APPENDIX G

Section 11

Outfall 006 – December 20, 2010 MECX Data Validation Report THIS PAGE LEFT INTENTIONALLY BLANK



DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: ITL2015

Prepared by

MEC^x, LP 12269 East Vassar Drive Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Contract Task Order:	Boeing SSFL NPDES 1261.100D.00
Sample Delivery Group:	ITL2015
Project Manager:	B. Kelly
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-Irvine

Table 1. Sample Identification

Client ID	Laboratory ID	Sub-Laboratory ID	Matrix	Collected	Method
Outfall 006 (Composite)	ITL2015-02	G0L230558-001, S012315-01	Water		1613B, 900, 901.1, 903.1, 904, 905, 906, 245.1, 245.1-Diss, SM 2540D,

II. Sample Management

No anomalies were observed regarding sample management. The temperature upon receipt was not noted by Eberline; however, due to the nonvolatile nature of the analytes, no qualifications were required. The samples in this SDG were received at TestAmerica-West Sacramento below the control limit; however, as the samples were not noted to be frozen or damaged, no qualifications were required. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples were intact upon receipt at Eberline and TestAmerica West Sacramento. If necessary, the client ID was added to the sample result summary by the reviewer.

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.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
Е	Not applicable.	Duplicates showed poor agreement.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	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

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
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.
* , *	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 1613—Dioxin/Furans

Reviewed By: L. Calvin Date Reviewed: January 20, 2011

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the MEC^{\times} Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 1613, and the National Functional Guidelines Chlorinated Dioxin/Furan Data Review (8/02).

- 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 1613 QC limits for all standards.
 - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits.
- Blanks: The method blank had detects between the EDL and the RL for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, OCDD, OCDF, total HpCDD, and total HpCDF. The HpCDF isomers and total were reported as EMPCs in the method blank; however, due to the extent of the method blank contamination, the reviewer considered it appropriate to use the EMPCs to qualify sample results. All individual

isomers detected in both the method blank and site sample were qualified as nondetected, "U" at the EDL, or at the level of contamination in the sample. The sample totals containing one or more peaks detected in the method blank were qualified as estimated, "J."

- Blank Spikes and Laboratory Control Samples: The LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- 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.
- Internal Standards Performance: The labeled standard recoveries in the sample were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating a representative number of reportable sample results. Any individual isomers reported as EMPCs previously qualified as nondetected for method blank contamination were not further qualified as EMPCs. Any totals including EMPC peaks were qualified as estimated, "J." Any detects reported between the estimated detection limit (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.

B. EPA METHOD 245.1—Mercury

Reviewed By: P. Meeks Date Reviewed: January 14, 2011

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the MEC^{X} Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 245.1, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, 28 days for mercury, was met.
- Tuning: Not applicable to this analysis.

- Calibration: Calibration criteria were met. Mercury initial calibration r² values were ≥0.995 and all initial and continuing calibration recoveries were within 85-115%. CRA recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Not applicable to this analysis.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- 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 was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- 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: February 2011

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods* 900.0, 901.1, 903.1, 904.0, 905.0, and 906.0, ASTM Method D-5174, and the National Functional Guidelines for Inorganic Data Review (10/04).

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

The gross alpha detector efficiency was less than 20%; therefore, gross alpha detected in the sample was qualified as an estimated detect, "J." The remaining detector efficiencies were greater than 20%.

The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. All chemical yields were at least 40% and were considered acceptable. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis.

- Blanks: There were no analytes detected in the method blanks or the KPA CCBs.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratoryestablished control limits.
- 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 for the sample in this SDG. Method accuracy was evaluated based on the LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDAs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any detects between the MDA 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 MDA.

A notation in the sample preparation logbook indicated that the aliquot for Radium-228 was filtered and that the filter was digested and added to the aliquot.

- 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. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks Date Reviewed: January 14, 2011

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the MEC^{X} Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Standard Method SM2540D, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, seven days from collection, was met.
- Calibration: The balance logs were acceptable.
- Blanks: TSS was not detected in the method blank.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- 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.
- 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 ITL2015

Analysis Method 8648 Sample Name Outfall 006 (Composite) Matrix Type: WATER Validation Level: IV ITL2015-02 Sample Date: 12/20/2010 4:37:00 PM Lab Sample Name: Analyte CAS No Result RL MDL Result Lab Validation Validation Value Units Qualifier **Oualifier** Notes Uranium. Total 0.384 0.017 pCi/L DNQ 1 Jb J Analysis Method 900 Sample Name Outfall 006 (Composite) Matrix Type: WATER Validation Level: IV Sample Date: 12/20/2010 4:37:00 PM ITL2015-02 Lab Sample Name: CAS No Result RL Analyte MDL Result Lab Validation Validation Value Units Qualifier Qualifier Notes 2 Gross Alpha 12587461 3 0.822 pCi/L Jb T DNQ,C Gross Beta 12587472 4.28 4 1.37 pCi/L Analysis Method 901.1 Matrix Type: WATER Sample Name Outfall 006 (Composite) Validation Level: IV ITL2015-02 Sample Date: 12/20/2010 4:37:00 PM Lab Sample Name: CAS No Result RL Analyte MDL Result Lab Validation Validation Value Units Qualifier Qualifier Notes Cesium-137 10045973 ND 20 1.54 pCi/L U U Potassium-40 13966002 ND 25 31.2 pCi/L U U Analysis Method 903.1 Matrix Type: WATER Validation Level: IV Sample Name Outfall 006 (Composite) Sample Date: 12/20/2010 4:37:00 PM ITL2015-02 Lab Sample Name: CAS No Analyte Result RL MDL Result Lab Validation Validation Qualifier Value Units Notes Qualifier Radium-226 13982633 0.339 1 0.594 pCi/L U U Analysis Method 904 Matrix Type: WATER Validation Level: IV Sample Name Outfall 006 (Composite) Sample Date: 12/20/2010 4:37:00 PM Lab Sample Name: ITL2015-02 Analyte CAS No Result RL MDL Result Lab Validation Validation Value Units Qualifier Qualifier Notes Radium-228 15262201 -0.019 1 0.439 pCi/L U U

Friday, February 04, 2011

Sample Name	Outfall 006 (0	Composito) Motri	x Type:	WATER	T	alidation Le	vol. IV
-		-	/	• -				vel. IV
Lab Sample Name:	ITL2015-02	Sam	ple Date:	12/20/201	10 4:37:00 PN	M		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098972	-0.042	2	0.708	pCi/L	U	U	
Analysis Metho	od 906							
Sample Name	Outfall 006 (C	Composite) Matri	x Type:	WATER	I	alidation Le	vel: IV
Lab Sample Name:	ITL2015-02	Sam	ple Date:	12/20/201	10 4:37:00 PN	Ν		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Tritium	10028178	124	500	352	pCi/L	U	U	
Analysis Metho	od EPA	245.1						
Sample Name	Outfall 006 (0	Composite) Matri	x Type:	Water	١	alidation Le	vel: IV
Lab Sample Name:	ITL2015-02	Sam	ple Date:	12/20/201	10 4:37:00 PM	Ν		
Analyte	CAS No	Result	RL	MDL	Result	Lab	Validation	Validation
		Value			Units	Qualifier	Qualifier	Notes
Mercury	7439-97-6	Value ND	0.20	0.10	Units ug/l	Qualifier	Qualifier U	Notes
Mercury Analysis Metho				0.10		Qualifier	-	Notes
Mercury Analysis Metho Sample Name		ND 245.1-L	Diss	0.10			-	
Analysis Metho	od EPA	ND 245.1-L Composite	Diss) Matri	х Туре:	ug/l		U	
Analysis Metho Sample Name	Od EPA 2	ND 245.1-L Composite	Diss) Matri	х Туре:	ug/l Water		U	vel: IV

Analysis Method 905

Sample Name	Outfall 006 (C	omposite) Matri	ix Type: 🕚	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL2015-02	Sam	ple Date:	12/20/2010	12/20/2010 4:37:00 PM			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822-46-9	ND	0.00005	0.0000002	ug/L	J, B	U	В
1,2,3,4,6,7,8-HpCDF	67562-39-4	ND	0.00005	0.0000005	ug/L	J, B	U	В
1,2,3,4,7,8,9-HpCDF	55673-89-7	ND	0.00005	0.0000006	ug/L		U	
1,2,3,4,7,8-HxCDD	39227-28-6	ND	0.00005	0.0000008	ug/L		U	
1,2,3,4,7,8-HxCDF	70648-26-9	ND	0.00005	0.0000005	ug/L		U	
1,2,3,6,7,8-HxCDD	57653-85-7	ND	0.00005	0.0000004	ug/L		U	
1,2,3,6,7,8-HxCDF	57117-44-9	ND	0.00005	0.0000003	ug/L		U	
1,2,3,7,8,9-HxCDD	19408-74-3	ND	0.00005	0.0000007	ug/L		U	
1,2,3,7,8,9-HxCDF	72918-21-9	ND	0.00005	0.0000004	ug/L		U	
1,2,3,7,8-PeCDD	40321-76-4	ND	0.00005	0.0000005	ug/L		U	
1,2,3,7,8-PeCDF	57117-41-6	ND	0.00005	0.0000002	ug/L		U	
2,3,4,6,7,8-HxCDF	60851-34-5	ND	0.00005	0.0000004	ug/L		U	
2,3,4,7,8-PeCDF	57117-31-4	ND	0.00005	0.0000004	ug/L		U	
2,3,7,8-TCDD	1746-01-6	ND	0.00001	0.0000007	ug/L		U	
2,3,7,8-TCDF	51207-31-9	ND	0.00001	0.0000001	ug/L		U	
OCDD	3268-87-9	ND	0.0001	0.0000001	ug/L	J, B	U	В
OCDF	39001-02-0	ND	0.0001	0.0000005	ug/L	J, B	U	В
Fotal HpCDD	37871-00-4	1.7e-005	0.00005	0.0000002	ug/L	J, B	1	B, DNQ
Fotal HpCDF	38998-75-3	7.5e-006	0.00005	0.0000005	ug/L	J, B	J	B, DNQ
Гotal HxCDD	34465-46-8	ND	0.00005	0.0000004	ug/L		U	
Fotal HxCDF	55684-94-1	1.1	0.00005	0.0000000	ug/L	J, Q	J	DNQ, *III
Fotal PeCDD	36088-22-9	ND	0.00005	0.0000005	ug/L		U	
Fotal PeCDF	30402-15-4	ND	0.00005	0.0000002	ug/L		U	
Total TCDD	41903-57-5	ND	0.00001	0.0000007	ug/L		U	
Total TCDF	55722-27-5	ND	0.00001	0.0000001	ug/L		U	
Analysis Metho	od SM 25	540D						

Analysis Method EPA-5 1613B

ITL2015-02 Sample Date: 12/20/2010 4:37:00 PM Lab Sample Name: CAS No RL MDL Analyte Result Result Lab Validation Validation Value Units Qualifier Qualifier Notes Total Suspended Solids 29 10 1.0 TSS mg/l

APPENDIX G

Section 12

Outfall 006 – December 20, 2010 Test America Analytical Laboratory Report THIS PAGE LEFT INTENTIONALLY BLANK

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project: Routine Outfall 006 2010 Routine Outfall 006

Sampled: 12/20/10 Received: 12/20/10 Issued: 02/01/11 16:12

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

This entire report was reviewed and approved for release.

CASE NARRATIVE

SAMPLE RECEIPT:	Samples were received intact, at 2°C, on ice and with chain of custody documentation.
HOLDING TIMES:	All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION:	Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA:	All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS:	Results that fall between the MDL and RL are 'J' flagged.
SUBCONTRACTED:	Refer to the last page for specific subcontract laboratory information included in this report.
ADDITIONAL INFORMATION:	WATER, 1613B, Dioxins/Furans with Totals Some analytes in these samples and the associated method blank have an ion abundance ratio that is outside of criteria. The analytes are considered as an "estimated maximum possible concentration" (EMPC) because the quantitation is based on the theoretical ion abundance ratio. Analytical results are reported with a "Q" flag.

LABORATORY ID	CLIENT ID	MATRIX
ITL2015-01	Outfall 006 (Grab)	Water
ITL2015-02	Outfall 006 (Composite)	Water

Reviewed By:

the Clark

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

HEXANE EXTRACTABLE MATERIAL Reporting Sample Dilution Date Date Data Analyte Method Batch Limit MDL **Result Factor Extracted** Analyzed Qualifiers Sample ID: ITL2015-01 (Outfall 006 (Grab) - Water) Reporting Units: mg/l Hexane Extractable Material (Oil & Grease) EPA 1664A 10L2996 4.7 1.3 ND 1 12/27/2010 12/28/2010

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

METALS Reporting Sample Dilution Date Date Data Analyte Method Batch Limit MDL Result Factor Extracted Qualifiers Analyzed Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water) Reporting Units: ug/l Mercury EPA 245.1 10L3104 0.20 0.10 ND 1 12/28/2010 12/28/2010 Antimony EPA 200.8 10L2645 2.0 0.30 0.44 1 12/22/2010 12/23/2010 Ja Cadmium EPA 200.8 10L2645 1.00.10 ND 12/22/2010 12/22/2010 1 Copper EPA 200.8 10L2645 2.00 0.500 2.55 1 12/22/2010 12/23/2010 EPA 200.8 10L2645 1.0 0.20 12/22/2010 12/23/2010 Lead 1.6 1 Thallium EPA 200.8 10L2645 1.0 0.20 ND 1 12/22/2010 12/23/2010



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

DISSOLVED METALS

Analyte	Method	Batch	Reportin Limit	g MDL	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water)									
Reporting Units: ug/l									
Mercury	EPA 245.1-Diss	10L3103	0.20	0.10	ND	1	12/28/2010	12/28/2010	
Antimony	EPA 200.8-Diss	10L2800	2.0	0.30	0.60	1	12/23/2010	12/23/2010	Ja
Cadmium	EPA 200.8-Diss	10L2800	1.0	0.10	ND	1	12/23/2010	12/23/2010	
Copper	EPA 200.8-Diss	10L2800	2.00	0.500	0.969	1	12/23/2010	12/23/2010	Ja
Lead	EPA 200.8-Diss	10L2800	1.0	0.20	ND	1	12/23/2010	12/23/2010	
Thallium	EPA 200.8-Diss	10L2800	1.0	0.20	ND	1	12/23/2010	12/23/2010	

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

INORGANICS									
			Reporting	ç	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	MDL	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: ITL2015-02 (Outfall 006 (Com	posite) - Water)								
Reporting Units: mg/l									
Chloride	EPA 300.0	10L2625	5.0	2.5	79	10	12/22/2010	12/22/2010	
Nitrate/Nitrite-N	EPA 300.0	10L2625	0.26	0.15	0.42	1	12/22/2010	12/22/2010	
Sulfate	EPA 300.0	10L2625	0.50	0.20	18	1	12/22/2010	12/22/2010	
Total Dissolved Solids	SM2540C	10L2589	10	1.0	280	1	12/22/2010	12/22/2010	
Total Suspended Solids	SM 2540D	10L2850	10		29	1	12/23/2010	12/23/2010	
Sample ID: ITL2015-02 (Outfall 006 (Com	posite) - Water)								
Reporting Units: ug/l									
Perchlorate	EPA 314.0	10L3015	4.0	0.90	ND	1	12/28/2010	12/28/2010	
Total Cyanide	SM4500CN-E	10L3114	5.0		ND	1	12/28/2010	12/28/2010	



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID: Report Number:	Routine Outfall 006 20 Routine Outfall 006 ITL2015	010		: 12/20/10 : 12/20/10	
		8648 Reporting	Sample Dilution	Date	Date	Data

Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers			
Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water)											
Reporting Units: pCi/L											
Uranium, Total	8648	8648	1	0.384	1	12/30/2010	1/21/2011	Jb			

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

Gross Alpha

Gross Beta

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

	MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Proje Report Nu		Routine Outfall 006 20 Routine Outfall 006 ITL2015)10	Sampled: 12/20/10 Received: 12/20/10			
				900					
	Analyte	Method	Batc	Reporting h Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
5	Sample ID: ITL2015-02 (Outfall 006 (Composite	e) - Water)							
	Reporting Units: pCi/L								

3

4

2

4.28

1

1

1/4/2011

1/4/2011

1/5/2011

1/5/2011

Jb

8648

8648

900

900

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID: Report Number:	Routine Outfall 006 20 Routine Outfall 006 ITL2015	10		: 12/20/10 : 12/20/10	
		901.1 Reporting	Sample Dilution	Date	Date	Data

Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers			
Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water)											
Reporting Units: pCi/L											
Cesium-137	901.1	8648	20	ND	1	1/4/2011	1/6/2011	U			
Potassium-40	901.1	8648	25	ND	1	1/4/2011	1/6/2011	U			

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

		903.1		
MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID: Report Number:	Routine Outfall 006 2010 Routine Outfall 006 ITL2015	Sampled: Received:	

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers		
Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water)										
Reporting Units: pCi/L Radium-226	903.1	8648	1	0.339	1	1/21/2011	1/21/2011	U		

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water)

904

Reporting Units: pCi/L

Radium-228

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 2 Arcadia, CA 91007 Attention: Bronwyn Kelly	5	Routine Outfall 006 20 Routine Outfall 006 ITL2015	010		1	led: 12/20/10 red: 12/20/10	
Analyte	Method Batc	904 Reporting h Limit		Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers

1

-0.019

1

1/21/2011 1/21/2011

U

8648

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Projo Report Nu]	Routine Outfall 006 20 Routine Outfall 006 ITL2015)10	0 Sampled: 12/20/1 Received: 12/20/1			
Analyte	Method	Batch	905 Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers

2							v	
Sample ID: ITL2015-02 (Outfall 006 (Composit	e) - Water)							
Reporting Units: pCi/L								
Strontium-90	905	8648	2	-0.042	1	1/19/2011	1/13/2011	U

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

e A	MWH-Pasadena/Boeing 518 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project Report Num		Routine Outfall 006 20 Routine Outfall 006 ITL2015)10	0 Sampled: 12/20/10 Received: 12/20/10			
I	Analyte	Method	Batcl	906 Reporting n Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers

Sample ID: ITL2015-02 (Outfall 006 (Composite) - Water) Reporting Units: pCi/L									
Reporting Units: pCi/L									
Tritium	906	8648	500	124	1	1/13/2011	1/14/2011	U	

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

EPA-5 1613Bx

Sampled: 12/20/10 Received: 12/20/10

			1 5 10101	DA					
			Reporting	0	-	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	MDL	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: ITL2015-02 (Outfall 006 (Co	omposite) - Water)								
Reporting Units: ug/L									
1,2,3,4,6,7,8-HpCDD	EPA-5 1613B	357431	0.000050	.0000002	97.5e-006	0.96	12/23/2010	12/28/2010	J, B
1,2,3,4,6,7,8-HpCDF	EPA-5 1613B	357431	0.000050	0.0000005	5 3.8e-006	0.96	12/23/2010	12/28/2010	J, B
1,2,3,4,7,8,9-HpCDF	EPA-5 1613B	357431	0.000050	.00000064	4 ND	0.96	12/23/2010	12/28/2010	
1,2,3,4,7,8-HxCDD	EPA-5 1613B	357431	0.000050	.0000008	8 ND	0.96	12/23/2010	12/28/2010	
1,2,3,4,7,8-HxCDF	EPA-5 1613B	357431	0.000050	.0000005	8 ND	0.96	12/23/2010	12/28/2010	
1,2,3,6,7,8-HxCDD	EPA-5 1613B	357431	0.000050	.00000044	4 ND	0.96	12/23/2010	12/28/2010	
1,2,3,6,7,8-HxCDF	EPA-5 1613B	357431	0.000050	.0000003	9 ND	0.96	12/23/2010	12/28/2010	
1,2,3,7,8,9-HxCDD	EPA-5 1613B	357431	0.000050	.00000072	2 ND	0.96	12/23/2010	12/28/2010	
1,2,3,7,8,9-HxCDF	EPA-5 1613B	357431	0.000050	.00000042	2 ND	0.96	12/23/2010	12/28/2010	
1,2,3,7,8-PeCDD	EPA-5 1613B	357431	0.000050	.00000052	2 ND	0.96	12/23/2010	12/28/2010	
1,2,3,7,8-PeCDF	EPA-5 1613B	357431	0.000050	.0000002	5 ND	0.96	12/23/2010	12/28/2010	
2,3,4,6,7,8-HxCDF	EPA-5 1613B	357431	0.000050	.0000004	6 ND	0.96	12/23/2010	12/28/2010	
2,3,4,7,8-PeCDF	EPA-5 1613B	357431	0.000050	0.0000004	ND	0.96	12/23/2010	12/28/2010	
2,3,7,8-TCDD	EPA-5 1613B	357431	0.0000D	.00000072	2 ND	0.96	12/23/2010	12/28/2010	
2,3,7,8-TCDF	EPA-5 1613B	357431	0.0000D	.0000001	9 ND	0.96	12/23/2010	12/28/2010	
OCDD	EPA-5 1613B	357431	0.00010	.0000001	56.6e-005	0.96	12/23/2010	12/28/2010	J, B
OCDF	EPA-5 1613B	357431	0.00010	.0000005	17.4e-006	0.96	12/23/2010	12/28/2010	J, B
Total HpCDD	EPA-5 1613B	357431	0.000050	.0000002	91.7e-005	0.96	12/23/2010	12/28/2010	J, B
Total HpCDF	EPA-5 1613B	357431	0.000050	.0000005	7 7.5e-006	0.96	12/23/2010	12/28/2010	J, B
Total HxCDD	EPA-5 1613B	357431	0.000050	.00000044	4 ND	0.96	12/23/2010	12/28/2010	
Total HxCDF	EPA-5 1613B	357431	0.000050	.0000000	8 1.1	0.96	12/23/2010	12/28/2010	J, Q
Total PeCDD	EPA-5 1613B	357431	0.000050	.00000052	2 ND	0.96	12/23/2010	12/28/2010	
Total PeCDF	EPA-5 1613B	357431	0.000050	.0000002:	5 ND	0.96	12/23/2010	12/28/2010	
Total TCDD	EPA-5 1613B	357431	0.0000D	.00000072	2 ND	0.96	12/23/2010	12/28/2010	
Total TCDF	EPA-5 1613B	357431	0.0000D	.0000001	9 ND	0.96	12/23/2010	12/28/2010	
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23	-140%)				90 %				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28	-143%)				79 %				
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26	-138%)				86 %				
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-1	41%)				70 %				
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-1	52%)				67 %				
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-1	30%)				83 %				
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-1	23%)				69 %				
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-1	47%)				67 %				
Surrogate: 13C-1,2,3,7,8-PeCDD (25-18)	1%)				73 %				
Surrogate: 13C-1,2,3,7,8-PeCDF (24-185	5%)				79 %				
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-1	36%)				69 %				
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178	2%)				72 %				
Surrogate: 13C-2,3,7,8-TCDD (25-164%))				69 %				
Surrogate: 13C-2,3,7,8-TCDF (24-169%)					66 %				
Surrogate: 13C-OCDD (17-157%)					79 %				
Surrogate: 37Cl4-2,3,7,8-TCDD (35-1979	%)				97 %				

