>3.2</td><td>No</td></dl<>	0.60	NONE	NONE	0.057	3.2	6	3.2	Yes	No	Yes	3.2	No
031	1,2-Dichloropropane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.52</td><td>39</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>Yes</td><td>39</td><td>No</td></dl<>	0.60	NONE	NONE	0.52	39	5	5	Yes	No	Yes	39	No
032	cis-1,3-Dichloropropene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>10</td><td>1,700</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>Yes</td><td>1,700</td><td>No</td></dl<>	0.60	NONE	NONE	10	1,700	0.5	0.5	Yes	No	Yes	1,700	No
032a	trans-1,3-Dichloropropene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>10</td><td>1,700</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>Yes</td><td>1,700</td><td>No</td></dl<>	0.60	NONE	NONE	10	1,700	0.5	0.5	Yes	No	Yes	1,700	No

					Step 1: Water Quality Criteria, Determine C						Step 2		Step 3		Step 4
						CTR CRITE	RIA		Basin Plan		ls	Was Constituent	Are all		
					Fres	hwater	Human	Health	Dasili Fiali	C = Lowest	Effluent	Detected in	Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	сv	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C		
033	Ethylbenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>3,100</td><td>29,000</td><td>700</td><td>700</td><td>Yes</td><td>No</td><td>Yes</td><td>29,000</td><td>No</td></dl<>	0.60	NONE	NONE	3,100	29,000	700	700	Yes	No	Yes	29,000	No
034	Bromomethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>48</td><td>4,000</td><td>NONE</td><td>4000</td><td>Yes</td><td>No</td><td>Yes</td><td>4,000</td><td>No</td></dl<>	0.60	NONE	NONE	48	4,000	NONE	4000	Yes	No	Yes	4,000	No
035	Chloromethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	NONE	NONE	Yes	No	No	NA	No
036	Methylene chloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>4.7</td><td>1,600</td><td>NONE</td><td>1600</td><td>Yes</td><td>No</td><td>Yes</td><td>1,600</td><td>No</td></dl<>	0.60	NONE	NONE	4.7	1,600	NONE	1600	Yes	No	Yes	1,600	No
037	1,1,2,2-Tetrachloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.17</td><td>11</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>Yes</td><td>11</td><td>No</td></dl<>	0.60	NONE	NONE	0.17	11	1	1	Yes	No	Yes	11	No
038	Tetrachloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.8</td><td>8.85</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>Yes</td><td>8.85</td><td>No</td></dl<>	0.60	NONE	NONE	0.8	8.85	5	5	Yes	No	Yes	8.85	No
039	Toluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>6,800</td><td>200,000</td><td>150</td><td>150</td><td>Yes</td><td>No</td><td>Yes</td><td>200,000</td><td>No</td></dl<>	0.60	NONE	NONE	6,800	200,000	150	150	Yes	No	Yes	200,000	No
040	trans-1,2-Dichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>700</td><td>140,000</td><td>10</td><td>10</td><td>Yes</td><td>No</td><td>Yes</td><td>140,000</td><td>No</td></dl<>	0.60	NONE	NONE	700	140,000	10	10	Yes	No	Yes	140,000	No
041	1,1,1-Trichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>Narrative</td><td>Narrative</td><td>200</td><td>200</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	Narrative	Narrative	200	200	Yes	No	No	NA	No
042	1,1,2-trichloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.6</td><td>42</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>Yes</td><td>42</td><td>No</td></dl<>	0.60	NONE	NONE	0.6	42	5	5	Yes	No	Yes	42	No
043	Trichloroethene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2.7</td><td>81</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>Yes</td><td>81</td><td>No</td></dl<>	0.60	NONE	NONE	2.7	81	5	5	Yes	No	Yes	81	No
044	Vinyl chloride	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2</td><td>525</td><td>0.5</td><td>0.5</td><td>Yes</td><td>No</td><td>Yes</td><td>525</td><td>No</td></dl<>	0.60	NONE	NONE	2	525	0.5	0.5	Yes	No	Yes	525	No
045	2-chlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>120</td><td>400</td><td>NONE</td><td>400</td><td>Yes</td><td>No</td><td>Yes</td><td>400</td><td>No</td></dl<>	0.60	NONE	NONE	120	400	NONE	400	Yes	No	Yes	400	No
046	2,4-Dichlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>93</td><td>790</td><td>NONE</td><td>790</td><td>Yes</td><td>No</td><td>Yes</td><td>790</td><td>No</td></dl<>	0.60	NONE	NONE	93	790	NONE	790	Yes	No	Yes	790	No
047	2,4-dimethylphenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>540</td><td>2,300</td><td>NONE</td><td>2300</td><td>Yes</td><td>No</td><td>Yes</td><td>2,300</td><td>No</td></dl<>	0.60	NONE	NONE	540	2,300	NONE	2300	Yes	No	Yes	2,300	No
048	2-Methyl-4,6-dinitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>13.4</td><td>765</td><td>NONE</td><td>765</td><td>Yes</td><td>No</td><td>Yes</td><td>765</td><td>No</td></dl<>	0.60	NONE	NONE	13.4	765	NONE	765	Yes	No	Yes	765	No
049	2,4-dinitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>70</td><td>14,000</td><td>NONE</td><td>14000</td><td>Yes</td><td>No</td><td>Yes</td><td>14,000</td><td>No</td></dl<>	0.60	NONE	NONE	70	14,000	NONE	14000	Yes	No	Yes	14,000	No
050	2-nitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
051	4-nitrophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
052	4-Chloro-3-methylphenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
053	Pentachlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>pH dependent</td><td>pH dependent</td><td>0.28</td><td>8.2</td><td>1</td><td>1</td><td>Yes</td><td>No</td><td>Yes</td><td>8.2</td><td>No</td></dl<>	0.60	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	Yes	8.2	No
054	Phenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>21,000</td><td>4,600,000</td><td>NONE</td><td>4600000</td><td>Yes</td><td>No</td><td>Yes</td><td>4,600,000</td><td>No</td></dl<>	0.60	NONE	NONE	21,000	4,600,000	NONE	4600000	Yes	No	Yes	4,600,000	No
055	2,4,6-Trichlorophenol	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2.1</td><td>6.5</td><td>NONE</td><td>6.5</td><td>Yes</td><td>No</td><td>Yes</td><td>6.5</td><td>No</td></dl<>	0.60	NONE	NONE	2.1	6.5	NONE	6.5	Yes	No	Yes	6.5	No
056	Acenaphthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,200</td><td>2,700</td><td>NONE</td><td>2700</td><td>Yes</td><td>No</td><td>Yes</td><td>2,700</td><td>No</td></dl<>	0.60	NONE	NONE	1,200	2,700	NONE	2700	Yes	No	Yes	2,700	No
057	Acenaphthylene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
058	Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>9,600</td><td>110,000</td><td>NONE</td><td>110000</td><td>Yes</td><td>No</td><td>Yes</td><td>110,000</td><td>No</td></dl<>	0.60	NONE	NONE	9,600	110,000	NONE	110000	Yes	No	Yes	110,000	No
059	Benzidine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00012</td><td>0.00054</td><td>NONE</td><td>0.00054</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00054</td><td>No</td></dl<>	0.60	NONE	NONE	0.00012	0.00054	NONE	0.00054	Yes	No	Yes	0.00054	No
060	Benzo(a)Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
061	Benzo(a)Pyrene	ug/L	Not Analyzed	0.60	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	0.049	NA
062	Benzo(b)Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
063	Benzo(g,h,i)Perylene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
064	Benzo(k)Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
065	Bis(2-Chloroethoxy) methane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