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 006 (Composite) (ITL20)	Hold Time (in days) 15-02) - Water	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 300.0	2	12/20/2010 16:37	12/20/2010 20:24	12/22/2010 09:00	12/22/2010 09:37
Filtration	1	12/20/2010 16:37	12/20/2010 20:24	12/21/2010 23:45	12/21/2010 23:45



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

HEXANE EXTRACTABLE MATERIAL

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L2996 Extracted: 12/27/10										
Blank Analyzed: 12/28/2010 (10L2990 Hexane Extractable Material (Oil & Grease)	6-BLK1) ND	5.0	mg/l							
LCS Analyzed: 12/28/2010 (10L2996- Hexane Extractable Material (Oil & Grease)	BS1) 18.2	5.0	mg/l	20.0		91	78-114			MNR1
LCS Dup Analyzed: 12/28/2010 (10L 2 Hexane Extractable Material (Oil & Grease)	2996-BSD1) 18.0	5.0	mg/l	20.0		90	78-114	1	11	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L2645 Extracted: 12/22/10										
Blank Analyzed: 12/22/2010-12/23/2010	(10L2645-BI	L K1)								
Antimony	ND	2.0	ug/l							
Cadmium	ND	1.0	ug/l							
Copper	ND	2.00	ug/l							
Lead	ND	1.0	ug/l							
Thallium	ND	1.0	ug/l							
LCS Analyzed: 12/22/2010-12/23/2010 (1	10L2645-BS1)								
Antimony	88.4	2.0	ug/l	80.0		111	85-115			
Cadmium	77.2	1.0	ug/l	80.0		97	85-115			
Copper	84.1	2.00	ug/l	80.0		105	85-115			
Lead	82.5	1.0	ug/l	80.0		103	85-115			
Thallium	81.8	1.0	ug/l	80.0		102	85-115			
Matrix Spike Analyzed: 12/22/2010-12/2	3/2010 (10L2	2645-MS1)			Source: I	TL2015-0	2			
Antimony	88.8	2.0	ug/l	80.0	0.438	110	70-130			
Cadmium	72.7	1.0	ug/l	80.0	ND	91	70-130			
Copper	69.7	2.00	ug/l	80.0	2.55	84	70-130			
Lead	83.3	1.0	ug/l	80.0	1.61	102	70-130			
Thallium	80.8	1.0	ug/l	80.0	ND	101	70-130			
Matrix Spike Analyzed: 12/22/2010-12/2	3/2010 (10L2	2645-MS2)			Source: I	TL2014-0	3			
Antimony	86.8	2.0	ug/l	80.0	ND	109	70-130			
Cadmium	71.7	1.0	ug/l	80.0	0.123	89	70-130			
Copper	76.5	2.00	ug/l	80.0	4.10	90	70-130			
Lead	85.5	1.0	ug/l	80.0	1.82	105	70-130			
Thallium	82.2	1.0	ug/l	80.0	ND	103	70-130			
Matrix Spike Dup Analyzed: 12/22/2010	nalyzed: 12/22/2010-12/23/2010 (10L2645-MSD1)				Source: I	TL2015-0	2			
Antimony	87.7	2.0	ug/l	80.0	0.438	109	70-130	1	20	
Cadmium	74.0	1.0	ug/l	80.0	ND	93	70-130	2	20	
Copper	69.9	2.00	ug/l	80.0	2.55	84	70-130	0.4	20	
Lead	83.6	1.0	ug/l	80.0	1.61	102	70-130	0.4	20	
Thallium	81.0	1.0	ug/l	80.0	ND	101	70-130	0.3	20	

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3104 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3104-I	BLK1)									
Mercury	ND	0.20	ug/l							
LCS Analyzed: 12/28/2010 (10L3104-BS	51)									
Mercury	8.00	0.20	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 12/28/2010 (10L3104-MS1)					Source: I	TL2014-0	3			
Mercury	7.68	0.20	ug/l	8.00	ND	96	70-130			
Matrix Spike Dup Analyzed: 12/28/2010 (10L3104-MSD1)					Source: I	TL2014-0	3			
Mercury	7.81	0.20	ug/l	8.00	ND	98	70-130	2	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

DISSOLVED METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
·	Result	Linit	emits	Level	Result	/unle	Linnts	ΝD	Linnt	Quanners
Batch: 10L2800 Extracted: 12/23/10										
Blank Analyzed: 12/23/2010 (10L2800-B	SLK1)									
Antimony	ND	2.0	ug/l							
Cadmium	ND	1.0	ug/l							
Copper	ND	2.00	ug/l							
Lead	ND	1.0	ug/l							
Thallium	ND	1.0	ug/l							
LCS Analyzed: 12/23/2010 (10L2800-BS	1)									
Antimony	85.3	2.0	ug/l	80.0		107	85-115			
Cadmium	82.0	1.0	ug/l	80.0		103	85-115			
Copper	77.5	2.00	ug/l	80.0		97	85-115			
Lead	79.8	1.0	ug/l	80.0		100	85-115			
Thallium	82.4	1.0	ug/l	80.0		103	85-115			
Matrix Spike Analyzed: 12/23/2010 (10I	.2800-MS1)				Source: I	TL2015-0	2			
Antimony	84.6	2.0	ug/l	80.0	0.598	105	70-130			
Cadmium	80.2	1.0	ug/l	80.0	ND	100	70-130			
Copper	69.8	2.00	ug/l	80.0	0.969	86	70-130			
Lead	73.8	1.0	ug/l	80.0	ND	92	70-130			
Thallium	78.6	1.0	ug/l	80.0	ND	98	70-130			
Matrix Spike Dup Analyzed: 12/23/2010	10 (10L2800-MSD1)			Source: ITL2015-0			2			
Antimony	88.5	2.0	ug/l	80.0	0.598	110	70-130	5	20	
Cadmium	83.4	1.0	ug/l	80.0	ND	104	70-130	4	20	
Copper	71.9	2.00	ug/l	80.0	0.969	89	70-130	3	20	
Lead	77.1	1.0	ug/l	80.0	ND	96	70-130	4	20	
Thallium	81.0	1.0	ug/l	80.0	ND	101	70-130	3	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

DISSOLVED METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3103 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3103-B	LK1)									
Mercury	ND	0.20	ug/l							
LCS Analyzed: 12/28/2010 (10L3103-BS	1)									
Mercury	8.23	0.20	ug/l	8.00		103	85-115			
Matrix Spike Analyzed: 12/28/2010 (101	.3103-MS1)				Source: I	TL2014-0	3			
Mercury	8.27	0.20	ug/l	8.00	ND	103	70-130			
Matrix Spike Dup Analyzed: 12/28/2010	(10L3103-MS	5D1)			Source: I	TL2014-0	3			
Mercury	8.19	0.20	ug/l	8.00	ND	102	70-130	0.9	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Sampled: 12/20/10 Received: 12/20/10

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L2589 Extracted: 12/22/10										
Blank Analyzed: 12/22/2010 (10L2589-B	LK1)									
Total Dissolved Solids	ND	10	mg/l							
LCS Analyzed: 12/22/2010 (10L2589-BS	1)									
Total Dissolved Solids	996	10	mg/l	1000		100	90-110			
Duplicate Analyzed: 12/22/2010 (10L258	89-DUP1)				Source: I	TL2097-0	1			
Total Dissolved Solids	3380	20	mg/l		3410			1	10	
Batch: 10L2625 Extracted: 12/22/10										
Blank Analyzed: 12/22/2010 (10L2625-B	LK1)									
Chloride	ND	0.50	mg/l							
Nitrate/Nitrite-N	ND	0.26	mg/l							
Sulfate	ND	0.50	mg/l							
LCS Analyzed: 12/22/2010 (10L2625-BS	1)									
Chloride	4.64	0.50	mg/l	5.00		93	90-110			
Sulfate	9.73	0.50	mg/l	10.0		97	90-110			
Matrix Spike Analyzed: 12/22/2010 (10L	.2625-MS1)				Source: I	TL2015-0	2			
Chloride	125	5.0	mg/l	50.0	78.6	94	80-120			
Sulfate	114	5.0	mg/l	100	18.0	96	80-120			
Matrix Spike Dup Analyzed: 12/22/2010	(10L2625-M	ISD1)			Source: I	TL2015-0	2			
Chloride	127	5.0	mg/l	50.0	78.6	98	80-120	2	20	
Sulfate	115	5.0	mg/l	100	18.0	97	80-120	0.6	20	

TestAmerica Irvine Heather Clark For Debby Wilson

Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Sampled: 12/20/10 Received: 12/20/10

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L2850 Extracted: 12/23/10										
Blank Analyzed: 12/23/2010 (10L2850-B										
Total Suspended Solids	ND	10	mg/l							
LCS Analyzed: 12/23/2010 (10L2850-BS	,									
Total Suspended Solids	1000	10	mg/l	1000		100	85-115			
Duplicate Analyzed: 12/23/2010 (10L285	,					TL2347-0	1			
Total Suspended Solids	161	10	mg/l		160			0.6	10	
Batch: 10L3015 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3015-B	LK1)									
Perchlorate	ND	4.0	ug/l							
LCS Analyzed: 12/28/2010 (10L3015-BS	1)									
Perchlorate	22.7	4.0	ug/l	25.0		91	85-115			
Matrix Spike Analyzed: 12/28/2010 (10I	.3015-MS1)				Source: I	TL2014-0	3			
Perchlorate	23.1	4.0	ug/l	25.0	ND	92	80-120			
Matrix Spike Dup Analyzed: 12/28/2010	(10L3015-M	(SD1)			Source: I	TL2014-0	3			
Perchlorate	23.7	4.0	ug/l	25.0	ND	95	80-120	3	20	
Batch: 10L3114 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3114-B	LK1)									
Total Cyanide	ND	5.0	ug/l							



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

INORGANICS

Analyte Batch: 10L3114 Extracted: 12/28/10	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Analyzed: 12/28/2010 (10L3114-BS Total Cyanide	1) 190	5.0	ug/l	200		95	90-110			
Matrix Spike Analyzed: 12/28/2010 (10L Total Cyanide	3114-MS1) 188	5.0	ug/l	200	Source: I' ND	TL2487-0 94	2 70-115			
Matrix Spike Dup Analyzed: 12/28/2010 Total Cyanide	(10L3114-MS 188	D1) 5.0	ug/l	200	Source: I' ND	TL2487-0 94	2 70-115	0.3	15	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly 17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

METHOD BLANK/QC DATA

EPA-5 1613Bx

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 357431 Extracted: 12/23/10										
Blank Analyzed: 12/28/2010 (G0L23	0000431B)				Source:					
1,2,3,4,6,7,8-HpCDD	1.5e-006	0.00005	ug/L				-			J
1,2,3,4,6,7,8-HpCDF	9.5e-007	0.00005	ug/L				-			J, Q
1,2,3,4,7,8,9-HpCDF	9.6e-007	0.00005	ug/L				-			J, Q
1,2,3,4,7,8-HxCDD	ND	0.00005	ug/L				-			
1,2,3,4,7,8-HxCDF	ND	0.00005	ug/L				-			
1,2,3,6,7,8-HxCDD	ND	0.00005	ug/L				-			
1,2,3,6,7,8-HxCDF	ND	0.00005	ug/L				-			
1,2,3,7,8,9-HxCDD	ND	0.00005	ug/L				-			
1,2,3,7,8,9-HxCDF	ND	0.00005	ug/L				-			
1,2,3,7,8-PeCDD	ND	0.00005	ug/L				-			
1,2,3,7,8-PeCDF	ND	0.00005	ug/L				-			
2,3,4,6,7,8-HxCDF	ND	0.00005	ug/L				-			
2,3,4,7,8-PeCDF	ND	0.00005	ug/L				-			
2,3,7,8-TCDD	ND	0.00001	ug/L				-			
2,3,7,8-TCDF	ND	0.00001	ug/L				-			
OCDD	5.9e-006	0.0001	ug/L				-			J
OCDF	2e-006	0.0001	ug/L				-			J
Total HpCDD	2.5e-006	0.00005	ug/L				-			J
Total HpCDF	1.9e-006	0.00005	ug/L				-			J, Q
Total HxCDD	ND	0.00005	ug/L				-			
Total HxCDF	ND	0.00005	ug/L				-			
Total PeCDD	ND	0.00005	ug/L				-			
Total PeCDF	ND	0.00005	ug/L				-			
Total TCDD	ND	0.00001	ug/L				-			
Total TCDF	ND	0.00001	ug/L				-			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.0021		ug/L	0.002		107	23-140			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.0018		ug/L	0.002		92	28-143			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.002		ug/L	0.002		100	26-138			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.0017		ug/L	0.002		86	32-141			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.0016		ug/L	0.002		81	26-152			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.002		ug/L	0.002		98	28-130			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.0016		ug/L	0.002		83	26-123			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.0016		ug/L	0.002		81	29-147			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.0018		ug/L	0.002		91	25-181			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.0018		ug/L	0.002		92	24-185			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.0017		ug/L	0.002		85	28-136			

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

EPA-5 1613Bx

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 357431 Extracted: 12/23/10										
Blank Analyzed: 12/28/2010 (G0L2300	MA /21D)				Source:					
Surrogate: 13C-2,3,4,7,8-PeCDF	0.0018		ug/L	0.002	source:	89	21-178			
Surrogate: 13C-2,3,7,8-TCDD	0.0017		ug/L ug/L	0.002		83	25-164			
Surrogate: 13C-2,3,7,8-TCDF	0.0015		ug/L ug/L	0.002		77	23 104 24-169			
Surrogate: 13C-OCDD	0.0036		ug/L ug/L	0.002		90	17-157			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.0008		ug/L	0.0008		99	35-197			
LCS Analyzed: 12/28/2010 (G0L23000	0431C)		-		Source:					
1,2,3,4,6,7,8-HpCDD	0.00102	0.00005	ug/L	0.001	Source.	102	70-140			В
1,2,3,4,6,7,8-HpCDF	0.00109	0.00005	ug/L	0.001		109	82-122			B
1,2,3,4,7,8,9-HpCDF	0.00108	0.00005	ug/L	0.001		108	78-138			В
1,2,3,4,7,8-HxCDD	0.00118	0.00005	ug/L	0.001		118	70-164			
1,2,3,4,7,8-HxCDF	0.00102	0.00005	ug/L	0.001		102	72-134			
1,2,3,6,7,8-HxCDD	0.000981	0.00005	ug/L	0.001		98	76-134			
1,2,3,6,7,8-HxCDF	0.00105	0.00005	ug/L	0.001		105	84-130			
1,2,3,7,8,9-HxCDD	0.00108	0.00005	ug/L	0.001		108	64-162			
1,2,3,7,8,9-HxCDF	0.00108	0.00005	ug/L	0.001		108	78-130			
1,2,3,7,8-PeCDD	0.00109	0.00005	ug/L	0.001		109	70-142			
1,2,3,7,8-PeCDF	0.000975	0.00005	ug/L	0.001		98	80-134			
2,3,4,6,7,8-HxCDF	0.00103	0.00005	ug/L	0.001		103	70-156			
2,3,4,7,8-PeCDF	0.000976	0.00005	ug/L	0.001		98	68-160			
2,3,7,8-TCDD	0.000214	0.00001	ug/L	0.0002		107	67-158			
2,3,7,8-TCDF	0.000186	0.00001	ug/L	0.0002		93	75-158			
OCDD	0.00191	0.0001	ug/L	0.002		96	78-144			В
OCDF	0.00182	0.0001	ug/L	0.002		91	63-170			В
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.00221		ug/L	0.002		111	26-166			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.00194		ug/L	0.002		97	21-158			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00207		ug/L	0.002		104	20-186			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.00166		ug/L	0.002		83	21-193			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.00162		ug/L	0.002		81	19-202			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.00201		ug/L	0.002		100	25-163			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00168		ug/L	0.002		84	21-159			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.0016		ug/L	0.002		80	17-205			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.00181		ug/L	0.002		91	21-227			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00187		ug/L	0.002		93	21-192			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.00169		ug/L	0.002		85	22-176			
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00177		ug/L	0.002		89	13-328			

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

EPA-5 1613Bx

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 357431 Extracted: 12/23/10										
LCS Analyzed: 12/28/2010 (G0L23000	0431C)				Source:					
Surrogate: 13C-2,3,7,8-TCDD	0.00171		ug/L	0.002		85	20-175			
Surrogate: 13C-2,3,7,8-TCDF	0.00157		ug/L	0.002		79	22-152			
Surrogate: 13C-OCDD	0.00374		ug/L	0.004		94	13-199			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.000784		ug/L	0.0008		98	31-191			



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

						Compliance
LabNumber	Analysis	Analyte	Units	Result	MRL	Limit
ITL2015-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	0.28	4.7	15

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

						Compliance
LabNumber	Analysis	Analyte	Units	Result	MRL	Limit
ITL2015-02	Antimony-200.8	Antimony	ug/l	0.44	2.0	6
ITL2015-02	Cadmium-200.8	Cadmium	ug/l	0.089	1.0	3.1
ITL2015-02	Chloride - 300.0	Chloride	mg/l	79	5.0	150
ITL2015-02	Copper-200.8	Copper	ug/l	2.55	2.00	14
ITL2015-02	Cyanide, Total-4500CN-E (5ppb)	Total Cyanide	ug/l	-1	5.0	9.5
ITL2015-02	Lead-200.8	Lead	ug/l	1.61	1.0	5.2
ITL2015-02	Mercury - 245.1	Mercury	ug/l	0	0.20	0.13
ITL2015-02	Nitrogen, NO3+NO2 -N EPA 300.0	0 Nitrate/Nitrite-N	mg/l	0.42	0.26	10
ITL2015-02	Perchlorate 314.0 - Default	Perchlorate	ug/l	0	4.0	6
ITL2015-02	Sulfate-300.0	Sulfate	mg/l	18	0.50	250
ITL2015-02	TDS - SM2540C	Total Dissolved Solids	mg/l	279	10	850
ITL2015-02	Thallium-200.8	Thallium	ug/l	0.076	1.0	2



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

DATA QUALIFIERS AND DEFINITIONS

- **B** Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- J Estimated result. Result is less than the reporting limit.
- Ja Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
- Jb The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- MNR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- **Q** Estimated maximum possible concentration (EMPC).
- U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.
- ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- **RPD** Relative Percent Difference



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly 17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 1664A	Water	Х	Х
EPA 200.8-Diss	Water	Х	Х
EPA 200.8	Water	Х	Х
EPA 245.1-Diss	Water	Х	Х
EPA 245.1	Water	Х	Х
EPA 300.0	Water	Х	Х
EPA 314.0	Water	Х	Х
Filtration	Water	N/A	N/A
SM 2540D	Water	Х	Х
SM2540C	Water	Х	
SM4500CN-E	Water	Х	Х

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

Subcontracted Laboratories

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnic Samples: ITL2015-02

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gamma Spec Samples: ITL2015-02

- Analysis Performed: Gross Alpha Samples: ITL2015-02
- Analysis Performed: Gross Beta Samples: ITL2015-02
- Analysis Performed: Radium, Combined Samples: ITL2015-02
- Analysis Performed: Strontium 90 Samples: ITL2015-02
- Analysis Performed: Tritium Samples: ITL2015-02
- Analysis Performed: Uranium, Combined Samples: ITL2015-02

TestAmerica Buffalo

10 Hazelwood Drive, Suite 106 - Amherst, NY 14228

Method Performed: 8648 Samples: ITL2015-02

- Method Performed: 900 Samples: ITL2015-02
- Method Performed: 901.1 Samples: ITL2015-02
- Method Performed: 903.1 Samples: ITL2015-02
- Method Performed: 904 Samples: ITL2015-02
- Method Performed: 905 Samples: ITL2015-02
- Method Performed: 906 Samples: ITL2015-02

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2015

Sampled: 12/20/10 Received: 12/20/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

TestAmerica West Sacramento NELAC Cert #1119CA, Nevada Cert #CA44 880 Riverside Parkway - West Sacramento, CA 95605 Method Performed: EPA-5 1613B

Samples: ITL2015-02

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager

Test America Version'6729/09-

CHAIN OF CUSTODY FORM

-	12015	

Page	1	of 2	
------	---	------	--

	A / 1 -				·													<u> </u>		\mathbf{V}	
Client Name/				Project:			<u> </u>	<u> </u>	r		<u> </u>		.		LYSIS	REQU	IRED				
MWH-Arca				Boeing-SSFL N									[
618 Michillind		uite 200		Routine Outfa	000																Field readings:
Arcadia, CA	91007			GRAB																	i loid readings.
Teat America	0 and	least D	al-	Stormwater at	FOUT-2		.		1												
Test America	Contact:	Joseph Do	ак				1			1											Temp °F = 480
							e l				1										
							∰								1						pH = 7.6
Project Mana	der Broz	www.Keily		Phone Numbe		· · · · · ·	Grease (1664-HEM)														
	gen. Dier	in yn rony		(626) 568-669			100					1							i		Time of readings =
Sampler:	211	2.		1	1) ee	1													08:00
Sampler:/	$C \subset L$	JANAO,	12	Fax Number:	_		eas														00.00
				(626) 568-651) 																
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil &														Comments
Outfall 006	w	1L Amber	2	12-20-10	НСІ	1A, 1B +	x			[
				08.00			+		<u> </u>		+								<u> </u>		
			ļ				ļ	Ļ										ļ			
												1									
			-							<u> </u>	<u> </u>	<u> </u>							-		
											L										
								1					1		1						
									1						1						
				1			+	1			<u> </u>							1			<u> </u>
				+									-	<u> </u>							
	†						1	<u> </u>	1			1		1							
								1			1										
	J	ese Sampl	es ai	re the Grab Por	tion of Out	fall 006 for	this	⊥ storm	ı event.	Com	posite	sam	les wi	ill follo	w and	are to	be ac	ded to	o this v	work	order.
Relinquished By		[Date/T	ime:		Deserved Dr.		-		Data					Turn-arc	und time	(Check))			
$ \land$	1	12-3	20-	2010		1-	~		11	15	110	110)		24 Hour			72 Hour			10 Day:
Print	15min	19-3				1/1.		Per		12	1 -	1	1.1-	र	48 Hour	:		5 Day:	<u>×</u>		Normal:
Relinquished By	f	r	Date/T	ime:	1.	Received By	m	100	200	Date/T	ime:	L	<u> </u>		1		-	•		•	
/		γ	1	12/20	٥)]٥										Sample	Integrity:	(Check)				
Vin	_ Fa	all	r A.	ime: 12/20 201	H										Intact:	\searrow		On Ice:	<u>×</u>		
Relinquished By			Date/T		7	Received By	~			Date/T	ime:		·		1	1					
)			1	ント		-) , ,	Data Re	quiremen	ts: (Cheo	ck)			
									-	· 1		51.0	P		No Leve				I IV:		
L																					
																					2-40

CHAIN OF CUSTODY FORM

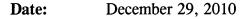
IT-L2015

Client Name//	Address:	μ		Project:	<u> </u>										-		SIS RF	QUIRED	- 0			
MWH-Arca	dia				-SSFL N							ъ́								Γ	r	
618 Michillind	a Ave, S	uite 200				Outfall 006		á				Ξ.	<u>, ⊑ ∞ </u>									
Arcadia, CA	91007					40U)	, D				ГЩ,	0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,									
				Stormw	vater at	FSDF-2		ğ		ate		õ	908 (0) 908 - 90									
Test America	Contact	: Debby Wi	son					Sb, (chlora		Ŋ	(905 3.0 c 1 um (
~								Recoverable Metals:	TCDD (and all congeners)	Cl ⁻ , SO ₄ , NO ₃ +NO ₂ -N, Perchlorate		Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg. TI	Gross Alpha(900.0), Gross Beta(900.0), Tritium (H-3) (906.0), Sr-90 (905.0), Total Combined Radium 226 (903.0 or 903.1) & Radium 228 (904.0), Uranium (908.0), K- 40, CS-137 (901.0 or 901.1)									Comments
Project Mana	ger: Bro	nwyn Kelly		Phone	Number	:		le ≥	buge	02-1		Meta	0.0), 00, 00, 00, 00, 00, 00, 00, 00, 00,									
	-	•		(626) 56				erat	o II	3+N		ed	90 (90 (90 (90 (90 (<u>it</u>							
Sampler: R	ick [RANTO	A	Fax Nu	mber:			ŏ	ри	g	6	solv	37 () 37 () 37 () 37 ()		Š							
				(626) 56		5			D (a	, 04,	1S.	Dis	S Alt S Alt S Alt A Bine (F	ide	lic I							
Sample Description	Sample Matrix	Container Type	# of Cont.	Sam Date/	Time	Preservative	Bottle #	Total Hg, T	TCD	CĽ, S	TDS, TSS	Total ⊤	Gros Tritiu Com Radi 40, O	Cyanide	Chronic Toxicity							
Outfall 006	w	1L Poly	1		3-2010	HNO ₃	2A ~	х														
Outfall 006 Dup	W	1L Poly	1	16:	37	HNO ₃	2B 🛃	х														
Outfall 006	w	1L Amber	2			None	3A, 3B 🖍	·	х													
. Outfall 006	w	500 mL Poly	2		`	None	4A, 4B			х												
Outfall 006	w	500 mL Poly	1			None	5 4				х											· · · · ·
Outfall 006	w	1L Poly	1		-	None	6					х									\backslash	Filter w/in 24hrs of receipt at lab
Outfall 006	w	2.5 Gal Cube	1			None	7A 🖌						x			_			2172	Ø,		Unfiltered and unpreserved
		500 mL Amber	1	k		None	7B 🖊										í	r	12/9	11/10		analysis
Outfall 006	w	500 mL Poly	1	12-2	చిస్తారి	NaOH	8							х					- (1		
Outfall 006	w	1 Gai Poly	1	16:	37	None	9								х					<u>I</u>	2	Only test if first or second rain events of the year
														-*								
						COC	Page 2 d						les for Outfall									
			2		Thes	e must be	added t		anne v	vork			DC Page 1 of 2	for C	Dutfal				ent.			
Relinquished By	1	17	ate/Tir		A 1 A		Received B	y	\sim		7	te/Time:	11-2/-	la			und time: (
Pine	(Smj	, ' d			17 .1	נת	/// /	If I	\square		H.	Λ	1-4-	-		24 Hour:			72 Hour: 5 Day:	v		10 Day:
					12.	~	10/0	<u></u>	<u>//</u>	m	1/	<u> </u>	12.		J	48 Hour:			5 Day: 🔔	<u> </u>		Normal:
Relinquished By	Vo	. //	ate/Tin	ne:	LI · 10		Received B	y I	L	((12	e/Time:					/					
1 att	7//	. 1 2 	1		1. 71						T					Sample I	ntegrity. (C	Check)	\mathbf{v}			
<u>/// · · · · · · · · · · · · · · · · · ·</u>	7 -	11		[1	1.72											Intact: _	<u>~</u>	On Ice:	A			
Relinguished By			ate/Tin	ne:			Received B	5			Dat	te/Time:										
								ノ			•	12/2	-110 (7	55	- I		uirements		All Level IV:			
L			-																			-

٠.

21M04 2.5

LABORATORY REPORT



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



"dedicated to providing quality aquatic toxicity testing "

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

Laboratory No.:	A-10122102-001
Sample I.D.:	ITL2015-02 (Outfall 006)

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

Date Sampled:	12/20/10 - composite
Date Received:	12/21/10
Temp. Received:	5.7°C
Chlorine (TRC):	0.0 mg/l
Date Tested:	12/21/10 to 12/27/10

Sample Analysis:The following analyses were performed on your sample:Ceriodaphnia dubiaSurvival and Reproduction Test (EPA Method 1002).Attached are the test data generated from the analysis of your sample.

Result Summary:

	NOEC	TUc
Ceriodaphnia Survival:	100%	1.0
Ceriodaphnia Reproduction:	100%	1.0

Quality Control:

Reviewed and approved by:

Joseph A. LeMay Laboratory Direct

CERIODAPHNIA CHRONIC BIOASSAY EPA METHOD 1002.0



Lab No.: A-10122102-001 Client/ID: Test America – ITL2015-02 (Outfall 006) Date Tested: 12/21/10 to 12/27/10

TEST SUMMARY

Test type: Daily static-renewal. Species: *Ceriodaphnia dubia*. Age: < 24 hrs; all released within 8 hrs. Test vessel size: 30 ml. Number of test organisms per vessel: 1. Temperature: 25 +/- 1°C. Dilution water: Mod. hard reconstituted (MHRW). QA/QC Batch No.: RT-101207. Endpoints: Survival and Reproduction. Source: In-laboratory culture. Food: .1 ml YTC, algae per day. Test solution volume: 15 ml. Number of replicates: 10. Photoperiod: 16/8 hrs. light/dark cycle. Test duration: 6 days. Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	22.4
100% Sample	100%	23.4
* Sample not s	tatistically significantly les	s than Control

CHRONIC TOXICITY

Survival NOEC	100%
Survival TUc	1.0
Reproduction NOEC	100%
Reproduction TUc	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥15 young per surviving control female	Pass (22.4 young)
≥60% surviving controls had 3 broods	Pass (80% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 20.6%)
Statistically significantly different concentrations relative difference > 13%	Pass (no concentration significantly different)
Concentration response relationship acceptable	Pass (no significant response at concentration tested)

			Cerioda	iphnia Su	rvival and	l Reprod	uction Tes	st-Surviva	al Day 6	
Start Date: End Date: Sample Date: Comments:	12/21/201 12/27/201 12/20/201	0 15:00		CAATL-Ac	uatic Tes		Sample ID Sample Ty Test Spec	ype:	Outfall 000 EFF2-Indu CD-Cerioo	-
Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

1.0000

1.0000

1.0000

1.0000

1.0000

1.0000

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

	Test (1-tail, (0.05)	NOEC	LOEC	ChV	TU				
Fisher's Exa	ict Test		100	>100		1			· · · · · · · · · · · · · · · · · · ·	-
Treatments	vs D-Control									
				Line	ar Interpo	lation (200	Resamples)	**		
Point	%	SD	95%		Skew	•				
IC05	>100									· · · · · · · · · · · · · · · · · · ·
IC10	>100									
IC15	>100						1.0			
IC20	>100						-			
IC25	>100						0.9 -			
IC40	>100						0.8 -			
IC50	>100						-			
							0.7			
							Kesbouse 0.5 - 0.5 - 0.4 - 0.5 - 0.4 - 0			
							Ë م د ا			
							č ^{0.5}			
							2 0.4			
							0.3			
							•			
							0.2 -			

0.1 0.0

50

Dose %

100

150

100

1.0000

1.0000

1.0000

1.0000

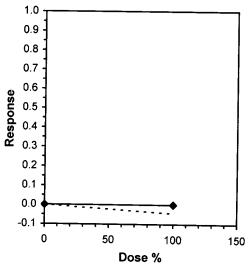
			Cerioda	aphnia Su	rvival and	Reprod	uction Tes	st-Repro	duction	
Start Date: End Date: Sample Date: Comments:	12/21/201 12/27/201 12/20/201	0 15:00	Test ID: Lab ID:	10122102 CAATL-Ac	c quatic Tes	ting Labs	Sample ID): ype:	Outfall 00 EFF2-Indu	
Conc-%	1	2	3	4	5	6	7	8	0	10
00110-70				-	5	0		0	3	10

		_		Transform	n: Untran	sformed		Rank	1-Tailed	lsot	onic
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	Mean	N-Mean
D-Control	22.400	1.0000	22.400	11.000	29.000	24.918	10			22,900	1.0000
100	23.400	1.0446	23.400	11.000	29.000	26.968	10	116.50	82.00	22.900	

Auxiliary Tests	Statistic	Critical	Skew Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.82183	0.905	-1.2215 0.27626
F-Test indicates equal variances (p = 0.72)	1.27817	6.54109	
Hypothesis Test (1-tail, 0.05)			

Wilcoxon Two-Sample Test indicates no significant differences Treatments vs D-Control

			Liı	near Interpolation (200	Resamples)	
Point	%	SD	95% CL	Skew		
IC05	>100		·····			
IC10	>100					
IC15	>100				10	
IC20	>100				1.0	
IC25	>100				0.9 -	
IC40	>100				0.8	
IC50	>100				0.7	
· · · · · · · · · · · · · · · · · · ·		· . · · ·		<i></i>	0.7	



CERIODAPHNIA DUBIA CHRONIC BIOASSAY EPA METHOD 1002.0 Raw Data Sheet



Lab No.: A-10122102-001 Client ID: TestAmerica - Outfall 006

Client ID: 7			tfall 00	6								Start	: Date: 12/	21/201	0
		DA	Y١	DA	AY 2		DAY 3	D	A Y 4		DAY 5	C	DAY 6	DA	Y 7
		0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	2	4hr 0 hr	24hr	0 hr	24hr
Analyst I	nitials:	Ro	hm	R	La~	R	-16	A		\mathcal{T}	71	~ M		-	-
Time of Re	eadings:	1522	ISW	ISW	1400	140	1500	19a	1/42	(47	$O \not$	har ka	isa		1
	DO	8.8	8.3	8.0	8.4	8.0		5-6	8-1	8-	48	183	8.0	-	1
Control	pН	8.2	8.2	8.2	8.1	8.	2 8-1	8.2	8.2	82	19	2 8.2	- 8.2	-	-
	Temp			25.1	24.8	24.	2 24.6	24.Z	243	24.	274	1-1 24.2	24.4	-	
	DO	9.8	8.0	7.9	8.1	10.0		9.9	7.9	V.1	8	19.9	8-1	-	-
100%	pН	7.6	8.2	8.2	8.3	2.1	, 83	7.6	8:2	17-6	18	27.7	82	_	(
	Temp	24.6	24.3	24.3	25:2	24.9	5 246	24.6	243	24	2/21	12 793	24.4		
	A	lditional P	Parameter	°S				Co	ntrol				100% Samp	le	
	Co	nductivity	(umohms)				3	10				400		
	Al	kalinity (m	ig/l CaCO	3)					77				78		
	H	ardness (m	g/l CaCO	,)				8	38				66		
	Ar	nmonia (m	g/l NH ₃ -N	l)					.0.1		0.3				
						5	Source of Ne	onates							
Rep	licate:		A	B	c		D	E	F		G	Н	1		J
Bro	od ID:	3	<u>A</u>	<u>_1B</u>	10		30	1E	21		1G	<u> / H</u>	<u>3</u> 7		2
Sample		Day	A	В	с	Numbe D	er of Young	Produced G	н			Total Live Young	No. Live Adults		alyst itials
		1			$\frac{c}{2}$		$\frac{\mathbf{E}}{2}$	_	н //	1		- CI	10		,
	1	2	10	$\frac{1}{2}$	\overline{D}	\sim	$\frac{1}{1}$		$\left(\right)$	0		$\overline{\mathcal{U}}$	10		5
		3	Ċ	, 8	U	3	$\frac{0}{0}$	13		4	5	14			h
		4	U		C	C	45	1	4	Ó	5	30			5
Control		5		79	6	10	710	215	10	7	6	FJ	10		
		6	C	15	10	16	13 0	U	12	14)	13	93	ίŨ		5
		7		<u> </u>	-	-			-		_	-		-	
		Total	[]	<u>ر د</u>	20	29 2	24 15	23	20	55	24	224	10		4
		1	-0	0	$ \mathcal{O} $	U	00	0	$ \mathcal{O} $	\mathcal{O}	\mathcal{O}	Ŭ	10	6	2
		2	$\square u$	0	O	\mathcal{Q}	0 0	0	v	\mathcal{O}	\mathcal{O}	Ú	10	6	
		3	-6	23	4	<u>اک</u>	03	4	ν	O	U	19	10		2
100%		4	<u> </u>	$ \underline{0} $	0		5 0	10	5	<u> </u>	Ч	22	10		n
	-	5	$- \begin{bmatrix} 7 \\ 7 \end{bmatrix}$	9		7	78	+7	10	9	8	83	10		n
		6 7	<u> </u>	>16	14	17	4 11	U	12	Ü	15	110	10		
		/ Total	- 20	128	291		 γ				<u> </u>	724	10		
Circled 6		TULAL		00	011	<u>as l</u>	70 22		27	151	27	<u> </u>			1

Circled fourth brood not used in statistical analysis.

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



CHAIN OF CUSTODY

Test America Version 7/19/2010

CHAIN OF CUSTODY FORM

									······	_										·	
Client Name/A				Project:										A	NALY	SIS RE	QUIRED		r	······	
MWH-Arcac 618 Michillinda Arcadia, CA 9 Test America	a Ave, S 91007		son	Boeing-SSFL I Semi-Annual COMPOSITE Stormwater at	Outfall 006 との ん		Aetals: Sb, Cd, Cu, Pb,	congeners)	CI , SO4, NO ₃ +NO ₂ -N, Perchlorate		Total Dissolved Metals: Sb. Cd. Cu, Pb. Hg. Ti	rross Alpha(900.0), Gross Beta(900.0), ritium (H-3) (906.0), Sr-90 (905.0), Total combined Radium 226 (903.0 or 903.1) & tadium 228 (904.0), Uranium (908.0), K- 0, CS-137 (901.0 or 901.1)									Comments
Project Manag	ger: Bro	nwyn Kelly		Phone Numbe	г:		le v	6uo	Š		Met	(0.0 94.0									
Sampler: R i			A	(626) 568-669 Fax Number: (626) 568-651			Total Recoverable Metals: Hg, Tl	(and all	SO4. NO3+h	TDS, TSS	I Dissolved	Gross A(pha(900.0), G Tritium (H-3) (906.0), S Combined Radium 228 Radium 228 (904.0), 1 40. CS-137 (901.0 or 9	Cyanide	Chronic Toxicity							
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total F Hg, Ti	TCDD	5	SQL	Tota TI	Gros Com Radi	Суаг	Chrc							
Outfall 006	w	1L Poly	1	12-20-2010	HNO ₃	2A .	x														
Outfall 006 Dup	w	1L Poly	1	16:37	HNO3	28 🛃	x														
Outfall 006	w	1L Amber	2		None	3A, 3B 🖍		х													
Outfall 006	w	500 mL Poly	2		None	4A, 4B 🛩			X												
Outfall 006	w	500 mL Poły	1		None	5 -			[X											
Outfall 006	w	1L Poly	1		None	6 '					х										Filter w/in 24hrs of receipt at lab
Outfall 006	w	2 5 Gal Cube 500 mL Amber	1		None None	7A * 78 *						x							-		Unfiltered and unpreserved analysis
Outfall 006	w	500 mL Poly	1	12-202010	NaOH	8							×								
Outfali 006	w	1 Gal Poly	1	16:37	None	9								x							Only test if first or second rain events of the year
												oles for Outfall									
				The	se must be			angré	work			OC Page 1 of 2									A 10
Relinquished By	ß		Date/Ti	12:	<i>30</i>	Received	ifil		M	1		12-21-	4 :2	U	24 Hou 48 Hou	ound time: r: r:		72 Hour 5 Day:	X		10 Day
Relinquished By	ifit	Ony	Date/Tj	The 2/-20/0 12: 7 12-21- 7 12-21- 13: me:	10 SC	Received B	H	Y I	Z	Ľ		-21-101.	35	0	Sample Intact	integrity (Check) On Ice:	<u>Y</u>			
Relinquished By	-	C	D at e/Ti	ime:		Received B	3y		l	Da	ate/Time	:			E	equirement el IV:		All Level i	V:	-	

SUBCONTRACT ORDER

TestAmerica Irvine

ITL2015

SENDING LABORATORY:	RECEIVING LABORATORY:
TestAmerica Irvine	Aquatic Testing Laboratories-SUB
17461 Derian Avenue. Suite 100	4350 Transport Street, Unit 107
Irvine, CA 92614	Ventura, CA 93003
Phone: (949) 261-1022	Phone :(805) 650-0546
Fax: (949) 260-3297	Fax: (805) 650-0756
Project Manager: Debby Wilson	

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: ITL2015-02	Water	Sampled: 12/20/10 16:37		
Bioassay-7 dy Chrnic	12/28/10 15:00	12/22/10 04:37		Cerio, EPA/821-R02-013, Sub to Aquatic testing
Containers Supplied: 1 gal Poly (M)				On+full 006

		hem A	T. 17-21-10	1251)
Released By	Date	Received By	Date	
Released By	Date	Received By	Date	



REFERENCE TOXICANT DATA

CERIODAPHNIA CHRONIC BIOASSAY EPA METHOD 1002.0 REFERENCE TOXICANT - NaCl



QA/QC Batch No.: RT-101207

Date Tested: 12/07/10 to 12/13/10

TEST SUMMARY

Test type: Daily static-renewal. Species: *Ceriodaphnia dubia*. Age: <24 hrs; all released within 8 hrs. Test vessel size: 30 ml. Number of test organisms per vessel: 1. Temperature: 25 +/- 1°C. Dilution water: Mod. hard reconstituted (MHRW). Reference Toxicant: Sodium chloride (NaCl). Endpoints: Survival and Reproduction. Source: In-laboratory culture. Food: .1 ml YTC, algae per day. Test solution volume: 20 ml. Number of replicates: 10. Photoperiod: 16/8 hrs. light/dark cycle. Test duration: 6 days. Statistics: ToxCalc computer program.

Sample Concentration	Percent Surv	vival	Mean Num Young Per H	
Control	100%		23.3	
0.25 g/l	100%		25.2	
0.5 g/l	100%		23.7	
1.0 g/l	100%		16.0	*
2.0 g/l	100%		2.9	*
4.0 g/l	0%	*	0	**
* Statistically signif ** Reproduction data from exclude		greater th	nan survival NC	

RESULTS SUMMARY

CHRONIC TOXICITY

Survival LC50	2.8 g/l
Reproduction IC25	0.86 mg/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% Survival)
≥15 young per surviving control female	Pass (23.3 young)
≥60% surviving controls had 3 broods	Pass (80% with 3 broods)
PMSD <47% for reproduction	Pass (PMSD = 18.9%)
Stat. sig. diff. conc. relative difference > 13%	Pass (Stat. sig. diff. conc. Relative difference = 31.3%)
Concentration response relationship acceptable	Pass (Response curve normal)

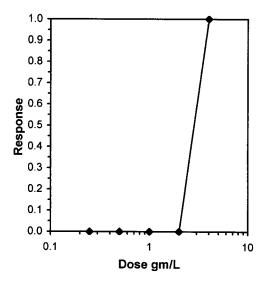
			Cerioda	aphnia Su	vival and	Reprod	uction Tes	t-Surviv	al Day 6	
Start Date:	12/7/2010	14:00	Test ID:	RT101207	Ċ		Sample ID):	REF-Ref	Toxicant
End Date:	12/13/201	0 14:00	Lab ID:	CAATL-Ad	uatic Tes	ting Labs	Sample Ty	/pe:	NACL-Soc	dium chloride
Sample Date:	12/6/2010		Protocol:	FWCH EP	A	•	Test Spec	ies:	CD-Cerioo	laphnia dubia
Comments:										·
Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

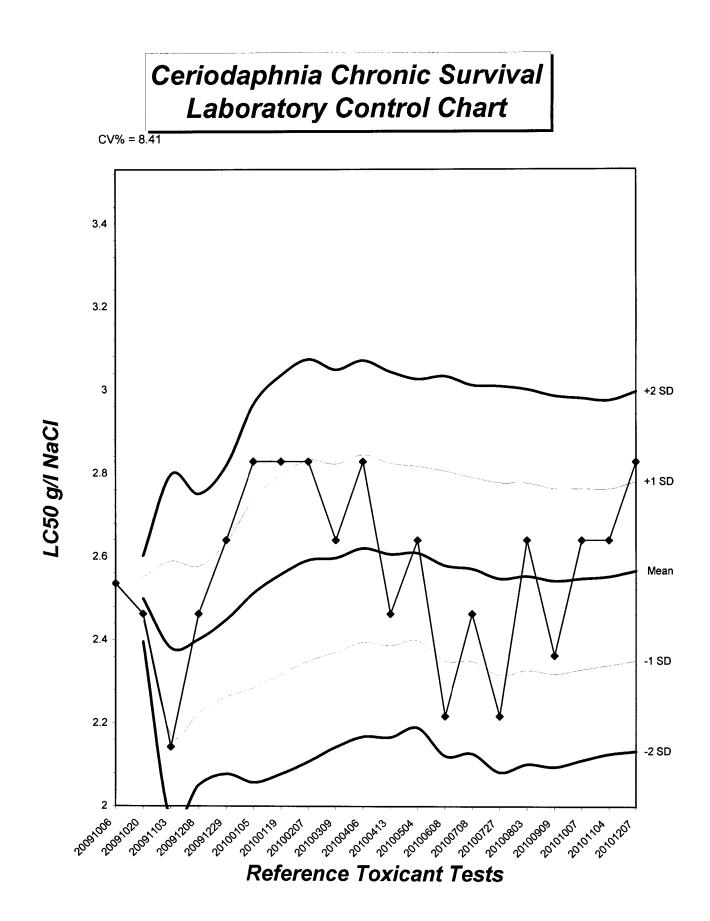
				Not			Fisher's	1-Tailed	Number	Total
Conc-gm/L	Mean	N-Mean	Resp	Resp	Total	Ν	Exact P	Critical	Resp	Number
D-Control	1.0000	1.0000	0	10	10	10			0	10
0.25	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
0.5	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
1	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
2	1.0000	1.0000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