066	bis (2-Chloroethyl) ether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.031</td><td>1.4</td><td>NONE</td><td>1.4</td><td>Yes</td><td>No</td><td>Yes</td><td>1.4</td><td>No</td></dl<>	0.60	NONE	NONE	0.031	1.4	NONE	1.4	Yes	No	Yes	1.4	No

					Step 1: Water Quality Criteria, Determine C						Step 2	Step 2 Step 3			
					CTR CRITERIA					ls	Waa Canatituant			Step 4	
					Fres	hwater	Human	Health	Basin Plan	C = Lowest	Effluent	Was Constituent Detected in	t Are all Detection	If DL > C,	MEC >= C
CTR	Constituent	Units	MEC	с٧	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR	Criteria	Data Available	Effluent Data	Limits > C		
067	Bis(2-Chloroisopropyl) Ether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,400</td><td>170,000</td><td>NONE</td><td>170000</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	1,400	170,000	NONE	170000	Yes	No	No	NA	No
068	bis (2-ethylhexyl) Phthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.8</td><td>5.9</td><td>4</td><td>4</td><td>Yes</td><td>No</td><td>Yes</td><td>5.9</td><td>No</td></dl<>	0.60	NONE	NONE	1.8	5.9	4	4	Yes	No	Yes	5.9	No
069	4-Bromophenylphenylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
070	Butylbenzylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>3,000</td><td>5,200</td><td>NONE</td><td>5200</td><td>Yes</td><td>No</td><td>Yes</td><td>5,200</td><td>No</td></dl<>	0.60	NONE	NONE	3,000	5,200	NONE	5200	Yes	No	Yes	5,200	No
071	2-Chloronaphthalene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,700</td><td>4,300</td><td>NONE</td><td>4300</td><td>Yes</td><td>No</td><td>Yes</td><td>4,300</td><td>No</td></dl<>	0.60	NONE	NONE	1,700	4,300	NONE	4300	Yes	No	Yes	4,300	No
072	4-Chlorophenylphenylether	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>Yes</td><td>NONE</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	Yes	NONE	No
073	Chrysene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
074	Dibenzo(a,h)Anthracene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
075	1,2-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2,700</td><td>17,000</td><td>600</td><td>600</td><td>Yes</td><td>No</td><td>Yes</td><td>17,000</td><td>No</td></dl<>	0.60	NONE	NONE	2,700	17,000	600	600	Yes	No	Yes	17,000	No
076	1,3-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>400</td><td>2,600</td><td>NONE</td><td>2600</td><td>Yes</td><td>No</td><td>Yes</td><td>2,600</td><td>No</td></dl<>	0.60	NONE	NONE	400	2,600	NONE	2600	Yes	No	Yes	2,600	No
077	1,4-Dichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>400</td><td>2,600</td><td>5</td><td>5</td><td>Yes</td><td>No</td><td>Yes</td><td>2,600</td><td>No</td></dl<>	0.60	NONE	NONE	400	2,600	5	5	Yes	No	Yes	2,600	No
078	3,3'-Dichlorobenzidine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.04</td><td>0.077</td><td>NONE</td><td>0.077</td><td>Yes</td><td>No</td><td>Yes</td><td>0.077</td><td>No</td></dl<>	0.60	NONE	NONE	0.04	0.077	NONE	0.077	Yes	No	Yes	0.077	No
079	Diethylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>23,000</td><td>120,000</td><td>NONE</td><td>120000</td><td>Yes</td><td>No</td><td>Yes</td><td>120,000</td><td>No</td></dl<>	0.60	NONE	NONE	23,000	120,000	NONE	120000	Yes	No	Yes	120,000	No
080	Dimethylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>313,000</td><td>2,900,000</td><td>NONE</td><td>2900000</td><td>Yes</td><td>No</td><td>Yes</td><td>2,900,000</td><td>No</td></dl<>	0.60	NONE	NONE	313,000	2,900,000	NONE	2900000	Yes	No	Yes	2,900,000	No
081	Di-n-butylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>2,700</td><td>12,000</td><td>NONE</td><td>12000</td><td>Yes</td><td>No</td><td>Yes</td><td>12,000</td><td>No</td></dl<>	0.60	NONE	NONE	2,700	12,000	NONE	12000	Yes	No	Yes	12,000	No