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

Trim Level 0.0% EC50 2.8284

2.8284



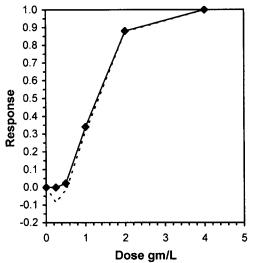


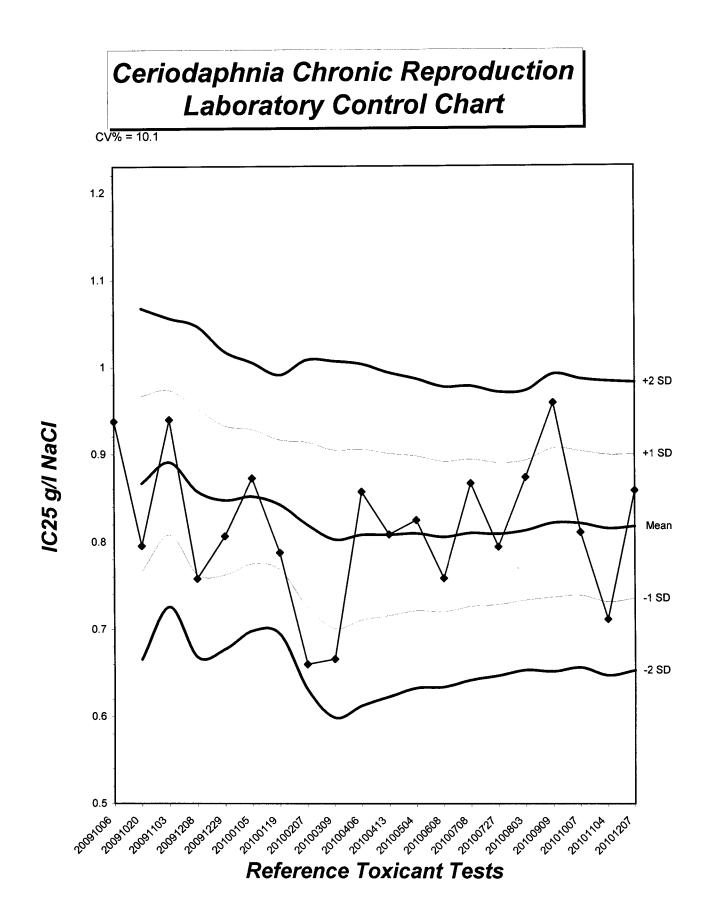
			Ceriod	aphnia Su	rvival and	Reprodu	uction Tes	t-Repro		
Start Date:	12/7/2010	14:00	Test ID:	RT101207	'c		Sample ID	:	REF-Ref 1	
End Date:	12/13/201	0 14:00	Lab ID:	CAATL-Ac	quatic Tes	ting Labs	Sample Ty	/pe:		lium chloride
Sample Date:	12/6/2010		Protocol:	FWCH EP	A		Test Spec	ies:	CD-Cerioo	laphnia dubia
Comments:										
Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	11.000	28.000	27.000	26.000	28.000	21.000	28.000	27.000	15.000
0.25	28.000	29.000	21.000	21.000	28.000	28.000	28.000	25.000	25.000	19.000
0.5		17.000	20.000	26.000	24.000	29.000	29.000	23.000	25.000	19.000
1	10.000	10.000	20.000	22.000	20.000	11.000	15.000	12.000	24.000	16.000
2		2.000		4.000	2.000	4.000	0.000	5.000	2.000	3.000
4		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			•	Transform	n: Untran	sformed		1-Tailed	Isotonic			
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	23.300	1.0000	23.300	11.000	28.000	25.913	10				24.250	1.0000
0.25	25.200	1.0815	25.200	19.000	29.000	14.466	10	-0.959	2.223	4.404	24.250	1.0000
0.5	23,700	1.0172	23.700	17.000	29.000	17.000	10	-0.202	2.223	4.404	23.700	0.9773
*1	16.000	0.6867	16.000	10.000	24.000	32.676	10	3.686	2.223	4.404	16.000	0.6598
*2	2.900	0.1245	2.900	0.000	7.000	75.285	10	10.299	2.223	4.404	2.900	0.1196
4	0.000	0.0000	0.000	0.000	0.000	0.000	10				0.000	0.0000

Auxiliary Tests					Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates nor	mal distribu	ution (p >	0.05)		0.96459		0.947		-0.5938	0.09413
Bartlett's Test indicates equal var					8.97697		13.2767			
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	0.5	1	0.70711		4.40372	0.189	860.47	19.6156	5.6E-15	4, 45
Treatments vs D-Control										

				Linea	r Interpolation	n (200 Resamples)	
Point	gm/L	SD	95%	CL	Skew		
IC05	0.5430	0.1060	0.2194	0.6041	-1.2164		
IC10	0.6218	0.0833	0.4101	0.7081	-1.1699		
IC15	0.7005	0.0819	0.5141	0.8292	-0.4850	1.0 -	
IC20	0.7792	0.0859	0.5998	0.9452	0.1951	0.9	
IC25	0.8580	0.0903	0.6963	1.0439	0.3636	0.8	T T
IC40	1.1107	0.1011	0.9055	1.2772	-0.0498	· · · •	
IC50	1.2958	0.0936	1.0659	1.4429	-0.4534	0.7	
					<u> </u>	0.6 -	
						% 0.5	ł





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



QA/QC No.: RT-101207

Start Date: 12/07/2010

				Nu	mber	of Y	oung	Produ	uced			Total	No.	Analyst
Sample	Day	Α	В	С	D	E	F	G	Н	Ι	J	Live Young	Live Adults	Initials
	1	D	0	0	0	0	Ò	0	0	0	Ù	\mathcal{O}	10	h
	2	0	0	0	0	0	Û	0	0	0	0	0	10	Ru
	3	0	U	4	0	\mathcal{O}		0	\mathcal{O}	\mathcal{O}	\mathcal{O}	4	10	ha
	4	3	3	0	5	U	ž	3	4	4	3	31	IU	n
Control	5	9	8	6	7	8	9	6	9	7	0	69	10	1
	6	10	0	18	15	14	D	12	۱۶	16	12	129	IU	\mathcal{P}
	7	-		~	-	^	h	(^	(~	(
	Total	22	n	28	27	26	28	21	28	27	2 ا	733	10	\square
	1	0	\mathcal{O}	0	0	0	0	0	0	O	\mathcal{O}	∂	10	h
	2	0	0	0	0	0	0	0	0	0	0	\mathcal{O}	JU	h
	3	0	\cup	4	0	0	0	0	0	0	0	4	ju	ha
0.05 //	4	प	3	U	ч	5	4	4	て	4	Ч	35	ίŬ	n
0.25 g/l	5	6	9	2	0	8	10	9	7	7	\mathcal{O}	63	$'_{l}U$	m
	6	18	17	10	17	15	14	15	15	14	15	150	U	K
	7	-	-	~	-		-	-	^	-	-	(-
	Total	28	24	21	21	To	28	28	25	25	19	252	JU	2
	1	\mathcal{O}	0	O	0	0	0	0	0	0	0	\mathcal{O}	ÍÛ	R
	2	0	0	0	0	0	0	0	0	0	0	0	ען	R
	3	0	0	0	4	0	0	0	0	0	0	Ч	10	R
0.5.4	4	Ч	3	4	\mathcal{O}	5	Ч	4	3	3	4	34	ΰĴ	h
0.5 g/l	5	6	0	6	8	7	9	2	6	7	0	56	ÍU	6
	6	15	14	10	14	12	16	18	H	15	15	143	10	
	7		-	-		-	-	-		-	-	-		
	Total	25	17	20	26	24	29	29	ふろ	25	19	237	10	A
Circled fourth 7 th day only u	t brood not use sed if <60% c	ed in s	statisti surviv	ical ar	nalysi ontrol	s. fema	les ha	ve pro	oduced	l their	third t	prood.		•

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



QA/QC No.: RT-101207

Start Date: 12/07/2010

	_			Nu	mbe	r of Y	oung l	Produ	ced			Total	No.	Analyst
Sample	Day	Α	В	С	D	E	F	G	Н	Ι	J	Live Young	Live Adults	Initials
<u> </u>	1	\mathcal{O}	0	\mathcal{O}	0	0	0	O	\mathcal{O}	0	\mathcal{O}	\bigcirc	U	m
	2	0	0	0	0	0	0	0	0	\mathcal{O}	0	0	ίJ	h
	3	0	0	0	0	0	0	Ô	\mathcal{O}	D	0	\mathcal{O}	10	R
1.0 -//	4	ч	3	Ч	Ч	5	5	3	Ц	Ч	3	30	IV	R
1.0 g/l	5	Ó	7	6	6	7	\mathcal{O}	0	\mathcal{O}	6	6	38	10	n
	6	6	0	10	12	8	7	12	8	14	2	84	$l^{\mathcal{U}}$	N
	7	_	_	-	_	-	4	•	-	1				
	Total	10	IV	20	22	20	11	15	12	24	16	160	10	\mathbb{V}
	1	0	\mathcal{O}	0	0	0	0	0	0	0	0	\mathcal{O}	10	R
	2	0	0	0	0	0	0	0	0	0	0	0	10	h
	3	0	0	0	0	0	0	0	0	0	0	0	jU	Br
2.0 ~/1	4	0	0	0	C	2	C	C	Ζ	C	\mathcal{O}	J	U	n
2.0 g/l	5	U	2	3	${\mathcal{C}}$	0	4	\mathcal{O}	C	2	0	. []	10	
	6	Ô	0	4	4	\mathcal{O}	0	Ø	3	\mathcal{O}	3	14	10	1V
	7		-	-	_	-	^	-	-		-			
	Total	U	2	2	4	2	Ч	U	5	2	3	24	U	\mathbb{Z}
	1	X	X	\times	X		X	\succ	X	X	X	0	\mathcal{O}	R
	2	<u> </u>	-	-				~	-	-			<u> </u>	
	3		_	-	_		-	-	-	_ ~				
4.0 ~/1	4	\sim	-	-	_	_	-	-		_			(
4.0 g/l	5	_	-	-	(-		•	-	(-	-		
	6	~	-		-		· (-	-	-			(
	7	<u> </u>	-	-		-	1~		-	-	- 1		-	
	Total	\mathcal{O}	\mathcal{O}			c	C	$ c\rangle$	c	0	C	C	\mathcal{O}	n
	h brood not us used if <60% of						les hav	/e prod	fuced	their t	hird b	rood.		

CERIODAPHNIA DUBIA CHRONIC BIOASSAY Reference Toxicant - NaCl Water Chemistries Raw Data Sheet



QA/QC No.: RT-101207

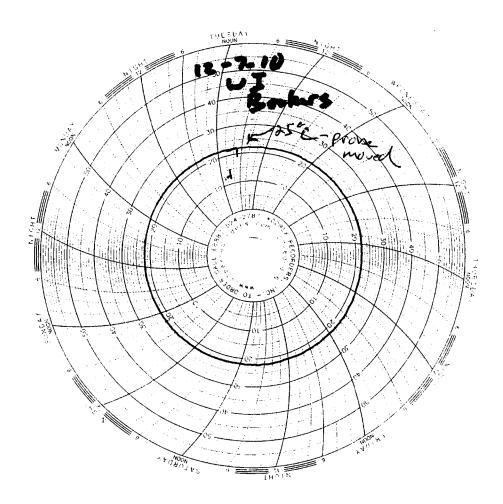
Start Date: 12/07/2010

QA/QC No.: K1-101207															
		DA	Y 1	DA	Y 2	D	AY 3	D.	AY 4	DA	Y 5	DA	Y 6	DA	AY 7
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Analyst I	nitials:	har	h	ß	ŝ	R	En	h	ĥ	h	h	A	ん	K	\mathbb{M}
Time of R	eadings:	140	/sw	ISW	140	1400	1400	1400	1300	1300	1330	1330	14/4	<u> </u>	
	DO	8.4	8.7	8.4	8.6	8.7	8.3	8.2	8.4	8.1	7.9	8,2	26		-
Control	pН	8.2	8.3	8.4	79	8.2	8.0	8.2	8.0	8.1	7.7	8.2	8.2	-	
	Temp	25.0	24.3	25.0	24.5	25.0	24.6	24.8	24.7	25.1	750	75.3	25-2	(
	DO	8.4	85	8.4	8.6	8.6	8.3	8.2	8.4	8.2	24	82	7.7		-
0.25 g/l	pН	8.2	8.3	8.3	7.9	8.2	8.0	8.2	8.0	8.1	8.1	8.2	8.2	-	~
	Temp	25.0	24.6	25.0	24.8	25.0	25.0	24.8	24.8	25,1	240	05Z	2\$2		
	DO	8.5	8.8	8.4	8.7	8.6	8.4	8.2	8.3	8,2	7.4	8.3	7.6	(_
0.5 g/l	pН	8.2	8.2	8.3	7.9	8.2	-8.0	8.2	8.0	8.1	74	8.2	8.	(-
	Temp	25.0	24.7	25.1	24.8	25.0	125.1		24.9	25.U	261	24-6	51	(
	DO	8.5	8.7	8.4	8.7	8.5	8.4	8.2	8.3	82	ちろ	83	7.7	-	_
1.0 g/l	pН	8.2	8.2	8.3	7.9	8.2	8.0	8.2	8.0	8.2	74	8.2	8.1	(_
	Temp	24.9	24.6	25.1	24.9	25.1	25.0	24.0	124.9	25.U	240	245	24.9	(-
	DO	8.6	8.6	8.5	8.8	8.3	8.4	8.2	- 8.5	8.2	8.2	8.Z	74	(-
2.0 g/l	pН	8.2	8.2	8.3	7.9	8.1	8.0	8.2	8.0	8.2	74	82	8-1	-	-
	Temp	24.8	24.8	25.2	24.8	25.7	24.9	25.C	24-8	24.9	244	245	25,2		
	DO	8.7	8.8		-		-		-	_		-			-
4.0 g/l	pН	8.1	8.2	_	-	_	_	-	1		(-)	ļ	-
	Temp		24.8		-							-	-		-
	Di	ssolved	l Oxyge	en (DO)	reading	gs are i	n mg/l	O ₂ ; Ten	nperature	e (Temp)) readin	gs are ii	n ⁰C.		
	Additional	Donomo					Cont	rol				High Co	oncentrat	ion	
	Additional Parameters				Day	1	Day	3	Day 5		Day 1		Day 3	C	Day 5
 	Conductivity (µS)					5	329	;	322	6	2470	3	690	30	430
	Alkalinity ((mg/l CaC	2O3)		- 24		73		73		73		24		24
	Hardness (mg/l CaC	O ₃)		87 88			89 90			70	2	<u>F9</u>	8	-9
ļ					Source of Nec		Neonates					-			
	licate:		A	B			D	E	F		G	H			
Bro	od ID:		A	<u>2A</u>	3,	4	3B	<u> </u> G	<u> </u>	/ 2	I	<u>/J</u>	2J		3J



Test Temperature Chart

Test No: **RT-101207** Date Tested: 12/07/10 to 12/13/10 Acceptable Range: 25+/- 1°C





EBERLINE ANALYTICAL CORPORATION 2030 Wright Avenue Richmond, California 94804-3849 Phone (510) 235-2633 Fax (510) 235-0438 Toll Free (800) 841-5487 www.eberlineservices.com

January 28, 2011

Ms. Debby Wilson Test America Irvine 17461 Derian Ave., Ste. 100 Irvine, CA 92614

Reference: Test America-Irvine ITL2015 Eberline Analytical Report S012315-8648 Sample Delivery Group 8648

Dear Ms. Wilson:

Enclosed is a Level IV CLP-like data package (on CD) for one water sample received under Test America Job No. ITL2015. The sample was received on December 23, 2010.

Please call me, if you have any questions concerning the enclosed report.

Sincerely,

ml

N. Joseph Verville Client Services Manager

NJV/ljb

Enclosure: Level IV CLP-like Data Package CD

Case Narrative, page 1

1.0 General Comments

Sample delivery group 8648 consists of the analytical results and supporting documentation for one water sample. Sample ID's and reference dates/times are given in the Sample Summary section of the Summary Data report. The sample was received as stated on the chain-of-custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. No holding times were exceeded.

Tritium and gamma analyses were performed on the sample as received i.e. the sample was not filtered. The analytical volumes for all other analyses were subjected to a full nitric acid/hydrofluoric acid dissolution, and analyses were performed on the dissolution volume.

2.0 Quality Control

For efficiency of analysis, sample ITL2015-02 was analyzed in a common prep batch with other TA samples. The QC samples from that common prep batch were assigned to SDG 8647 and are reported herein. Quality Control Samples consisted of laboratory control samples (LCS), method blanks, duplicate analyses and matrix spike analyses. Included in the data package are copies of the Eberline Analytical radiometrics data sheets. The radiometrics data sheets for the QC LCS and QC blank samples indicate Eberline Analytical's standard QC aliquot of 1.0 sample; results for those QC types are calculated as pCi/sample. The QC LCS and QC blank sample results reported in the Summary Data Section have been divided by the appropriate method specific aliquot (see the Lab Method Summaries for specific aliquots) in order to make the results comparable to the field sample results. All QC sample results were within required control limits.

3.0 Method Errors

The error for each result is an estimate of the significant random uncertainties incurred in the measurement process. These are propagated to each final result. They include the counting (Poisson) uncertainty, as well as those intrinsic errors due to carrier or tracer standardization, aliquoting, counter efficiencies, weights, or volumes. The following method errors were propagated to the count error to calculate the 2σ error (Total):

Analysis	Method Error
Gross alpha	20.6%
Gross beta	11.0%
Tritium	10.0%
Sr-90	10.4%
Ra-226	16.4%
Ra-228	10.4%
Uranium,Total	
Gamma Spec.	7.0%

Case Narrative, page 2

January 26, 2011

4.0 Analysis Notes

- 4.1 Gross Alpha/Gross Beta Analysis – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- Tritium Analysis No problems were encountered during the processing of the 4.2 samples. All quality control sample results were within required control limits.
- Strontium-90 Analysis No problems were encountered during the processing 4.3 of the samples. All quality control sample results were within required control limits.
- Radium-226 Analysis No problems were encountered during the processing of 4.4 the samples. All quality control sample results were within required control limits
- 4.5 Radium-228 Analysis - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits
- 4.6 Total Uranium Analysis - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- Gamma Spectroscopy The K-40 MDA for the QC blank (54.4 pCi/L) and 4.7 sample ITL2015-2 (31.2 pCi/L) were greater than the required detection limit of 25 pCi/L, due to an elevated K40 background in the ROI for K40 on the detector used for the QC blank and sample. No other problems were encountered during the processing of the samples. All other quality control sample results were within required control limits.

5.0 **Case Narrative Certification Statement**

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

n Juilh N. Joseph Verville **Client Services Manager**

1/28/11 Date

EBERLINE ANALYTICAL SDG 8648

SDG	8648
Contact	N. Joseph Verville

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

SUMMARY DATA SECTION

TABLE OF	сo	N T	EN	T S	,
About this section	•	•	•	•	1
Sample Summaries	•	•		•	3
Prep Batch Summary	•	•	•	•	5
Work Summary	•	•		•	6
Method Blanks	•	•	•	•	8
Lab Control Samples	•	•	•	•	9
Duplicates	•	•	•	•	10
Data Sheets	•	•	•	•	11
Method Summaries	•	•	•	•	12
Report Guides	•	•	•	•	20
End of Section	•	•	•	•	34

Prepared by

Smith Reviewed b

Lab id	
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-TOC
Version	3.06
Report date	01/26/11

SDG 8648

SDG	86	48	
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

REPORT GUIDES Page 1 SUMMARY DATA SECTION Page 1

- 1 - 1	
Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

SDG 8648

SDG	86	48	
Contact	N.	Joseph	Verville

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

REPORT GUIDES Page 2 SUMMARY DATA SECTION Page 2

SDG 8648

SDG <u>8648</u>

Contact N. Joseph Verville

LAB SAMPLE SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	 MATRIX	LEVEL	SAS NO	CHAIN OF CUSTODY	COLLECTED
S012314-02	Lab Control Sample		WATER				
S012314-03	Method Blank		WATER				
S012314-04	Duplicate (S012314-01)	Boeing-SSFL	WATER				12/21/10 10:17
S012315-01	ITL2015-02	Boeing-SSFL	WATER			ITL2015	12/20/10 16:37

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-LS Version 3.06 Report date 01/26/11

LAB SUMMARY Page 1 SUMMARY DATA SECTION Page 3

				SDG	8
SDG	8648	-			
		*********	00	Q T	JM
Contact	N. Joseph	Verville	QC.	00	1 20

SDG 8648

C SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE	BASIS AMOUNT	DAYS S		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
8647	·	Method Blank Lab Control Sample Duplicate (S012314-01)	WATER WATER WATER		9.5 L		12/23/10	2	S012314-03 S012314-02 S012314-04	8647-003 8647-002 8647-004
8648	ITL2015	ITL2015-02	WATER		9.5 L		12/23/10	3	S012315-01	8648-001

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-QS</u> Version <u>3.06</u> Report date <u>01/26/11</u>

QC SUMMARY Page 1 SUMMARY DATA SECTION Page 4

SDG 8648

SDG <u>8648</u>

Contact N. Joseph Verville

PREP BATCH SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

			PREPARATION ERROR		PLANCHETS ANALYZED					ED	QUALI-		
TEST	MATRIX	METHOD	BATCH	2o %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS		
Beta	Counting												
AC	WATER	Radium-228 in Water	7258-160	10.4	1			1	1	1/0/1			
SR	WATER	Strontium-90 in Water	7258-160	10.4	1			1	1	1/0/1			
Gas I	Proportiona	al Counting											
80A	WATER	Gross Alpha in Water	7258-160	20.6	1			l	1	1/0/1			
80B	WATER	Gross Beta in Water	7258-160	11.0	1			1	1	1/0/1			
Gamma	a Spectroso	сору											
GAM	WATER	Gamma Emitters in Water	7258-160	7.0	1			1	1	1/0/1			
Kinet	ic Phospho	primetry, ug											
U_T	WATER	Uranium, Total	7258-160		1			1	1	1/0/1			
Liqui	id Scintill	lation Counting											
н	WATER	Tritium in Water	7258-160	10.0	1			1	1	1/0/1			
Rador	n Counting												
RA	WATER	Radium-226 in Water	7258-160	16.4	1			1	1	1/0/1			

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample. In counts like 'a/b/c', 'a' = QC planchets, 'b' = Originals in this SDG, 'c' = Originals in other SDGs.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-PBS</u> Version <u>3.06</u> Report date <u>01/26/11</u>

PREP BATCH SUMMARY Page 1 SUMMARY DATA SECTION Page 5

SDG 8648

SDG <u>8648</u> Contact N. Joseph Verville

LAB WORK SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

LAB SAMPLE COLLECTED	CLIENT SAMPLE ID	MATRIX			SUF-				
RECEIVED	CUSTODY SAS no		PLANCHET	TEST		ANALYZED	REVIEWED	вү	METHOD
S012314-02	Lab Control Sample		8647-002	80A/80		01/05/11	01/06/11	BW	Gross Alpha in Water
	r.	WATER	8647-002	80B/80		01/05/11	01/06/11	BW	Gross Beta in Water
			8647-002	AC		01/21/11	01/24/11	BW	Radium-228 in Water
			8647-002	GAM		01/06/11	01/11/11	MWT	Gamma Emitters in Water
			8647-002	н		01/14/11	01/24/11	BW	Tritium in Water
			8647-002	RA		01/21/11	01/24/11	BW	Radium-226 in Water
			8647-002	SR		01/13/11	01/24/11	BW	Strontium-90 in Water
			8647-002	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012314-03	Method Blank		8647-003	80A/80		01/05/11	01/06/11	BW	Gross Alpha in Water
		WATER	8647-003	80B/80		01/05/11	01/06/11	BW	Gross Beta in Water
			8647-003	AC		01/21/11	01/24/11	BW	Radium-228 in Water
			8647-003	GAM		01/06/11	01/11/11	MWT	Gamma Emitters in Water
			8647-003	н		01/14/11	01/24/11	BW	Tritium in Water
			8647-003	RA		01/21/11	01/24/11	BW	Radium-226 in Water
			8647-003	SR		01/13/11	01/24/11	BW	Strontium-90 in Water
			8647-003	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012314-04	Duplicate (S012314-01)		8647-004	80A/80		01/05/11	01/06/11	BW	Gross Alpha in Water
12/21/10	Boeing-SSFL	WATER	8647-004	80B/80		01/05/11	01/06/11	BW	Gross Beta in Water
12/23/10			8647-004	AC		01/21/11	01/24/11	BW	Radium-228 in Water
			8647-004	GAM		01/06/11	01/11/11	MWT	Gamma Emitters in Water
			8647-004	Н		01/14/11	01/24/11	BW	Tritium in Water
			8647-004	RA		01/21/11	01/24/11	BW	Radium-226 in Water
			8647-004	SR		01/13/11	01/24/11	BW	Strontium-90 in Water
			8647-004	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012315-01	ITL2015-02		8648-001	80A/80		01/05/11	01/06/11	BW	Gross Alpha in Water
12/20/10	Boeing-SSFL	WATER	8648-001	80B/80		01/05/11	01/06/11	BW	Gross Beta in Water
12/23/10	ITL2015		8648-001	AC		01/21/11	01/24/11	BW	Radium-228 in Water
			8648-001	GAM		01/06/11	01/11/11	MWT	Gamma Emitters in Water
			8648-001	Н		01/14/11	01/24/11	BW	Tritium in Water
			8648-001	RA		01/21/11	01/24/11	BW	Radium-226 in Water
			8648-001	SR		01/13/11	01/24/11	BW	Strontium-90 in Water
			8648-001	U_T		01/21/11	01/24/11	BW	Uranium, Total

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LWS
Version	3.06
Report date	01/26/11

WORK SUMMARY Page 1 SUMMARY DATA SECTION Page 6

SDG 8648

SDG <u>8648</u>

Contact N. Joseph Verville

WORK SUMMARY, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

TEST	SAS no	COUNTS METHOD	OF TESTS B REFERENCE	Y SAMPLE TYPE CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
80A/80		Gross Alpha in Water	900.0	1	l	1	1	4
80B/80		Gross Beta in Water	900.0	1	1	1	1	4
AC		Radium-228 in Water	904.0	1	1	1	l	4
GAM		Gamma Emitters in Water	901.1	1	1	1	1	4
Н		Tritium in Water	906.0	1	1	1	1	4
RA		Radium-226 in Water	903.1	1	1	1	1	4
SR		Strontium-90 in Water	905.0	1	1	1	1	4
U_T		Uranium, Total	D5174	1	1	1	1	4
TOTALS				8	8	8	8	32

WORK SUMMARY

Page 2 SUMMARY DATA SECTION Page 7

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-LWS Version 3.06 Report date 01/26/11

SDG 8648

8647-003

METHOD BLANK

Method Blank

SDG <u>8648</u>	Client <u>Test America, Inc.</u>
Contact <u>N. Joseph Verville</u>	Contract <u>ITL2015</u>
Lab sample id <u>S012314-03</u>	Client sample id <u>Method Blank</u>
Dept sample id <u>8647-003</u>	Material/Matrix <u>WATER</u>

ANALYTE	CAS NO	RESULT pCi/L	20 ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	-0.064	0.27	0.642	3.00	U	80A
Gross Beta	12587472	-0.434	0.55	0.952	4.00	U	80B
Tritium	10028178	107	210	345	500	U	н
Radium-226	13982633	0.035	0.34	0.641	1.00	U	RA
Radium-228	15262201	-0.175	0.20	0.544	1.00	U	AC
Strontium-90	10098972	-0.069	0.30	0.735	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	υT
Potassium-40	13966002	U		_54.4	25.0	υ	GĀM
Cesium-137	10045973	Ŭ		3.09	20.0	U	GAM

QC-BLANK #76684

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-DS
Version	3.06
Report date	01/26/11

METHOD BLANKS Page 1 SUMMARY DATA SECTION Page 8

SDG 8648

8647-002

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>8648</u> Contact <u>N. Joseph Verville</u> Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

Lab sample id <u>S012314-02</u> Dept sample id <u>8647-002</u> Client sample id <u>Lab Control Sample</u> Material/Matrix

WATER

ANALYTE	RESULT pCi/L	20 ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	20 ERR pCi/L	REC %	20 LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	40.4	2.4	0.611	3.00		80A	40.4	1.6	100	78-122	70-130
Gross Beta	33.8	1.5	1.24	4.00		80B	35.0	1.4	97	88-112	70-130
Tritium	2850	310	343	500		н	2550	100	112	83-117	80-120
Radium-226	61.0	2.5	0.793	1.00		RA	55.7	2.2	110	81-119	80-120
Radium-228	5.39	0.63	0.530	1.00		AC	4.63	0.19	116	81-119	60-140
Strontium-90	17.4	1.2	0.548	2.00		SR	17.5	0.70	99	87-113	80-1.20
Uranium, Total	56.3	6.8	0.174	1.00		U_T	56.5	2.3	100	87-113	80-120
Cobalt-60	103	5.6	2.28	10.0		GAM	102	4.1	101	90-110	80-120
Cesium-137	118	4.8	3.29	20.0		GAM	110	4.4	107	90-110	80-120

QC-LCS #76683

LAB CONTROL SAMPLES Page 1 SUMMARY DATA SECTION Page 9 Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-LCS</u> Version <u>3.06</u> Report date <u>01/26/11</u>

SDG 8648

8647-004

DUPLICATE

ITL2014-03

		-					
SDG	8648				Client	<u>Test America, Inc.</u>	
Contact	N. Joseph Verville				Contract	ITL2015	
	DUPLICATE			ORIGINAL			
Lab sample id	<u>S012314-04</u>	Lab sam	ple id	<u>S012314-01</u>	Client sample id	ITL2014-03	
Dept sample id	8647-004	Dept sam	ple id	8647-001	Location/Matrix	Boeing-SSFL	WATER
		Re	ceived	12/23/10	Collected/Volume	<u>12/21/10 10:17 9.5 L</u>	
					Chain of custody id	ITL2014	

ANALYTE	DUPLICATE pCi/L	20 ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	20 ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	30 TOT	DEF
Gross Alpha	1.12	0.41	0.446	3.00	J	80A	0.948	0.36	0.399	J	17	90	0.6
Gross Beta	4.03	0.65	0.887	4.00		80B	4.30	0.65	0.868		6	41	0.5
Tritium	155	210	345	500	U	н	144	200	340	υ	-		0.1
Radium-226	0.179	0.37	0.641	1.00	U	RA	0.312	0.42	0.710	U	-		0.5
Radium-228	0.010	0.33	0.728	1.00	U	AC	0.125	0.26	0.604	U	-		0.5
Strontium-90	0.168	0.31	0.654	2.00	U	SR	0.018	0.28	0.637	U	-		0.7
Uranium, Total	0.245	0.029	0.017	1.00	J	υ_т	0.237	0.028	0.017	J	3	25	0.4
Potassium-40	υ		14.3	25.0	U	GAM	U		24.0	U	-		0.
Cesium-137	U		1.09	20.0	υ	GAM	U		1.80	υ	-		0.1

QC-DUP#1 76685

DUPLICATES Page 1 SUMMARY DATA SECTION Page 10

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-DUP Version 3.06 Report date 01/26/11

SDG 8648

8648-001

DATA SHEET

ITL2015-02

	8648 N. Joseph Verville	Client Contract	<u>Test America, Inc.</u> ITL2015	
Lab sample id Dept sample id Received	8648-001 12/23/10	Client sample id Location/Matrix Collected/Volume ain of custody id	Boeing-SSFL 12/20/10 16:37 9.5 L	WATER

ANALYTE	CAS NO	RESULT pCi/L	20 ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	2.00	0.78	0.822	3.00	J	80A
Gross Beta	12587472	4.28	0.93	1.37	4.00		80B
Tritium	10028178	124	210	352	500	U	Н
Radium-226	13982633	0.339	0.37	0.594	1.00	U	RA
Radium-228	15262201	-0.019	0.19	0.439	1.00	U	AC
Strontium-90	10098972	-0.042	0.29	0.708	2.00	U	SR
Uranium, Total		0.384	0.045	0.017	1.00	J	U_T
Potassium-40	13966002	U		31.2	25.0	U	GAM
Cesium-137	10045973	U		1.54	20.0	U	GAM

DATA SHEETS Page 1 SUMMARY DATA SECTION Page 11 Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-DS</u> Version <u>3.06</u> Report date <u>01/26/11</u>

SDG 8648

Test	AC I	Matrix	WATER
SDG	8648		
Contact	<u>N. Jo</u>	seph Ve	erville

LAB METHOD SUMMARY RADIUM-228 IN WATER

BETA COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Radium-228
Preparation	batch 7258	3-160		
S012314-02		8647-002	Lab Control Sample	ok
S012314-03		8647-003	Method Blank	U
S012314-04		8647-004	Duplicate (S012314-01)	- U
S012315-01		8648-001	ITL2015-02	U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7258-160 20 prep error 1	0.4 % Re	ference	Lab N	lotebool	k No.	7258	pg. 16	50					
S012314-02	Lab Control Sample	0.530	1.80			93		120				01/21/11	01/21	GRB-222
S012314-03	Method Blank	0.544	1.80			91		120				01/21/11	01/21	GRB-223
S012314-04	Duplicate (S012314-01)	0.728	1.80			76		120			31	01/21/11	01/21	GRB-224
S012315-01	ITL2015-02	0.439	1.80			82		150			32	01/21/11	01/21	GRB-232
Nominal val	ues and limits from method	1.00	1.80			30-10	5	50		,	180			

PROCEDURES	REFERENCE	904.0	
	DWP-894	Sequential Separation of Actinium-228 and	
		Radium-226 in Drinking Water (>1 Liter Aliquot),	
		rev 5	
]

AVERAGES ± 2 SD	MDA ±	.242
FOR 4 SAMPLES	YIELD <u>86</u> ± <u>1</u>	<u> </u>

Lab id	EAS
Protocol	TA
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 1 SUMMARY DATA SECTION Page 12

SDG 8648

Test	<u>SR</u> Matrix <u>WATER</u>
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY STRONTIUM-90 IN WATER

BETA COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontiu	1m~90
Preparation	batch 725	8-160			
S012314-02		8647-002	Lab Control Sample	ok	
S012314-03		8647-003	Method Blank	U ·	
S012314-04		8647-004	Duplicate (S012314-01)	-	U
S012315-01		8648-001	ITL2015-02	U	

METHOD PERFORMANCE

RAW SUF-	MDA	~ .									22223222	ANAL-	DIMEGRAD
TEST FIX CLIENT SAMPLE ID	pC1/L	ىل 	FAC	TION	*	*	m111	ĸev	xev	HELD	PREPARED	YZED	DETECTOR
batch 7258-160 20 prep error 1	L0.4 % Re	ference	Lab N	lotebool	k No.	7258	pg. 16	50					
Lab Control Sample	0.548	0.500			85		60				01/08/11	01/13	GRB-204
Method Blank	0.735	0.500			73		50				01/08/11	01/13	GRB-204
Duplicate (S012314-01)	0.654	0.500			77		50			23	01/08/11	01/13	GRB-202
ITL2015-02	0.708	0.500			70		50			30	01/19/11	01/13	GRB-203
ues and limits from method	2.00	0.500			30-10	5	50			180			
	TEST FIX CLIENT SAMPLE ID batch 7258-160 20 prep error D Lab Control Sample Method Blank Duplicate (S012314-01)	TEST FIX CLIENT SAMPLE ID pCi/L batch 7258-160 20 prep error 10.4 % Re Lab Control Sample 0.548 Method Blank 0.735 Duplicate (S012314-01) 0.654 ITL2015-02 0.708	TEST FIX CLIENT SAMPLE ID pCi/L L batch 7258-160 2σ prep error 10.4 % Reference Lab Control Sample 0.548 0.500 Method Blank 0.735 0.500 Duplicate (S012314-01) 0.654 0.500 ITL2015-02 0.708 0.500	TEST FIX CLIENT SAMPLE IDpCi/LLFACbatch 7258-16020 prep error 10.4 % Reference LabNLab Control Sample0.5480.500Method Blank0.7350.500Duplicate (S012314-01)0.6540.500ITL2015-020.7080.500	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION batch 7258-160 20 prep error 10.4 % Reference Lab Notebool Lab Control Sample 0.548 0.500 Method Blank 0.735 0.500 Duplicate (S012314-01) 0.654 0.500 ITL2015-02 0.708 0.500	TEST FIXCLIENT SAMPLE IDpCi/LLFAC TION%batch 7258-16020 prep error 10.4 % ReferenceLab Notebook No.Lab Control Sample0.5480.50085Method Blank0.7350.50073Duplicate (S012314-01)0.6540.50077ITL2015-020.7080.50070	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 Lab Control Sample 0.548 0.500 85 Method Blank 0.735 0.500 73 Duplicate (S012314-01) 0.654 0.500 70	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 16 Lab Control Sample 0.548 0.500 85 60 Method Blank 0.735 0.500 73 50 Duplicate (S012314-01) 0.654 0.500 77 50 ITL2015-02 0.708 0.500 70 50	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 160 Lab Control Sample 0.548 0.500 85 60 Method Blank 0.735 0.500 73 50 Duplicate (S012314-01) 0.654 0.500 70 50 ITL2015-02 0.708 0.500 70 50	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 160 Lab Control Sample 0.548 0.500 85 60 Method Blank 0.735 0.500 73 50 Duplicate (S012314-01) 0.654 0.500 70 50 ITL2015-02 0.708 0.500 70 50	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV HELD batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 160 Lab Control Sample 0.548 0.500 85 60 Method Blank 0.735 0.500 73 50 Duplicate (S012314-01) 0.654 0.500 70 50 23 ITL2015-02 0.708 0.500 70 50 30	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV HELD PREPARED batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 160 Lab Control Sample 0.548 0.500 85 60 01/08/11 Method Blank 0.735 0.500 73 50 01/08/11 Duplicate (S012314-01) 0.654 0.500 70 50 23 01/08/11 ITL2015-02 0.708 0.500 70 50 30 01/19/11	TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV HELD PREPARED YZED batch 7258-160 20 prep error 10.4 % Reference Lab Notebook No. 7258 pg. 160 1/13 01/08/11 01/13 Lab Control Sample 0.548 0.500 85 60 01/08/11 01/13 Method Blank 0.735 0.500 73 50 23 01/08/11 01/13 Duplicate (S012314-01) 0.654 0.500 70 50 30 01/19/11 01/13 ITL2015-02 0.708 0.500 70 50 30 01/19/11 01/13

٦

	PROCEDURES	REFERENCE	905.0	AVERA
Contraction of the local division of the loc		DWP-380	Strontium in Drinking Water, rev 8	FOR 4

 AVERAGES ± 2 SD
 MDA
 0.661 ±
 0.165

 FOR 4 SAMPLES
 YIELD
 76 ±
 13

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 2 SUMMARY DATA SECTION Page 13

SDG 8648

Test	80A Matrix WATER
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY

GROSS ALPHA IN WATER GAS PROPORTIONAL COUNTING

Client Test America, Inc. Contract ITL2015

RESULTS

LAB	RAW SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation	n batch 7258	-160		
S012314-02	80	8647-002	Lab Control Sample	ok
S012314-03	80	8647-003	Method Blank	U
S012314-04	80	8647-004	Duplicate (S012314-01)	ok J
S012315-01	80	8648-001	ITL2015-02	2.00 J
Nominal val	ues and lim	nits from m	ethod RDLs (pCi/L)	3.00

METHOD PERFORMANCE

LAB	RAW SUF-		MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	96	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
			0.0 C 0. D-	6	7 - 1- X			2050							
Preparation	batch 725	8-160 20 prep error 3	20.6 % Re	rerence	Lap M	loceboo.	K NO.	/258	pg. re	50					
S012314-02	80	Lab Control Sample	0.611	0.250			60		400				01/04/11	01/05	GRB-103
S012314-03	80	Method Blank	0.642	0.250			60		400				01/04/11	01/05	GRB-104
S012314-04	80	Duplicate (S012314-01)	0.446	0.300			36		400			15	01/04/11	01/05	GRB-105
S012315-01	80	ITL2015-02	0.822	0.300			109		400			16	01/04/11	01/05	GRB-107
Nominal val	ues and li	mits from method	3.00	0.250			0-20	0	100			180			

PROCEDURES	REFERENCE DWP-121	900.0 Gross Alpha and Gross Beta in Drinking Water,	AVERAGES ± 2 SD FOR 4 SAMPLES	MDA 0.630 ± 0.308 RESIDUE 66 ± 61
		rev 10		-

Lab id	EVC
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 3 SUMMARY DATA SECTION Page 14

SDG 8648

Test	80B Matrix WATER
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY

GROSS BETA IN WATER GAS PROPORTIONAL COUNTING Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

Preparation batch 7	258-160		·
S012314-02 80	8647-002	Lab Control Sample	ok .
S012314-03 80	8647-003	Method Blank	U
S012314-04 80	8647-004	Duplicate (S012314-01)	ok
S012315-01 80	8648-001	ITL2015-02	4.28

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7258-160 20 prep error 1	1.0 % Re:	ference	Lab N	oteboo	k No. 7	7258	pg. 16	50				
S012314-02	80 Lab Control Sample	1.24	0.250			60		400			01/04/11	01/05	GRB-103
S012314-03	80 Method Blank	0.952	0.250			60		400			01/04/11	01/05	GRB-104
S012314-04	80 Duplicate (S012314-01)	0.887	0.300			36		400		15	01/04/11	01/05	GRB-105
S012315-01	80 ITL2015-02	1.37	0.300			109		400		16	01/04/11	01/05	GRB-107
Nominal val	ues and limits from method	4.00	0.250			0-200	0	100		180			

PROCEDURES	REFERENCE	900.0
	DWP-121	Gross Alpha and Gross Beta in Drinking Water,
		rev 10

 AVERAGES ± 2 SD
 MDA
 1.11
 ±
 0.461

 FOR 4 SAMPLES
 RESIDUE
 66
 ±
 61

-	
Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 15

SDG 8648

Test <u>GAM</u> Matrix <u>WATER</u> SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

GAMMA EMITTERS IN WATER

GAMMA SPECTROSCOPY

RESULTS

SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt-60	Cesium		
Preparation	batch 725	8-160					
S012314-02		8647-002	Lab Control Sample	ok	ok		
S012314-03		8647-003	Method Blank		U		
S012314-04		8647-004	Duplicate (S012314-01)		-	υ	
S012315-01		8648-001	ITL2015-02		U		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %		FWHM keV		PREPARED	ANAL- YZED	DETECTOR.
SAMPLE ID	1531 FIX CHIENI SAMELE ID												
Preparation	batch 7258-160 20 prep error 7	7.0 % Re:	ference	Lab N	lotebool	k No.	7258	pg. 16	50				
S012314-02	Lab Control Sample		2.00					402			12/30/10	01/06	MB,02,00
S012314-03	Method Blank		2.00					400			12/30/10	01/06	MB,05,00
S012314-04	Duplicate (S012314-01)		2.00					708		16	12/30/10	01/06	MB,08,00
S012315-01	ITL2015-02		2.00					708		17	01/04/11	01/06	01,01,00
										 ·····			
Nominal val	ues and limits from method	6.00	2.00					400		180			

PROCEDURES	REFERENCE	901.1
	DWP-100	Preparation of Drinking Water Samples for Gamma
		Spectroscopy, rev 5

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 5 SUMMARY DATA SECTION Page 16

SDG 8648

Test	<u>U T</u> Matrix <u>WATER</u>
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY

URANIUM, TOTAL KINETIC PHOSPHORIMETRY, UG Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

LAB	RAW SUF-		Uranium,		
SAMPLE ID	TEST FIX PLANCHET	CLIENT SAMPLE ID	Total		
Preparation	n batch 7258-160			N. N.	
S012314-02	8647-002	Lab Control Sample	ok		
S012314-03	8647-003	Method Blank	υ		
S012314-04	8647-004	Duplicate (S012314-01)	ok J		
S012315-01	8648-001	ITL2015-02	0.384 J		
<u></u>	internet i stationer and st			 	
Nominal va	lues and limits from m	ethod RDLs (pCi/L)	1.00		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA A	L L	PREP FAC	DILU- TION	YIELD %	EFF %		FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7258-160 20 prep error	Refer	rence	Lab N	otebool	k No. '	7258	pg. 16	50				
S012314-02	Lab Control Sample	0.174 0.0	0200								12/30/10	01/20	KPA-001
S012314-03	Method Blank	0.017 0.0	0200								12/30/10	01/20	KPA-001
S012314-04	Duplicate (S012314-01)	0.017 0.0	0200							30	12/30/10	01/20	KPA-001
S012315-01	ITL2015-02	0.017 0.0	0200							32	12/30/10	01/21	KPA-001
Nominal val	ues and limits from method	1.00 0.0	0200							180			

PROCEDURES REFERENCE D5174

AVERAGES ± 2 SD	MDA ±	0.157
FOR 4 SAMPLES	YIELD ±	

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 6 SUMMARY DATA SECTION Page 17