082	2,4-Dinitrotoluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.11</td><td>9.1</td><td>NONE</td><td>9.1</td><td>Yes</td><td>No</td><td>Yes</td><td>9.1</td><td>No</td></dl<>	0.60	NONE	NONE	0.11	9.1	NONE	9.1	Yes	No	Yes	9.1	No
083	2,6-Dinitrotoluene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
084	Di-n-octylphthalate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
085	1,2-Diphenylhydrazine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.04</td><td>0.54</td><td>NONE</td><td>0.54</td><td>Yes</td><td>No</td><td>Yes</td><td>0.54</td><td>No</td></dl<>	0.60	NONE	NONE	0.04	0.54	NONE	0.54	Yes	No	Yes	0.54	No
086	Fluoranthene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>300</td><td>370</td><td>NONE</td><td>370</td><td>Yes</td><td>No</td><td>Yes</td><td>370</td><td>No</td></dl<>	0.60	NONE	NONE	300	370	NONE	370	Yes	No	Yes	370	No
087	Fluorene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1,300</td><td>14,000</td><td>NONE</td><td>14000</td><td>Yes</td><td>No</td><td>Yes</td><td>14,000</td><td>No</td></dl<>	0.60	NONE	NONE	1,300	14,000	NONE	14000	Yes	No	Yes	14,000	No
088	Hexachlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00075</td><td>0.00077</td><td>1</td><td>0.00077</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00077</td><td>No</td></dl<>	0.60	NONE	NONE	0.00075	0.00077	1	0.00077	Yes	No	Yes	0.00077	No
089	Hexachlorobutadiene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.44</td><td>50</td><td>NONE</td><td>50</td><td>Yes</td><td>No</td><td>Yes</td><td>50</td><td>No</td></dl<>	0.60	NONE	NONE	0.44	50	NONE	50	Yes	No	Yes	50	No
090	Hexachlorocyclopentadiene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>240</td><td>17,000</td><td>50</td><td>50</td><td>Yes</td><td>No</td><td>Yes</td><td>17,000</td><td>No</td></dl<>	0.60	NONE	NONE	240	17,000	50	50	Yes	No	Yes	17,000	No
091	Hexachloroethane	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>1.9</td><td>8.9</td><td>NONE</td><td>8.9</td><td>Yes</td><td>No</td><td>Yes</td><td>8.9</td><td>No</td></dl<>	0.60	NONE	NONE	1.9	8.9	NONE	8.9	Yes	No	Yes	8.9	No
092	Indeno(1,2,3-cd)Pyrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0044</td><td>0.049</td><td>NONE</td><td>0.049</td><td>Yes</td><td>No</td><td>Yes</td><td>0.049</td><td>No</td></dl<>	0.60	NONE	NONE	0.0044	0.049	NONE	0.049	Yes	No	Yes	0.049	No
093	Isophorone	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>8.4</td><td>600</td><td>NONE</td><td>600</td><td>Yes</td><td>No</td><td>Yes</td><td>600</td><td>No</td></dl<>	0.60	NONE	NONE	8.4	600	NONE	600	Yes	No	Yes	600	No
094	Naphthalene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
095	Nitrobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>17</td><td>1,900</td><td>NONE</td><td>1900</td><td>Yes</td><td>No</td><td>Yes</td><td>1,900</td><td>No</td></dl<>	0.60	NONE	NONE	17	1,900	NONE	1900	Yes	No	Yes	1,900	No
096	N-Nitrosodimethylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00069</td><td>8.1</td><td>NONE</td><td>8.1</td><td>Yes</td><td>No</td><td>Yes</td><td>8.1</td><td>No</td></dl<>	0.60	NONE	NONE	0.00069	8.1	NONE	8.1	Yes	No	Yes	8.1	No
097	n-Nitroso-di-n-propylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.005</td><td>1.4</td><td>NONE</td><td>1.4</td><td>Yes</td><td>No</td><td>Yes</td><td>1.4</td><td>No</td></dl<>	0.60	NONE	NONE	0.005	1.4	NONE	1.4	Yes	No	Yes	1.4	No
098	N-Nitrosodiphenylamine	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>5</td><td>16</td><td>NONE</td><td>16</td><td>Yes</td><td>No</td><td>Yes</td><td>16</td><td>No</td></dl<>	0.60	NONE	NONE	5	16	NONE	16	Yes	No	Yes	16	No
099	Phenanthrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