SDG 8648

Test	H Matrix WATER
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY

TRITIUM IN WATER

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Trit	ium			
Preparation	batch 725	8-160					`	
S012314-02		8647-002	Lab Control Sample	ok				
S012314-03		8647-003	Method Blank	υ				
S012314-04		8647-004	Duplicate (S012314-01)	-	U			
S012315-01		8648-001	ITL2015-02	U				

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7258-160 20 prep error 1	10.0 % 1	Reference	Lab 1	lotebool	k No.	7258	pg. 16	50				
S012314-02	Lab Control Sample	343	0.100			10		50			01/13/11	01/14	LSC-005
S012314-03	Method Blank	345	0.100			10		50			01/13/11	01/14	LSC-005
S012314-04	Duplicate (S012314-01)	345	0.0100			100		50		24	01/13/11	01/14	LSC-005
S012315-01	ITL2015-02	352	0.0100			100		50		25	01/13/11	01/14	LSC-005
Nominal val	ues and limits from method	500	0.0100					100		 180			

PROCEDURES	REFERENCE	906.0	AVERAGES ± 2 SD	MDA <u>346</u>	. ± .	7.90
	DWP-212	Tritium in Drinking Water by Distillation, rev 8	FOR 4 SAMPLES	YIELD 55	. ± .	104

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 7 SUMMARY DATA SECTION Page 18

SDG 8648

Test	<u>RA</u> Matrix <u>WATER</u>
SDG	8648
Contact	N. Joseph Verville

LAB METHOD SUMMARY RADIUM-226 IN WATER

RADON COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

RESULTS

LAB	RAW SUF-				
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Radium-226	
Preparation	batch 725	8-160			
S012314-02		8647-002	Lab Control Sample	ok	
S012314-03		8647-003	Method Blank	U	
S012314-04		8647-004	Duplicate (S012314-01)	- U	
S012315-01		8648-001	ITL2015-02	Ŭ	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	XIEID	EFF %	COUNT min			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7258-160 20 prep error	16.4 % Re	ference	Lab N	oteboo	k No. '	7258	pg. 16	50				
S012314-02	Lab Control Sample	0.793	0.100			100		102			01/21/11	01/21	RN-009
S012314-03	Method Blank	0.641	0.100			100		86			01/21/11	01/21	RN-013
S012314-04	Duplicate (S012314-01)	0.641	0.100			100		8.6		31	01/21/11	01/21	RN-011
S012315-01	ITL2015-02	0.594	0.100			100		86		32	01/21/11	01/21	RN-012
Nominal val	ues and limits from method	1.00	0.100					100		 180			·

PROCEDURES	REFERENCE	903.1	AVERAGES ± 2 SD	MDA	0.667 ±	t <u>0</u>	1.173
	DWP-881A	Ra-226 Screening in Drinking Water, rev 6	FOR 4 SAMPLES	YIELD	100 ±	Ł	0

Lab id	EAS
Protocol	
Version	
	DVD-LMS
Version	3.06
Report date	01/26/11

METHOD SUMMARIES Page 8 SUMMARY DATA SECTION Page 19

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES Page 1 SUMMARY DATA SECTION Page 20

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

SDG 8648

SDG	864	18	
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>01/26/11</u>

REPORT GUIDES Page 2 SUMMARY DATA SECTION Page 21

SDG 8648

SDG <u>8648</u> Contact N. Joseph Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES Page 3 SUMMARY DATA SECTION Page 22

Lab id	EAS
Protocol	TA
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	01/26/11

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>01/26/11</u>

REPORT GUIDES Page 4 SUMMARY DATA SECTION Page 23

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

DATA SHEET

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned. B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample. Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case. For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships. L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier. H Similar to 'L' except the recovery was high. P The RESULT is 'preliminary'. X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified. 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data. Other qualifiers are lab defined. Definitions should be in the SDG narrative. The following values are underlined to indicate possible problems: * An MDA is underlined if it is bigger than its RDL. * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

REPORT GUIDES Page 5 SUMMARY DATA SECTION Page 24

SDG 8648

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

REPORT GUIDES Page 6 SUMMARY DATA SECTION Page 25

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES Page 7 SUMMARY DATA SECTION Page 26

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample. The following notes apply to this report: * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details. If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined. The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent. If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed. For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD. The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing. If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not. This value reported for this limit is at most 999. * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

REPORT GUIDES Page 8 SUMMARY DATA SECTION Page 27

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date <u>01/26/11</u>

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES Page 9 SUMMARY DATA SECTION Page 28

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date 01/26/11

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample. The following notes apply to this report: * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details. If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined. An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount. An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits. * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent. The first, computed limits for the recovery reflect: 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing. If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not. 2. The error of ADDED. 3. A lab specified, per analyte bias. The bias changes the center of the computed limits. The second limits are protocol defined upper and lower QC limits for the recovery.

> Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date 01/26/11

REPORT GUIDES Page 10 SUMMARY DATA SECTION Page 29

SDG	8648
-----	------

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date 01/26/11

REPORT GUIDES Page 11 SUMMARY DATA SECTION Page 30

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

REPORT GUIDES Page 12 SUMMARY DATA SECTION Page 31

	La	ab j	ld	EAS
	Prot	code	51	TA
	Vei	csic	n	<u>Ver 1.0</u>
		Foi	cm.	<u>DVD-RG</u>
	Ver	rsic	3.06	
Rep	ort	dat	:e	01/26/11

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
- * Count times are underlined if less than the nominal value

REPORT GUIDES Page 13 SUMMARY DATA SECTION Page 32

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date 01/26/11

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

METHOD SUMMARY

specified for the method.

- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

EAS
TA
Ver 1.0
DVD-RG
3.06
01/26/11

REPORT GUIDES Page 14 SUMMARY DATA SECTION Page 33

SDG 8648

SDG <u>8648</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2015</u>

METHOD SUMMARY

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	01/26/11

REPORT GUIDES Page 15 SUMMARY DATA SECTION Page 34

SUBCONTRACT ORDER **TestAmerica** Irvine

ITL2015

8648

SENDING LABORATORY:	RECEIVING LABORATORY:
TestAmerica Irvine	Eberline Services
17461 Derian Avenue. Suite 100	2030 Wright Avenue
Irvine, CA 92614	Richmond, CA 94804
Phone: (949) 261-1022	Phone :(510) 235-2633
Fax: (949) 260-3297	Fax: (510) 235-0438
Project Manager: Debby Wilson	Project Location: California
	Receipt Temperature: <u>°</u> C Ice: Y / N

Analysis	Units	Due	Expires	Comments
Sample ID: ITL2015-02 (Out	fall 006 (Cor	nposite) - Wat	er)	
			Sampled: 12/20/10 1	
Gamma Spec-O	mg/kg	12/30/10	12/20/11 16:37	Out St Louis, k-40 and cs-137 only, DC NOT FILTER!
Gross Alpha-O	pCi/L	12/30/10	06/18/11 16:37	Out St Louis, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	12/30/10	06/18/11 16:37	Out St Louis, Boeing permit, DO NOT FILTER!
Level 4 Data Package - Out	N/A	12/30/10	01/17/11 16:37	
Radium, Combined-O	pCi/L	12/30/10	12/20/11 16:37	Out St Louis, Boeing permit, DO NOT
Strontium 90-0	pCi/L	12/30/10	12/20/11 16:37	Out St Louis, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	12/30/10	12/20/11 16:37	Out St Louis, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	12/30/10	12/20/11 16:37	Out St Louis, Boeing permit, DO NOT FILTER!
Containers Supplied:				
2.5 gal Poly (J)	500 mL Amt	ber (K)		

Released By FEDEX

Released By

______ Date/Time 00 12/23 Date/Time

2/22/10 17:00 Date/Time 12 Received By 23/10 Keleen R Received By Date/Time

/2 ! **0**7) Page 1 of 1

EBERLI	NE			LABORATO			
lient: <u>TE</u> ST	- ANE		ty 1RV(NEI	State	<u>A</u>	
ate/Time receive	12/23/10	12:000 No.	ITL 2	014 1	2015		
antoiner ID No.	NIA	Requested T	AT (Days)≦	TAVD P.O. Rec	eived Yes []	No[]	
ontainer I.D. No.	*		INSPECT				
Custody	seals on shippin	g container inta	ct?		Yes [V]	No[] N/A []
Custody s	seals on shippin	g container date	ed & signed	?		No[] N/A [
		containers inta			• •	ND[] N/A [
Custody	seals on sample	containers dat	ed & signed	?	Yes []	No[] N/A []	V] V/k :/
Packing	material is:		~		Wet []		// 0
Number	of samples in sh	ipping containe	r:	Sample Matri		=1(
				(Or see CoC Yes [∨])		
	are in correct c			Yes $[\mathbf{v}]$ Yes $[\mathbf{v}]$			
9. Paperwo	ork agrees with s	amples?		ad labels [] A	nnronriate sam		
10. Samples	s have: Tape [] Hazard la		g[] Broken		Missing []	
11. Samples	s are: in goo			pHPre	servative		
			serveu				
an manadh	e any anomalies	•					
13. Describe	e any anomanoe	••		N.			
13. Describ				s.			
13. Ueschor				· · · · · · · · · · · · · · · · · · ·			
			Yes	[] No[
14. Was P.	M. notified of ar	ny anomalies?	Yes Date:	[] No[2/27//0 Tim)	
14. Was P. 15. Inspect	M. notified of an		Yes Date:	2/27/10 Tim	e: 09-17	Ion Chamber	
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	ny anomalies?	Yes Date: Wipe	2/27/10 Tim	09:52		wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm	on Chamber	Date:	2/27/10 Tim	e: 09-17	Ion Chamber	wipe
14. Was P. 15. Inspect Customer Sample No. Aic Sceupt	M. notified of an red by Beta/Gamma cpm g g g g g	ion Chamber mR/hr	Wipe	2/27//O Tim Customer Sample No.	Beta/Gamma cpm	lon Chamber mR/hr	
14. Was P. 15. Inspect Customer Sample No.	M. notified of an red by Beta/Gamma cpm g g g g g	ion Chamber mR/hr	Wipe	Calibration da	e: 09.57	Ion Chamber	
14. Was P. 15. Inspect Customer Sample No. Aic Sceupt	M. notified of an red by Beta/Gamma cpm g $\angle 60$	ion Chamber mR/hr	Wipe	Calibration da	e:	lon Chamber mR/hr	

and the second sec

· •

Form SCP-02, 07-30-07

الم الم المراجع المراجع

"over 55 years of quality nuclear services"

APPENDIX G

Section 13

Outfall 006 – December 26, 2010 MEC^X Data Validation Report THIS PAGE LEFT INTENTIONALLY BLANK



DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: ITL2487

Prepared by

MEC^x, LP 12269 East Vassar Drive Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Contract Task Order: Sample Delivery Group:	Boeing SSFL NPDES 1261.100D.00 ITL2487
Project Manager:	B. Kelly
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-Irvine

Table 1. Sample Identification

Client ID	Laboratory ID	Sub-Laboratory ID	Matrix	Collected	Method
Outfall 006 (Composite)	ITL2487-02	G0l290487-001, S012367-01	Water	12/26/2010 9:58:00 PM	1613B, 900, 901.1, 903.1, 904, 905, 906, 245.1, 245.1-Diss, SM 2540D, D5174

II. Sample Management

No anomalies were observed regarding sample management. The temperature upon receipt was not noted by Eberline; however, due to the nonvolatile nature of the analytes, no qualifications were required. The remaining samples in this SDG were received at the laboratories within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples in this SDG were delivered by courier, custody seals were not required.

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.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
Е	Not applicable.	Duplicates showed poor agreement.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	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

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
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.
* , *	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 1613—Dioxin/Furans

Reviewed By: L. Calvin Date Reviewed: January 19, 2011

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the MEC^{\times} Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 1613, and the National Functional Guidelines Chlorinated Dioxin/Furan Data Review (8/02).

- 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.
 - o 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 1613 QC limits for all standards.
 - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits.
- Blanks: The method blank had detects between the EDL and the RL for several isomers and totals. Most method blank detects were reported as EMPCs; however, due to the extent of the method blank contamination, the reviewer considered it appropriate to use the EMPCs to qualify sample results. Method blank concentrations of OCDD and OCDF were insufficient to qualify sample results. All remaining individual isomers detected in

both the method blank and site sample were qualified as nondetected, "U" at the EDL, or at the level of contamination in the sample. The sample totals containing one or more peaks detected in the method blank were qualified as estimated, "J."

- Blank Spikes and Laboratory Control Samples: OCDD and 1,2,3,4,6,7,8-HpCDF were recovered above the control limits in the LCS. The sample result for OCDD was qualified as estimated, "J." Isomer 1,2,3,4,6,7,8-HpCDF was not reportable in the associated sample. The remaining LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- 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.
- Internal Standards Performance: The labeled standard recoveries in the sample were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. A confirmation analysis was performed for 2,3,7,8-TCDF; however, the original result was not confirmed, and was therefore reported as nondetected, "U."
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating a representative number of reportable sample results. Any individual isomers reported as EMPCs previously qualified as nondetected for method blank contamination were not further qualified as EMPCs. Remaining isomers reported as EMPCs were qualified as estimated nondetects, "UJ," at the level of the EMPC. Any totals including EMPC peaks were qualified as estimated, "J." Any detects reported between the estimated detection limit (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.

B. EPA METHOD 245.1—Mercury

Reviewed By: P. Meeks Date Reviewed: January 14, 2011

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the MEC^{X} Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 245.1, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, 28 days for mercury, was met.
- Tuning: Not applicable to this analysis.
- Calibration: Calibration criteria were met. Initial calibration r² values were ≥0.995 and all initial and continuing calibration recoveries were within 85-115%. CRDL/CRI recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Not applicable to this analysis.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- 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 was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: Not applicable to this 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.

C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks Date Reviewed: February 8, 2011

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods* 900.0, 901.1, 903.1, 904.0, 905.0, and 906.0, ASTM Method D-5174, and the National Functional Guidelines for Inorganic Data Review (10/04).

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

The gross alpha detector efficiency was less than 20%; therefore, gross alpha detected in the sample was qualified as estimated, "J." The remaining detector efficiencies were greater than 20%.

The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. All chemical yields were at least 40% and were considered acceptable. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis.

- Blanks: There were no analytes detected in the method blanks.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratoryestablished control limits.
- Laboratory Duplicates: There were no laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed for the sample in this SDG. Method accuracy was evaluated based on the LCS results.

Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDAs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any detects between the MDA 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 MDA. Total uranium, normally reported in aqueous units, was converted to pCi/L using the conversion factor of 0.67 for naturally occurring uranium.

A notation in the sample preparation logbook indicated that the aliquots for radium-226, radium-228, and strontium were filtered and that the filter was digested and added to the aliquot.

- 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. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks Date Reviewed: January 17, 2011

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x* Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Standard Method SM2540D, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, seven days from collection, was met.
- Calibration: The balance logs were acceptable.
- Blanks: TSS was not detected in the method blank.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- 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.

- 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 ITL2487

Analysis Method 8652

Sample Name	Outfall 006 (0	Composite	e) Matri	ix Type:	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PM	Μ		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Uranium, Total		0.195	1	0.017	pCi/L	Jb	J	DNQ
Analysis Metho	d 900							
Sample Name	Outfall 006 (Composite	e) Matri	ix Type:	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PN	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha	12587461	1.12	3	0.384	pCi/L	Jb	J	C, DNQ
Gross Beta	12587472	2.56	4	1.02	pCi/L	Jb	J	DNQ
Analysis Metho	d 901.1							
Sample Name	Outfall 006 (Composite	e) Matr	ix Type:	WATER	١	alidation Le	vel: IV
Lab Sample Name:	ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PM	Ν		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045973	ND	20	1.58	pCi/L	U	U	
Potassium-40	13966002	ND	25	19.4	pCi/L	U	U	
Analysis Metho	d 903.1							
Sample Name	Outfall 006 (Composite	e) Matr	ix Type:	WATER	١	alidation Le	vel: IV
Lab Sample Name:	ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PN	Ν		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982633	0.039	1	0.567	pCi/L	U	U	
Analysis Metho	d 904							
Sample Name	Outfall 006 (Composite	e) Matr	ix Type:	WATER	١	alidation Le	vel: IV
	ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PM	Ν		
Lab Sample Name:								
Lab Sample Name: Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Tuesday, February 08, 2011

Outfall 006 (C	Composite) Matri	ix Type:	WATER	V	alidation Le	vel: IV
ITL2487-02	Sam	ple Date:	12/26/202	10 9:58:00 PN	А		
CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
10098972	0.051	2	0.587	pCi/L	U	U	
od 906							
Outfall 006 (0	Composite) Matri	ix Type:	WATER	V	alidation Le	vel: IV
ITL2487-02	Sam	ple Date:	12/26/202	10 9:58:00 PN	А		
CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
10028178	-36.2	500	272	pCi/L	U	U	
d EPA	245.1						
Outfall 006 (0	Composite) Matri	ix Type:	Water	١	alidation Le	vel: IV
ITL2487-02	Sam	ple Date:	12/26/20	10 9:58:00 PN	А		
CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
7439-97-6	ND	0.20	0.10	ug/l		U	
	ND 245.1-L		0.10	ug/l		U	
	245.1-L	Diss	0.10 ix Type:	ug/l Water	N	U /alidation Le	vel: IV
od EPA	245.1-L Composite	Diss	х Туре:	0			vel: IV
Od EPA 2	245.1-L Composite	Diss	х Туре:	Water			
	ITL2487-02 CAS No 10098972 od 906 Outfall 006 (C ITL2487-02 CAS No 10028178 od EPA 2 Outfall 006 (C ITL2487-02	ITL2487-02 Sam CAS No Result Value 10098972 0.051 0d 906 Outfall 006 (Composite ITL2487-02 Sam CAS No Result Value 10028178 -36.2 0d EPA 245.1 Outfall 006 (Composite ITL2487-02 Sam CAS No Result Value 10028178 -36.2 0d EPA 245.1 Outfall 006 (Composite ITL2487-02 Sam CAS No Result	ITL2487-02 Sample Date: CAS No Result RL 10098972 0.051 2 0d 906 906 Outfall 006 (Composite) Matri ITL2487-02 Sample Date: CAS No Result RL Value 10028178 -36.2 500 0d EPA 245.1 0 0 Outfall 006 (Composite) Matri 1028178 -36.2 0d EPA 245.1 0 0 Outfall 006 (Composite) Matri 10 10 CAS No Result RL 100 CAS No Result RL 10 CAS No Result RL 10 0.01 EPA 245.1 0 10 0.02 Sample Date: 10 10 0.02 CAS No Result RL	Contraine 000 (composite) ITL2487-02 Sample Date: 12/26/20. CAS No Result Value RL MDL 10098972 0.051 2 0.587 0d 906 0 0.587 0d 906 0 0 Outfall 006 (Composite) Matrix Type: ITL2487-02 Sample Date: 12/26/20. CAS No Result Value RL MDL 10028178 -36.2 500 272 0d EPA 245.1 0 245.1 Outfall 006 (Composite) Matrix Type: ITL2487-02 Sample Date: 12/26/20. CAS No Result RL MDL CAS No Result RL MDL	ITL2487-02 Sample Date: 12/26/2010 9:58:00 PN CAS No Result Value MDL Result Units 10098972 0.051 2 0.587 pCi/L od 906 906 906 906 Outfall 006 (Composite) Matrix Type: WATER ITL2487-02 Sample Date: 12/26/2010 9:58:00 PN CAS No Result Value MDL Result Units 10028178 -36.2 500 272 pCi/L od EPA 245.1 900 906 906 906 Outfall 006 (Composite) Matrix Type: Water 900 900 INDUE Sample Date: 12/26/2010 9:58:00 PN 900 900 Outfall 006 (Composite) Matrix Type: Water 900 ITL2487-02 Sample Date: 12/26/2010 9:58:00 PN 900 CAS No Result RL MDL Result	ITL2487-02 Sample Date: 12/26/2010 9:58:00 PM CAS No Result Value RL MDL Result Units Lab Qualifier 10098972 0.051 2 0.587 pCi/L U od 906 906 0utfall 006 (Composite) Matrix Type: WATER W ITL2487-02 Sample Date: 12/26/2010 9:58:00 PM 12/26/2010 9:58:00 PM V V CAS No Result Value MDL Result Units Lab Qualifier V 10028178 -36.2 500 272 pCi/L U od EPA 245.1 V V V V Outfall 006 (Composite) Matrix Type: Water V V od EPA 245.1 V V V V Outfall 006 (Composite) Matrix Type: Water V V TIL2487-02 Sample Date: 12/26/2010 9:58:00 PM V V CAS No Result RL MDL Result Lab	ITL2487-02 Sample Date: 12/26/2010 9:58:00 PM CAS No Result RL MDL Result Lab Qualifier Qualifier 10098972 0.051 2 0.587 pCi/L U U od 906 Outfall 006 (Composite) Matrix Type: WATER Validation Le ITL2487-02 Sample Date: 12/26/2010 9:58:00 PM CAS No Result RL MDL Result Lab Validation Value U U od EPA 245.1 Outfall 006 (Composite) Matrix Type: Water Validation Le ITL2487-02 Sample Date: 12/26/2010 9:58:00 PM

Analysis Method 905

Sample Name	Outfall 006 (C	Composite) Matri	x Type: \	WATER	ATER Validation Level: IV				
Lab Sample Name:	ITL2487-02	Sam	ple Date:	ble Date: 12/26/2010 9:58:00 PM						
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes		
1,2,3,4,6,7,8-HpCDD	35822-46-9	ND	0.00005	0.00012	ug/L	В	U	В		
1,2,3,4,6,7,8-HpCDF	67562-39-4	ND	0.00005	0.0000006	ug/L	J, B	U	В		
1,2,3,4,7,8,9-HpCDF	55673-89-7	3.6e-006	0.00005	0.0000008	ug/L	J	J	DNQ		
1,2,3,4,7,8-HxCDD	39227-28-6	ND	0.00005	0.0000001	ug/L		U			
1,2,3,4,7,8-HxCDF	70648-26-9	ND	0.00005	0.0000003	ug/L	J, Q, B	U	В		
1,2,3,6,7,8-HxCDD	57653-85-7	ND	0.00005	0.0000000	ug/L	J, Q	UJ	*Ш		
1,2,3,6,7,8-HxCDF	57117-44-9	ND	0.00005	0.0000003	ug/L	J, Q	UJ	*Ш		
1,2,3,7,8,9-HxCDD	19408-74-3	ND	0.00005	0.0000000	ug/L	J, Q, B	U	В		
1,2,3,7,8,9-HxCDF	72918-21-9	ND	0.00005	0.0000003	ug/L		U			
1,2,3,7,8-PeCDD	40321-76-4	ND	0.00005	0.0000008	ug/L		U			
1,2,3,7,8-PeCDF	57117-41-6	ND	0.00005	0.0000008	ug/L		U			
2,3,4,6,7,8-HxCDF	60851-34-5	1.9e-006	0.00005	0.0000003	ug/L	J	J	DNQ		
2,3,4,7,8-PeCDF	57117-31-4	7.4e-006	0.00005	0.0000007	ug/L	J	J	DNQ		
2,3,7,8-TCDD	1746-01-6	ND	0.00001	0.0000004	ug/L		U			
2,3,7,8-TCDF	51207-31-9	ND	0.00001	0.0000018	ug/L		U			
OCDD	3268-87-9	0.0028	0.0001	0.0000057	ug/L	В	J	L		
OCDF	39001-02-0	0.00014	0.0001	0.0000011	ug/L	В				
Total HpCDD	37871-00-4	0.00025	0.00005	0.0000019	ug/L	В	J	В		
Total HpCDF	38998-75-3	0.0001	0.00005	0.0000007	ug/L	J, Q, B	J	B, DNQ, *II		
Total HxCDD	34465-46-8	1.2e-005	0.00005	0.0000000	ug/L	J, Q, B	J	B, DNQ, *II		
Total HxCDF	55684-94-1	2.3e-005	0.00005	0.0000003	ug/L	J, Q, B	J	B, DNQ, *II		
Total PeCDD	36088-22-9	ND	0.00005	0.0000008	ug/L		U			
Total PeCDF	30402-15-4	2.4e-005	0.00005	0.0000006	ug/L	J, Q	J	DNQ, *III		
Total TCDD	41903-57-5	ND	0.00001	0.0000004	ug/L		U			
Total TCDF	55722-27-5	8e-006	0.00001	0.0000004	ug/L	J, Q	J	DNQ, *III		
Analysis Method	d SM 25	540D								
Sample Name	Outfall 006 (C	Composite) Matri	x Type: \	Water	I	alidation Le	vel: IV		
Lab Sample Name:	ITL2487-02	-		12/26/2010	9·58·00 P	M				

Analysis Method EPA-5 1613B

CAS No

TSS

Result RL

10

Value

4.0

MDL

1.0

Result

Units

mg/l

Lab

Ja

Qualifier

Analyte

Total Suspended Solids

Validation Validation

Notes

DNQ

Qualifier

J

APPENDIX G

Section 14

Outfall 006 – December 26, 2010 Test America Analytical Laboratory Report THIS PAGE LEFT INTENTIONALLY BLANK

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project: Routine Outfall 006 2010 Routine Outfall 006

Sampled: 12/26/10 Received: 12/27/10 Issued: 02/02/11 17:03

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

This entire report was reviewed and approved for release.

CASE NARRATIVE

SAMPLE RECEIPT:	Samples were received intact, at 2°C, on ice and with chain of custody documentation.
HOLDING TIMES:	All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION:	Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA:	All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS:	Results that fall between the MDL and RL are 'J' flagged.
SUBCONTRACTED:	Refer to the last page for specific subcontract laboratory information included in this report.

THE LEADER IN ENVIRONMENTAL TESTING

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

ADDITIONAL INFORMATION:

WATER, 1613B, Dioxins/Furans with Totals

Some analytes in this sample and the associated method blank have an ion abundance ratio that is outside of criteria. The analytes are considered as an "estimated maximum possible concentration" (EMPC) because the quantitation is based on the theoretical ion abundance ratio. Analytical results are reported with a "Q" flag.

The method blank associated with this extraction batch has a detected concentration of OCDD above the reporting limit (RL) indicating a potential high bias in the data. After discussion with the client, the data is reported with a "B" flag and no further action is required for this sample.

The laboratory control sample (LCS) associated with this extraction batch has percent recoveries for 1,2,3,4,6,7,8-HpCDF and OCDD above the established control limits indicating a potential high bias in the data. It was determined that the cause of the elevated recoveries is due the spiking solution used for the LCS had concentrated. The QC Check data is included in the sample extraction section of the raw data. After discussion with the client, the data is reported and no further action is required for this sample.

LABORATORY ID	CLIENT ID	MATRIX
ITL2487-01	Outfall 006 (Grab)	Water
ITL2487-02	Outfall 006 (Composite)	Water

Reviewed By:

the Clark

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

HEXANE EXTRACTABLE MATERIAL											
			Reporting		Sample Dilution		Date	Date	Data		
Analyte	Method	Batch	Limit	MDL	Result	Factor	Extracted	Analyzed	Qualifiers		
Sample ID: ITL2487-01 (Outfall 006 (Grab) - Water)											
Reporting Units: mg/l											
Hexane Extractable Material (Oil & Grease)	EPA 1664A	11A0059	4.7	1.3	ND	1	1/3/2011	1/3/2011			

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

METALS Reporting Sample Dilution Date Date Data Analyte Method Batch Limit MDL Result Factor Extracted Qualifiers Analyzed Sample ID: ITL2487-02 (Outfall 006 (Composite) - Water) Reporting Units: ug/l Mercury EPA 245.1 10L3468 0.20 0.10 ND 1 12/30/2010 12/30/2010 Antimony EPA 200.8 10L3064 2.0 0.30 0.34 1 12/28/2010 12/29/2010 Ja Cadmium EPA 200.8 10L3064 1.00.10 ND 12/28/2010 12/29/2010 1 EPA 200.8 Copper 10L3064 2.00 0.500 2.98 1 12/28/2010 12/29/2010 EPA 200.8 10L3064 1.0 0.20 0.88 12/28/2010 12/29/2010 Lead 1 Ja Thallium EPA 200.8 10L3064 1.0 0.20 ND 1 12/28/2010 12/29/2010



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

DISSOLVED METALS

			Reportin	g	Sample	Dilution	Date	Date	Data			
Analyte	Method	Batch	Limit	MDL	Result	Factor	Extracted	Analyzed	Qualifiers			
Sample ID: ITL2487-02 (Outfall 006 (Composite) - Water)												
Reporting Units: ug/l												
Mercury	EPA 245.1-Diss	10L3474	0.20	0.10	ND	1	12/30/2010	12/30/2010				
Antimony	EPA 200.8-Diss	10L3120	2.0	0.30	0.32	1	12/28/2010	12/29/2010	Ja			
Cadmium	EPA 200.8-Diss	10L3120	1.0	0.10	ND	1	12/28/2010	12/29/2010				
Copper	EPA 200.8-Diss	10L3120	2.00	0.500	1.14	1	12/28/2010	12/28/2010	Ja			
Lead	EPA 200.8-Diss	10L3120	1.0	0.20	ND	1	12/28/2010	12/29/2010				
Thallium	EPA 200.8-Diss	10L3120	1.0	0.20	ND	1	12/28/2010	12/29/2010				

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

INORGANICS										
			Reporting	ç	Sample	Dilution	Date	Date	Data	
Analyte	Method	Batch	Limit	MDL	Result	Factor	Extracted	Analyzed	Qualifiers	
Sample ID: ITL2487-02 (Outfall 006 (Comp	ample ID: ITL2487-02 (Outfall 006 (Composite) - Water)									
Reporting Units: mg/l										
Chloride	EPA 300.0	10L3000	0.50	0.25	5.4	1	12/27/2010	12/27/2010		
Nitrate/Nitrite-N	EPA 300.0	10L3000	0.26	0.15	1.2	1	12/27/2010	12/27/2010		
Sulfate	EPA 300.0	10L3000	0.50	0.20	4.7	1	12/27/2010	12/27/2010		
Total Dissolved Solids	SM2540C	10L3089	10	1.0	120	1	12/28/2010	12/28/2010		
Total Suspended Solids	SM 2540D	10L3361	10		ND	1	12/29/2010	12/29/2010		
Sample ID: ITL2487-02 (Outfall 006 (Com	posite) - Water)									
Reporting Units: ug/l										
Perchlorate	EPA 314.0	10L3015	4.0	0.90	ND	1	12/28/2010	12/28/2010		
Total Cyanide	SM4500CN-E	10L3114	5.0		ND	1	12/28/2010	12/28/2010		



Reporting Units: pCi/L

Uranium, Total

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project II Report Numbe	 Routine Outfall 006 2010 Routine Outfall 006 ITL2487)	Sampled: 12/26/10 Received: 12/27/10			
Analyte Sample ID: ITL2487-02 (Outfall 006 (Compo		1 8	ample Dil Result Fa		Date Extracted	Date Analyzed	Data Qualifiers

1

0.195

1

1/20/2011 1/20/2011

Jb

8652

8652

THE LEADER IN ENVIRONMENTAL TESTING

Reporting Units: pCi/L

Gross Alpha

Gross Beta

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

	MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID Report Number	I	Routine Outfall 006 2010 Routine Outfall 006 ITL2487		Sampled: 12/26/10 Received: 12/27/10			
	Analyte	Method Bat	ch	1 8	umple lesult	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
ł	Sample ID: ITL2487-02 (Outfall 006 (Composi	te) - Water)							

3

4

1.12

2.56

1

1

1/6/2011

1/6/2011

1/6/2011

1/6/2011

Jb

Jb

8652

8652

900

900

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID: Report Number:	Routine Outfall 006 2 Routine Outfall 006 ITL2487	010		d: 12/26/10 d: 12/27/10	
		901.1 Reporting	Sample Dilutio	on Date	Date	Data

		Reporting	Sampic	Dilution	Date	Date	Data
Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
osite) - Water)							
901.1	8652	20	ND	1	1/5/2011	1/7/2011	U
901.1	8652	25	ND	1	1/5/2011	1/7/2011	U
	osite) - Water) 901.1	osite) - Water) 901.1 8652	Method Batch Limit osite) - Water) 901.1 8652 20	MethodBatchLimitResultosite) - Water)901.1865220ND	MethodBatchLimitResultFactorosite) - Water)901.1865220ND1	MethodBatchLimitResultFactorExtractedosite) - Water)901.1865220ND11/5/2011	MethodBatchLimitResultFactorExtractedAnalyzedosite) - Water)901.1865220ND11/5/20111/7/2011

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

		903.1		
618 Michillinda Avenue, Suite 200Arcadia, CA 91007ReAttention: Bronwyn Kelly	port Number:	Routine Outfall 006 ITL2487	Sampled: Received:	
MWH-Pasadena/Boeing	Project ID:	Routine Outfall 006 2010		

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers		
Sample ID: ITL2487-02 (Outfall 006 (Composite) - Water)										
Reporting Units: pCi/L Radium-226	903.1	8652	1	0.039	1	1/22/2011	1/22/2011	U		

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



Reporting Units: pCi/L

Radium-228

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

	MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project ID Report Number	Ro	outine Outfall 006 201 outine Outfall 006 L2487	0	Sampled: 12/26/10 Received: 12/27/10			
				904 Reporting	Sample	Dilution	Date	Date	Data
	Analyte	Method Bat	ch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
5	Sample ID: ITL2487-02 (Outfall 006 (Composit	te) - Water)							

1

0.11

1

1/24/2011 1/24/2011

U

8652

904

THE LEADER IN ENVIRONMENTAL TESTING

Sample ID: ITL2487-02 (Outfall 006 (Composite) - Water)

905

Reporting Units: pCi/L

Strontium-90

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project Report Numb		Routine Outfall 006 20 Routine Outfall 006 ITL2487)10		1	ed: 12/26/10 ed: 12/27/10	
Analyte	Method E	satcl	905 Reporting h Limit		Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers

2

0.051

1

1/19/2011 1/13/2011

U

8652



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly	Project Report Numb		Routine Outfall 006 20 Routine Outfall 006 ITL2487	010			ed: 12/26/10 ed: 12/27/10	
Analyte	Method E	Batcl	906 Reporting n Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers

Sample ID: ITL2487-02 (Outfall 006 (Composit	te) - Water)							
Reporting Units: pCi/L								
Tritium	906	8652	500	-36.2	1	1/12/2011	1/12/2011	U

THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

EPA-5 1613Bx

Analyte	Method	Batch	Reporting Sample Limit MDL Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITL2487-02 (Outfall 006 (C	omposite) - Water)						
Reporting Units: ug/L							
1,2,3,4,6,7,8-HpCDD	EPA-5 1613B	363256	0.000050.0000019 0.00012	1	12/29/2010	12/30/2010	В
1,2,3,4,6,7,8-HpCDF	EPA-5 1613B	363256	0.000050.000000642.1e-005	1	12/29/2010	12/30/2010	J, B
1,2,3,4,7,8,9-HpCDF	EPA-5 1613B	363256	0.000050.0000008 3.6e-00	5 1	12/29/2010	12/30/2010	J
1,2,3,4,7,8-HxCDD	EPA-5 1613B	363256	0.000050.0000001 ND	1	12/29/2010	12/30/2010	
1,2,3,4,7,8-HxCDF	EPA-5 1613B	363256	0.0000 5 0.00000034 5.4e-00	5 1	12/29/2010	12/30/2010	J, Q, B
1,2,3,6,7,8-HxCDD	EPA-5 1613B	363256	0.0000 5 0.00000009 1.6e-00	5 1	12/29/2010	12/30/2010	J, Q
1,2,3,6,7,8-HxCDF	EPA-5 1613B	363256	0.000050.00000034 2e-006	1	12/29/2010	12/30/2010	J, Q
1,2,3,7,8,9-HxCDD	EPA-5 1613B	363256	0.0000 5 0.00000008 1.1e-00	5 1	12/29/2010	12/30/2010	J, Q, B
1,2,3,7,8,9-HxCDF	EPA-5 1613B	363256	0.0000 5 0.00000036 ND	1	12/29/2010	12/30/2010	
1,2,3,7,8-PeCDD	EPA-5 1613B	363256	0.0000 5 0.0000084 ND	1	12/29/2010	12/30/2010	
1,2,3,7,8-PeCDF	EPA-5 1613B	363256	0.0000 5 0.0000084 ND	1	12/29/2010	12/30/2010	
2,3,4,6,7,8-HxCDF	EPA-5 1613B	363256	0.0000 5 0.00000032 1.9e-00	5 1	12/29/2010	12/30/2010	J
2,3,4,7,8-PeCDF	EPA-5 1613B	363256	0.0000 5 0.00000073 7.4e-00	5 1	12/29/2010	12/30/2010	J
2,3,7,8-TCDD	EPA-5 1613B	363256	0.000010.0000004 ND	1	12/29/2010	12/30/2010	
OCDD	EPA-5 1613B	363256	0.0001 0.0000057 0.0028	1	12/29/2010	12/30/2010	В
OCDF	EPA-5 1613B	363256	0.0001 0.0000011 0.00014	1	12/29/2010	12/30/2010	В
Total HpCDD	EPA-5 1613B	363256	0.000050.0000019 0.00025	1	12/29/2010	12/30/2010	В
Total HpCDF	EPA-5 1613B	363256	0.0000 5 0.00000071 0.0001	1	12/29/2010	12/30/2010	J, Q, B
Total HxCDD	EPA-5 1613B	363256	0.0000 5 0.00000009 1.2e-00 5	5 1	12/29/2010	12/30/2010	J, Q, B
Total HxCDF	EPA-5 1613B	363256	0.0000 5 .00000034 2.3e-00 5	5 1	12/29/2010	12/30/2010	J, Q, B
Total PeCDD	EPA-5 1613B	363256	0.0000 5 0.0000084 ND	1	12/29/2010	12/30/2010	
Total PeCDF	EPA-5 1613B	363256	0.0000 5 0.00000067 2.4e-00 5	5 1	12/29/2010	12/30/2010	J, Q
Total TCDD	EPA-5 1613B	363256	0.000010.0000004 ND	1	12/29/2010	12/30/2010	
Total TCDF	EPA-5 1613B	363256	0.0000D.00000044 8e-006	1	12/29/2010	12/30/2010	J, Q
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23	8-140%)		92 %				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28	2-143%)		79 %				
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26	-138%)		82 %				
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-1	141%)		74 %				
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-1	52%)		67 %				
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-1	(30%)		78 %				
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-1	23%)		64 %				
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-1	47%)		67 %				
Surrogate: 13C-1,2,3,7,8-PeCDD (25-18)	1%)		79 %				
Surrogate: 13C-1,2,3,7,8-PeCDF (24-18)	5%)		80 %				
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-1	36%)		66 %				
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178	3%)		75 %				
Surrogate: 13C-2,3,7,8-TCDD (25-164%))		76 %				
Surrogate: 13C-2,3,7,8-TCDF (24-169%))		70 %				
Surrogate: 13C-OCDD (17-157%)			83 %				
Surrogate: 37Cl4-2,3,7,8-TCDD (35-197	%)		90 %				

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing	Project ID:	Routine Outfall 006 2010		
618 Michillinda Avenue, Suite 200		Routine Outfall 006	Sampled:	12/26/10
Arcadia, CA 91007	Report Number:	ITL2487	Received:	12/27/10
Attention: Bronwyn Kelly				

EPA-5 1613Bx									
Analyte	Method	Batch	Reporting Limit MDL	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: ITL2487-02RE (Outfall 006 (Co	omposite) - Water	r) - cont.							
Reporting Units: ug/L									
2,3,7,8-TCDF	EPA-5 1613B	363256	0.000010.0000018	8 ND	1	12/29/2010	1/10/2011		
Surrogate: 13C-2,3,7,8-TCDF (24-169%)				81 %					
Surrogate: 37Cl4-2,3,7,8-TCDD (35-197%)				73 %					



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 006 (Composite) (ITL24	Hold Time (in days) 87-02) - Water	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 300.0	2	12/26/2010 21:58	12/27/2010 08:15	12/27/2010 18:00	12/27/2010 20:02
Filtration	1	12/26/2010 21:58	12/27/2010 08:15	12/27/2010 20:50	12/27/2010 20:50



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

HEXANE EXTRACTABLE MATERIAL

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 11A0059 Extracted: 01/03/11										
Blank Analyzed: 01/03/2011 (11A0059-	BLK1)									
Hexane Extractable Material (Oil & Grease)	ND	5.0	mg/l							
LCS Analyzed: 01/03/2011 (11A0059-BS1) MNR1									MNR1	
Hexane Extractable Material (Oil & Grease)	20.8	5.0	mg/l	20.0		104	78-114			
LCS Dup Analyzed: 01/03/2011 (11A00	59-BSD1)									
Hexane Extractable Material (Oil & Grease)	21.2	5.0	mg/l	20.0		106	78-114	2	11	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3064 Extracted: 12/28/10										
Blank Analyzed: 12/29/2010 (10L3064-BLK1)										
Antimony	ND	2.0	ug/l							
Cadmium	ND	1.0	ug/l							
Copper	ND	2.00	ug/l							
Lead	ND	1.0	ug/l							
Thallium	ND	1.0	ug/l							
LCS Analyzed: 12/29/2010 (10L3064-BS	51)									
Antimony	84.8	2.0	ug/l	80.0		106	85-115			
Cadmium	83.4	1.0	ug/l	80.0		104	85-115			
Copper	83.9	2.00	ug/l	80.0		105	85-115			
Lead	83.4	1.0	ug/l	80.0		104	85-115			
Thallium	85.9	1.0	ug/l	80.0		107	85-115			
Matrix Spike Analyzed: 12/29/2010 (10I	L3064-MS1)									
Antimony	84.1	2.0	ug/l	80.0	ND	105	70-130			
Cadmium	78.9	1.0	ug/l	80.0	ND	99	70-130			
Copper	69.9	2.00	ug/l	80.0	0.843	86	70-130			
Lead	73.2	1.0	ug/l	80.0	ND	91	70-130			
Thallium	68.9	1.0	ug/l	80.0	ND	86	70-130			
Matrix Spike Analyzed: 12/29/2010 (10I	L3064-MS2)				Source: I	TL2444-0	2			
Antimony	85.3	2.0	ug/l	80.0	ND	107	70-130			
Cadmium	81.7	1.0	ug/l	80.0	ND	102	70-130			
Copper	73.4	2.00	ug/l	80.0	0.584	91	70-130			
Lead	77.7	1.0	ug/l	80.0	ND	97	70-130			
Thallium	71.0	1.0	ug/l	80.0	ND	89	70-130			
Matrix Spike Dup Analyzed: 12/29/2010			Source: I	TL2444-0	1					
Antimony	84.4	2.0	ug/l	80.0	ND	105	70-130	0.3	20	
Cadmium	80.6	1.0	ug/l	80.0	ND	101	70-130	2	20	
Copper	69.9	2.00	ug/l	80.0	0.843	86	70-130	0.05	20	
Lead	75.3	1.0	ug/l	80.0	ND	94	70-130	3	20	
Thallium	70.6	1.0	ug/l	80.0	ND	88	70-130	3	20	

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3468 Extracted: 12/30/10										
Blank Analyzed: 12/30/2010 (10L3468-F	BLK1)									
Mercury	ND	0.20	ug/l							
LCS Analyzed: 12/30/2010 (10L3468-BS	51)									
Mercury	8.62	0.20	ug/l	8.00		108	85-115			
Matrix Spike Analyzed: 12/30/2010 (10]	L3468-MS1)				Source: I	TL2438-0	1			
Mercury	7.80	0.20	ug/l	8.00	ND	98	70-130			
Matrix Spike Dup Analyzed: 12/30/2010) (10L3468-M	SD1)			Source: I	TL2438-0	1			
Mercury	7.94	0.20	ug/l	8.00	ND	99	70-130	2	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

DISSOLVED METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
·	Kesute	Linnt	Onits	Lever	Result	JUREC	Linnes	KI D	Linnt	Quanners
Batch: 10L3120 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3120-B	BLK1)									
Antimony	ND	2.0	ug/l							
Cadmium	ND	1.0	ug/l							
Copper	ND	2.00	ug/l							
Lead	ND	1.0	ug/l							
Thallium	ND	1.0	ug/l							
LCS Analyzed: 12/28/2010 (10L3120-BS	51)									
Antimony	84.9	2.0	ug/l	80.0		106	85-115			
Cadmium	82.5	1.0	ug/l	80.0		103	85-115			
Copper	81.0	2.00	ug/l	80.0		101	85-115			
Lead	84.2	1.0	ug/l	80.0		105	85-115			
Thallium	83.0	1.0	ug/l	80.0		104	85-115			
Matrix Spike Analyzed: 12/28/2010 (10I	.3120-MS1)				Source: I	ГL2486-0	2			
Antimony	83.9	2.0	ug/l	80.0	1.55	103	70-130			
Cadmium	80.1	1.0	ug/l	80.0	ND	100	70-130			
Copper	79.5	2.00	ug/l	80.0	3.50	95	70-130			
Lead	81.7	1.0	ug/l	80.0	0.379	102	70-130			
Thallium	82.3	1.0	ug/l	80.0	ND	103	70-130			
Matrix Spike Dup Analyzed: 12/28/2010	(10L3120-M	ISD1)			Source: I	ГL2486-0	2			
Antimony	84.5	2.0	ug/l	80.0	1.55	104	70-130	0.7	20	
Cadmium	81.2	1.0	ug/l	80.0	ND	102	70-130	1	20	
Copper	79.6	2.00	ug/l	80.0	3.50	95	70-130	0.2	20	
Lead	82.9	1.0	ug/l	80.0	0.379	103	70-130	1	20	
Thallium	83.9	1.0	ug/l	80.0	ND	105	70-130	2	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