100	Pyrene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>960</td><td>11,000</td><td>NONE</td><td>11000</td><td>Yes</td><td>No</td><td>Yes</td><td>11,000</td><td>No</td></dl<>	0.60	NONE	NONE	960	11,000	NONE	11000	Yes	No	Yes	11,000	No

				Step 1: Water Qual		ermine C	Step 2	Step 3			Step 4				
					Free	CTR CRITE	RIA Human	Llaalth	Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent	Are all	$M \vdash ( \cdot - M \mid n \mid 1) $	
<b></b>		1		cv	Fres	shwater			Title 22 GWR			Detected in	Detection		MEC >= C
CTR	Constituent	Units	MEC		CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH				Effluent Data	Limits > C		
101	1,2,4-Trichlorobenzene	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>70</td><td>70</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	70	70	Yes	No	No	NA	No
102	Aldrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>3</td><td>NONE</td><td>0.00013</td><td>0.00014</td><td>NONE</td><td>0.00014</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00014</td><td>No</td></dl<>	0.60	3	NONE	0.00013	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
103	alpha-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.0039</td><td>0.013</td><td>NONE</td><td>0.013</td><td>Yes</td><td>No</td><td>Yes</td><td>0.013</td><td>No</td></dl<>	0.60	NONE	NONE	0.0039	0.013	NONE	0.013	Yes	No	Yes	0.013	No
104	beta-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.014</td><td>0.046</td><td>NONE</td><td>0.046</td><td>Yes</td><td>No</td><td>Yes</td><td>0.046</td><td>No</td></dl<>	0.60	NONE	NONE	0.014	0.046	NONE	0.046	Yes	No	Yes	0.046	No
105	Lindane (gamma-BHC)	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.95</td><td>NONE</td><td>0.019</td><td>0.063</td><td>0.2</td><td>0.063</td><td>Yes</td><td>No</td><td>Yes</td><td>0.063</td><td>No</td></dl<>	0.60	0.95	NONE	0.019	0.063	0.2	0.063	Yes	No	Yes	0.063	No
106	delta-BHC	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>NONE</td><td>Yes</td><td>No</td><td>No</td><td>NA</td><td>No</td></dl<>	0.60	NONE	NONE	NONE	NONE	NONE	NONE	Yes	No	No	NA	No
107	Chlordane	ug/L	Available Data <dl< td=""><td>0.60</td><td>2.4</td><td>0.0043</td><td>0.00057</td><td>0.00059</td><td>0.1</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	2.4	0.0043	0.00057	0.00059	0.1	0.00059	Yes	No	Yes	0.00059	No
108	4,4'-DDT	ug/L	Available Data <dl< td=""><td>0.60</td><td>1.1</td><td>0.001</td><td>0.00059</td><td>0.00059</td><td>NONE</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	1.1	0.001	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
109	4,4'-DDE	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00059</td><td>0.00059</td><td>NONE</td><td>0.00059</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00059</td><td>No</td></dl<>	0.60	NONE	NONE	0.00059	0.00059	NONE	0.00059	Yes	No	Yes	0.00059	No
110	4,4'-DDD	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.00083</td><td>0.00084</td><td>NONE</td><td>0.00084</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00084</td><td>No</td></dl<>	0.60	NONE	NONE	0.00083	0.00084	NONE	0.00084	Yes	No	Yes	0.00084	No
111	Dieldrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.24</td><td>0.056</td><td>0.00014</td><td>0.00014</td><td>NONE</td><td>0.00014</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00014</td><td>No</td></dl<>	0.60	0.24	0.056	0.00014	0.00014	NONE	0.00014	Yes	No	Yes	0.00014	No
112	Endosulfan I	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.22</td><td>0.056</td><td>110</td><td>240</td><td>NONE</td><td>0.056</td><td>Yes</td><td>No</td><td>Yes</td><td>240</td><td>No</td></dl<>	0.60	0.22	0.056	110	240	NONE	0.056	Yes	No	Yes	240	No
113	Endosulfan II	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.22</td><td>0.056</td><td>110</td><td>240</td><td>NONE</td><td>0.056</td><td>Yes</td><td>No</td><td>Yes</td><td>240</td><td>No</td></dl<>	0.60	0.22	0.056	110	240	NONE	0.056	Yes	No	Yes	240	No
114	Endosulfan Sulfate	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>110</td><td>240</td><td>NONE</td><td>240</td><td>Yes</td><td>No</td><td>Yes</td><td>240</td><td>No</td></dl<>	0.60	NONE	NONE	110	240	NONE	240	Yes	No	Yes	240	No
115	Endrin	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.086</td><td>0.036</td><td>0.76</td><td>0.81</td><td>2</td><td>0.036</td><td>Yes</td><td>No</td><td>Yes</td><td>0.81</td><td>No</td></dl<>	0.60	0.086	0.036	0.76	0.81	2	0.036	Yes	No	Yes	0.81	No
116	Endrin Aldehyde	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>NONE</td><td>0.76</td><td>0.81</td><td>NONE</td><td>0.81</td><td>Yes</td><td>No</td><td>Yes</td><td>0.81</td><td>No</td></dl<>	0.60	NONE	NONE	0.76	0.81	NONE	0.81	Yes	No	Yes	0.81	No
117	Heptachlor	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.52</td><td>0.0038</td><td>0.00021</td><td>0.00021</td><td>0.01</td><td>0.00021</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00021</td><td>No</td></dl<>	0.60	0.52	0.0038	0.00021	0.00021	0.01	0.00021	Yes	No	Yes	0.00021	No
118	Heptachlor Epoxide	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.52</td><td>0.0038</td><td>0.0001</td><td>0.00011</td><td>0.01</td><td>0.00011</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00011</td><td>No</td></dl<>	0.60	0.52	0.0038	0.0001	0.00011	0.01	0.00011	Yes	No	Yes	0.00011	No
119	Aroclor-1016	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
120	Aroclor-1221	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
121	Aroclor-1232	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
122	Aroclor-1242	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
123	Aroclor-1248	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
124	Aroclor-1254	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
125	Aroclor-1260	ug/L	Available Data <dl< td=""><td>0.60</td><td>NONE</td><td>0.014</td><td>0.00017</td><td>0.00017</td><td>0.5</td><td>0.00017</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00017</td><td>No</td></dl<>	0.60	NONE	0.014	0.00017	0.00017	0.5	0.00017	Yes	No	Yes	0.00017	No
126	Toxaphene	ug/L	Available Data <dl< td=""><td>0.60</td><td>0.73</td><td>0.0002</td><td>0.00073</td><td>0.00075</td><td>3</td><td>0.0002</td><td>Yes</td><td>No</td><td>Yes</td><td>0.00075</td><td>No</td></dl<>	0.60	0.73	0.0002	0.00073	0.00075	3	0.0002	Yes	No	Yes	0.00075	No
127	E. Coli	MPN/100ml	1600	0.60	NA	NA	NA	NA	235	235	Yes	Yes	NA	NA	Yes

### TABLE F-6 REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALL 008)

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	сv	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection
8	Boron	Annual	mg/L	1	0.095	0.60	13.2	1.254	0	0	1.254	1	BU
8	Chloride	Discharge	mg/L	1	4.9	0.60	13.2	64.68	0	0	64.68	150	BU
8	Fluoride	Annual	mg/L	1	0.15	0.60	13.2	1.98	0	0	1.98	1.6	BU
8	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	1	4.3	0.60	13.2	56.76	0	0	56.76	8	BU/TMDL
8	Oil & Grease	Discharge	mg/L	1	Available Data <dl< td=""><td>0.60</td><td>Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<></td></dl<>	0.60	Available Data <dl< td=""><td>Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<></td></dl<>	Available Data <dl< td=""><td>0</td><td>0</td><td>NA</td><td>10</td><td>BU</td></dl<>	0	0	NA	10	BU
8	Sulfate	Discharge	mg/L	1	4.3	0.60	13.2	56.76	0	0	56.76	300	BU
8	Total Dissolved Solids	Discharge	mg/L	1	120	0.60	13.2	1584	0	0	1584	150	BU
8	Total Suspended Solids	Annual	mg/L	1	27	0.60	13.2	356.4	0	0	356.4	45	BU