DISSOLVED METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3474 Extracted: 12/30/10										
Blank Analyzed: 12/30/2010 (10L3474-I	BLK1)									
Mercury	ND	0.20	ug/l							
LCS Analyzed: 12/30/2010 (10L3474-BS	51)									
Mercury	8.08	0.20	ug/l	8.00		101	85-115			
Matrix Spike Analyzed: 12/30/2010 (10)	L3474-MS1)				Source: I	TL2299-0	7			
Mercury	8.16	0.20	ug/l	8.00	ND	102	70-130			
Matrix Spike Dup Analyzed: 12/30/2010) (10L3474-M	SD1)			Source: I	TL2299-0	7			
Mercury	8.23	0.20	ug/l	8.00	ND	103	70-130	0.9	20	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3000 Extracted: 12/27/10										
Blank Analyzed: 12/27/2010 (10L3000-B	LK1)									
Chloride	ND	0.50	mg/l							
Nitrate/Nitrite-N	ND	0.26	mg/l							
Sulfate	ND	0.50	mg/l							
LCS Analyzed: 12/27/2010 (10L3000-BS	1)									
Chloride	4.51	0.50	mg/l	5.00		90	90-110			
Sulfate	9.05	0.50	mg/l	10.0		90	90-110			
Matrix Spike Analyzed: 12/27/2010 (10L	3000-MS1)				Source: I	TL2459-0	1			
Chloride	6.01	0.50	mg/l	5.00	1.62	88	80-120			
Sulfate	13.5	0.50	mg/l	10.0	4.49	90	80-120			
Matrix Spike Dup Analyzed: 12/27/2010	(10L3000-M	SD1)			Source: I	TL2459-0	1			
Chloride	6.15	0.50	mg/l	5.00	1.62	90	80-120	2	20	
Sulfate	14.1	0.50	mg/l	10.0	4.49	97	80-120	5	20	
Batch: 10L3015 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3015-B	LK1)									
Perchlorate	ND	4.0	ug/l							
LCS Analyzed: 12/28/2010 (10L3015-BS Perchlorate	1) 22.7	4.0	ug/l	25.0		91	85-115			
Matrix Spiles Apolyzod, 12/28/2010 (101	2015 MS1)		-		Source. I	TL2014-0	2			
Matrix Spike Analyzed: 12/28/2010 (10L Perchlorate	23.1	4.0	ug/l	25.0	ND	92	8 0-120			

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L3015 Extracted: 12/28/10										
Matrix Spike Dup Analyzed: 12/28/2010		,	a	25.0		TL2014-0		2	20	
Perchlorate	23.7	4.0	ug/l	25.0	ND	95	80-120	3	20	
Batch: 10L3089 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3089-B	,									
Total Dissolved Solids	ND	10	mg/l							
LCS Analyzed: 12/28/2010 (10L3089-BS	1)									
Total Dissolved Solids	992	10	mg/l	1000		99	90-110			
Duplicate Analyzed: 12/28/2010 (10L308	89-DUP1)				Source: I	TL2438-0	1			
Total Dissolved Solids	1650	10	mg/l		1630			2	10	
Batch: 10L3114 Extracted: 12/28/10										
Blank Analyzed: 12/28/2010 (10L3114-B	SLK1)									
Total Cyanide	ND	5.0	ug/l							
LCS Analyzed: 12/28/2010 (10L3114-BS	1)									
Total Cyanide	190	5.0	ug/l	200		95	90-110			
Matrix Spike Analyzed: 12/28/2010 (10L	.3114-MS1)				Source: I	TL2487-0	2			
Total Cyanide	188	5.0	ug/l	200	ND	94	70-115			
Matrix Spike Dup Analyzed: 12/28/2010	(10L3114-MS	SD1)			Source: I	TL2487-0	2			
Total Cyanide	188	5.0	ug/l	200	ND	94	70-115	0.3	15	

TestAmerica Irvine Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

INORGANICS

Analyte <u>Batch: 10L3361 Extracted: 12/29/10</u>	Result	Reporting Limit	Units	Spike Level	Source Result %RE	%REC C Limits	RPD	RPD Limit	Data Qualifiers
Blank Analyzed: 12/29/2010 (10L3361-E Total Suspended Solids	ND	10	mg/l						
LCS Analyzed: 12/29/2010 (10L3361-BS Total Suspended Solids	1) 1000	10	mg/l	1000	100	85-115			
Duplicate Analyzed: 12/29/2010 (10L330 Total Suspended Solids	5 1-DUP1) 26.0	10	mg/l		Source: ITL2502 27.0	-01	4	10	



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

EPA-5 1613Bx

	D	Reporting	T T T	Spike	Source	A/DEC	%REC	DDD	RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 363256 Extracted: 12/29/10										
Blank Analyzed: 12/30/2010 (G0L290	000256B)				Source:					
1,2,3,4,6,7,8-HpCDD	1.7e-005	0.00005	ug/L				-			J
1,2,3,4,6,7,8-HpCDF	4.2e-006	0.00005	ug/L				-			J, Q
1,2,3,4,7,8,9-HpCDF	ND	0.00005	ug/L				-			
1,2,3,4,7,8-HxCDD	ND	0.00005	ug/L				-			
1,2,3,4,7,8-HxCDF	9.5e-007	0.00005	ug/L				-			J, Q
1,2,3,6,7,8-HxCDD	ND	0.00005	ug/L				-			
1,2,3,6,7,8-HxCDF	ND	0.00005	ug/L				-			
1,2,3,7,8,9-HxCDD	1.3e-006	0.00005	ug/L				-			J, Q
1,2,3,7,8,9-HxCDF	ND	0.00005	ug/L				-			
1,2,3,7,8-PeCDD	ND	0.00005	ug/L				-			
1,2,3,7,8-PeCDF	ND	0.00005	ug/L				-			
2,3,4,6,7,8-HxCDF	ND	0.00005	ug/L				-			
2,3,4,7,8-PeCDF	ND	0.00005	ug/L				-			
2,3,7,8-TCDD	ND	0.00001	ug/L				-			
2,3,7,8-TCDF	ND	0.00001	ug/L				-			
OCDD	0.00044	0.0001	ug/L				-			
OCDF	2.1e-005	0.0001	ug/L				-			J, Q
Total HpCDD	3.6e-005	0.00005	ug/L				-			J
Total HpCDF	1.4e-005	0.00005	ug/L				-			J, Q
Total HxCDD	1.3e-006	0.00005	ug/L				-			J, Q
Total HxCDF	2e-006	0.00005	ug/L				-			J, Q
Total PeCDD	ND	0.00005	ug/L				-			
Total PeCDF	ND	0.00005	ug/L				-			
Total TCDD	ND	0.00001	ug/L				-			
Total TCDF	ND	0.00001	ug/L				-			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.0019		ug/L	0.002		96	23-140			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.0016		ug/L	0.002		80	28-143			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.0017		ug/L	0.002		87	26-138			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.0015		ug/L	0.002		74	32-141			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.0014		ug/L	0.002		70	26-152			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.0018		ug/L	0.002		89	28-130			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.0014		ug/L	0.002		71	26-123			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.0014		ug/L	0.002		68	29-147			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.0016		ug/L	0.002		79	25-181			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.0016		ug/L	0.002		80	24-185			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.0015		ug/L	0.002		73	28-136			

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

METHOD BLANK/QC DATA

EPA-5 1613Bx

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 363256 Extracted: 12/29/10										C C
Battin. 303230 Extracted. 12/23/10										
Blank Analyzed: 12/30/2010 (G0L290	000256B)				Source:					
Surrogate: 13C-2,3,4,7,8-PeCDF	0.0015		ug/L	0.002		75	21-178			
Surrogate: 13C-2,3,7,8-TCDD	0.0015		ug/L	0.002		73	25-164			
Surrogate: 13C-2,3,7,8-TCDF	0.0013		ug/L	0.002		64	24-169			
Surrogate: 13C-OCDD	0.0031		ug/L	0.004		78	17-157			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.00077		ug/L	0.0008		96	35-197			
LCS Analyzed: 12/30/2010 (G0L2900	00256C)				Source:					
1,2,3,4,6,7,8-HpCDD	0.00116	0.00005	ug/L	0.001		116	70-140			
1,2,3,4,6,7,8-HpCDF	0.00125	0.00005	ug/L	0.001		125	82-122			а
1,2,3,4,7,8,9-HpCDF	0.0012	0.00005	ug/L	0.001		120	78-138			
1,2,3,4,7,8-HxCDD	0.00126	0.00005	ug/L	0.001		126	70-164			
1,2,3,4,7,8-HxCDF	0.00113	0.00005	ug/L	0.001		113	72-134			
1,2,3,6,7,8-HxCDD	0.00108	0.00005	ug/L	0.001		108	76-134			
1,2,3,6,7,8-HxCDF	0.00118	0.00005	ug/L	0.001		118	84-130			
1,2,3,7,8,9-HxCDD	0.0012	0.00005	ug/L	0.001		120	64-162			
1,2,3,7,8,9-HxCDF	0.00121	0.00005	ug/L	0.001		121	78-130			
1,2,3,7,8-PeCDD	0.00118	0.00005	ug/L	0.001		118	70-142			
1,2,3,7,8-PeCDF	0.00113	0.00005	ug/L	0.001		113	80-134			
2,3,4,6,7,8-HxCDF	0.00117	0.00005	ug/L	0.001		117	70-156			
2,3,4,7,8-PeCDF	0.00112	0.00005	ug/L	0.001		112	68-160			
2,3,7,8-TCDD	0.000227	0.00001	ug/L	0.0002		114	67-158			
2,3,7,8-TCDF	0.000218	0.00001	ug/L	0.0002		109	75-158			
OCDD	0.00297	0.0001	ug/L	0.002		149	78-144			а
OCDF	0.00208	0.0001	ug/L	0.002		104	63-170			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.002		ug/L	0.002		100	26-166			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.00166		ug/L	0.002		83	21-158			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00183		ug/L	0.002		92	20-186			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.00144		ug/L	0.002		72	21-193			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.00134		ug/L	0.002		67	19-202			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.00168		ug/L	0.002		84	25-163			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00135		ug/L	0.002		67	21-159			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.00139		ug/L	0.002		70	17-205			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.00165		ug/L	0.002		82	21-227			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00162		ug/L	0.002		81	21-192			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.00139		ug/L	0.002		70	22-176			
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00154		ug/L	0.002		77	13-328			

TestAmerica Irvine

Heather Clark For Debby Wilson Project Manager



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

METHOD BLANK/QC DATA

EPA-5 1613Bx

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 363256 Extracted: 12/29/10										
					~					
LCS Analyzed: 12/30/2010 (G0L29000	0256C)				Source:					
Surrogate: 13C-2,3,7,8-TCDD	0.00144		ug/L	0.002		72	20-175			
Surrogate: 13C-2,3,7,8-TCDF	0.00125		ug/L	0.002		63	22-152			
Surrogate: 13C-OCDD	0.00348		ug/L	0.004		87	13-199			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.000761		ug/L	0.0008		95	31-191			



17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

						Compliance
LabNumber	Analysis	Analyte	Units	Result	MRL	Limit
ITL2487-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	0.095	4.7	15

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
	Allalysis	Analyte	Units	Kesult	WINL	Linnt
ITL2487-02	Antimony-200.8	Antimony	ug/l	0.34	2.0	6
ITL2487-02	Cadmium-200.8	Cadmium	ug/l	0.064	1.0	3.1
ITL2487-02	Chloride - 300.0	Chloride	mg/l	5.37	0.50	150
ITL2487-02	Copper-200.8	Copper	ug/l	2.98	2.00	14
ITL2487-02	Cyanide, Total-4500CN-E (5ppb)	Total Cyanide	ug/l	-2	5.0	9.5
ITL2487-02	Lead-200.8	Lead	ug/l	0.88	1.0	5.2
ITL2487-02	Mercury - 245.1	Mercury	ug/l	0.021	0.20	0.13
ITL2487-02	Nitrogen, NO3+NO2 -N EPA 300.	0 Nitrate/Nitrite-N	mg/l	1.18	0.26	10
ITL2487-02	Perchlorate 314.0 - Default	Perchlorate	ug/l	0	4.0	6
ITL2487-02	Sulfate-300.0	Sulfate	mg/l	4.70	0.50	250
ITL2487-02	TDS - SM2540C	Total Dissolved Solids	mg/l	118	10	850
ITL2487-02	Thallium-200.8	Thallium	ug/l	0	1.0	2

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

						Compliance
LabNumber	Analysis	Analyte	Units	Result	MRL	Limit

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

DATA QUALIFIERS AND DEFINITIONS

- **a** Spiked analyte recovery is outside stated control limits.
- **B** Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- J Estimated result. Result is less than the reporting limit.
- Ja Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
 Jb The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- MNR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- **Q** Estimated maximum possible concentration (EMPC).
- U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.
- ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- **RPD** Relative Percent Difference



MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly 17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EDD + Level 4	Water	N/A	N/A
EPA 1664A	Water	Х	Х
EPA 200.8-Diss	Water	Х	Х
EPA 200.8	Water	Х	Х
EPA 245.1-Diss	Water	Х	Х
EPA 245.1	Water	Х	Х
EPA 300.0	Water	Х	Х
EPA 314.0	Water	Х	Х
Filtration	Water	N/A	N/A
SM 2540D	Water	Х	Х
SM2540C	Water	Х	
SM4500CN-E	Water	Х	Х

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

Subcontracted Laboratories

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnic Samples: ITL2487-02

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gamma Spec Samples: ITL2487-02

- Analysis Performed: Gross Alpha Samples: ITL2487-02
- Analysis Performed: Gross Beta Samples: ITL2487-02
- Analysis Performed: Level 4 Data Package Samples: ITL2487-02
- Analysis Performed: Radium, Combined Samples: ITL2487-02
- Analysis Performed: Strontium 90 Samples: ITL2487-02
- Analysis Performed: Tritium Samples: ITL2487-02
- Analysis Performed: Uranium, Combined Samples: ITL2487-02

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

MWH-Pasadena/Boeing 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Attention: Bronwyn Kelly Project ID: Routine Outfall 006 2010 Routine Outfall 006 Report Number: ITL2487

Sampled: 12/26/10 Received: 12/27/10

17461 Derian Avenue. Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

TestAmerica Buffalo

10 Hazelwood Drive, Suite 106 - Amherst, NY 14228

Method Performed: 8652 Samples: ITL2487-02

Method Performed: 900 Samples: ITL2487-02

- Method Performed: 901.1 Samples: ITL2487-02
- Method Performed: 903.1 Samples: ITL2487-02
- Method Performed: 904 Samples: ITL2487-02
- Method Performed: 905 Samples: ITL2487-02
- Method Performed: 906 Samples: ITL2487-02

TestAmerica West Sacramento NELAC Cert #1119CA, Nevada Cert #CA44

880 Riverside Parkway - West Sacramento, CA 95605

Method Performed: EPA-5 1613B Samples: ITL2487-02, ITL2487-02RE

	Test ⊭	Americ	Ca Version		Test America version érande		с О	HAIN	OF CU(CHAIN OF CUSTODY FORM	ORM		Ň	972-12-49	4 J	Page 1 of 2	~ 1
	Client Name/Address:	Address:			Project:							ANALYSIS REQUIRED	REQUIRE	Q			
	MVVH-Arcadia 618 Michillinda Ave, Arcadia, CA 91007	dia la Ave, S 91007	Suite 200		Boeing-SSFL NPDES Routine Outfall 006 GRAB	NPDES all 006						-				Field readings:	
	Test America Contact: Debby Wilson	Contact:	Dahhv W	ucali		FSDF-2										report Temp and pH)	- .
			64499					EM)				· · · · · ·				Temp "F = So O	
	Project Manager: Bronwyn Kelly	der: Bro	nwvn Kellv		Phone Number:			H-179								PH = 7. 4	
	(•	(626) 568-6691	<u>-</u>		91)								Time of readings =	
	Sampler: Kič K BAXRG B	i k D	BARBO	d.	Fax Number: (626) 568-6515	сı		ອຂອງຍົ								10:30	
	Sample Description	Sample Matrix	Container Type	# of Cont.	-	Preservative	Bottle #) & IiC							<u></u>	Comments	
	Outfall 006	≥	=	1	N	म् र	1A, 1B) ×									
				 													
																21	
																p	
_																.×	T
_																P /	
_																	
_)	\mathbf{N}^{-}
_																	
_																	
_																	ĺ
_	Delincurished Bu		<u> These San</u>	nples	These Samples are the Grab Portion of Outfall 006 for this storm event. Composite samples will follow and are to be added to this work order.	ortion of C	Dutfall 006 fo	or this sto	orm event.	. Composite s	amples w	II follow and	are to be	added to t	his work o	rder.	
	in the	5	Ν.			5,100				12.26-10	- 01	24 Hour:	_	72 Hour:		10 Day:	
	Deliasulation Dr.				<u>ر / 5</u>	1505	Provined By	Ž	nuce	. 1305	4	48 Hour.	ß	2 Day:		Normal:	
	Kelinquished by	Ler	alan 7	S N	To SAMPLE CONTRUCT	25 Parate		\mathbb{A}	in H	2/27/16 P1S		Sample Integrity: (Check) Intact:		On Ice:		0 27	
	Relinquished By			Date	Date/Time:		Keceived By		Da	Date/Time:		Data Bernirements: (Cherk)	(Chack)			し、し	
											<u>1 Z</u>	No Level IV:		All Level IV:	1	NPDES Level IV:	
												-					

7-19-2010

.

.

ANALYSIS REQUIRED	اروں (0.000) 1507 (0.3) 1610 (0.3) گ	N. بر التعاد: Sb, Cd, ا, Gross Bet)), Sr-90 (90 226 (903:0 6 (903:0 6	Pew bevloesi (0.009) (2.H) (2.009) (2.H) (2.137) (2.100) (2.100) (2.100) (2.100) (2.137) (2.131) (2.13	CI, SO 1DS, T 104al D Hg, TI Combi Combi Radiun Radiun Radiun				x	×	X Filter w/m 24hrs of receipt at lab	Christered and unpreserved		X Only test if first or second rain events of the year	×			COC Page 2 of 2 list the Composite Samples for Outfall 006 for this storm event.	same work order for COC/Page 1 of 2 for Outfall 006 for the same event.	72 Hour.	5 Day: Xi Normati	C Date/Time:
	oq' On' Bp'		l əldarəvcəs (and all cong	IT , 6H		2B X	3A, 3B X	4A, 4B	5	9	7A	78	8	6			 age 2 of 2 list the (dded to the same v			Received By
	DES 006 .6 <i>1</i> SDF-2			Preservative B	-FONH	HNO ₃	None 3	None 4	None	None	None	None	None	NaOH			COC	These must be added to the	1 22010 m	\Box	<u>(</u> 0)
Project:	Boeing-SSFL NPDES Routine Outfall 006 COMPOSITE H, GH Storrwater at FSDF-2		Phone Number: (626) 568-6691 Fax Number: (626) 568-6615	Sampling	Noc X-C1	21:50	-	_				0	1179CC	85./C						1360	Laps/ Ju
		/ilson	. 8	t # of Cont.	\top	-	· ~	ly ż	۲ ا		÷	er 1	-	ly 1	_				Date/ Ir		Date/Time
	uite 200	: Debby M	inwyn Kelly 1///S	Container Tvoe		1L Poly	1L Amber	500 mL Poly	500 mL Poly	1L Poly	2.5 Gal Cube	500 mL Amber	1 Gal Poly	500 mL Poly						7	
ddress:	ia Ave, S 1007	Contact	E よの ので の	Sample Matrix	3	×	3	×	۸	3		3	3	3					6	}	
Client Name/Address:	MWH-Arcadia 618 Michillinda Ave, Suite 200 Arcadia, CA 91007	Test America Contact: Debby Wilson	Project Manager: Bronwyn Kelly Sampler: Rムム E///5	Sample		Outfall 006 Dup	Outfall 006	Outfall 006	Outfall 006	Outfail 006		Outfall 006	Outfall 006	Outfall 006					Relinquished By	m	Relinguithed By

Page 2 of 2

CHAIN OF CUSTODY FORM

LABORATORY REPORT

Date: January 3, 2011

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

"dedicated to providing quality aquatic toxicity testing"

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

Laboratory No.:	A-10122703-001
Sample I.D.:	ITL2487-02 (Outfall 006)

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

Date Sampled:	12/26/10 - composite
Date Received:	12/27/10
Temp. Received:	5.9°C
Chlorine (TRC):	0.0 mg/l
Date Tested:	12/27/10 to 01/03/11

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

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

Attached are the test data generated from the analysis of your sample.

Result Summary:

	NOEC	TUc
Ceriodaphnia Survival:	100%	1.0
Ceriodaphnia Reproduction:	100%	1.0

Quality Control:

Reviewed and approved by:

Joseph A. LeMay Laboratory Director

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Laboratory's name for advertising or publicity purpose without authorization is prohibited.

CERIODAPHNIA CHRONIC BIOASSAY EPA METHOD 1002.0



Lab No.: A-10122703-001 Client/ID: Test America – ITL2487-02 (Outfall 006) Date Tested: 12/27/10 to 01/03/11

TEST SUMMARY

Test type: Daily static-renewal. Species: *Ceriodaphnia dubia*. Age: < 24 hrs; all released within 8 hrs. Test vessel size: 30 ml. Number of test organisms per vessel: 1. Temperature: 25 +/- 1°C. Dilution water: Mod. hard reconstituted (MHRW). QA/QC Batch No.: RT-101207. Endpoints: Survival and Reproduction. Source: In-laboratory culture. Food: .1 ml YTC, algae per day. Test solution volume: 15 ml. Number of replicates: 10. Photoperiod: 16/8 hrs. light/dark cycle. Test duration: 7 days. Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	24.1
100% Sample	100%	28.8
* Sample not si	tatistically significantly le	ess than Control

CHRONIC TOXICITY

Survival NOEC	100%
Survival TUc	1.0
Reproduction NOEC	100%
Reproduction TUc	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥15 young per surviving control female	Pass (24.1 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 9.2%)
Statistically significantly different concentrations relative difference > 13%	Pass (no concentration significantly different)
Concentration response relationship acceptable	Pass (no significant response at concentration tested)

			Cerioda	phnia Su	vival and	Reprodu	iction Tes	t-7 Day S	Survival	
Start Date: End Date: Sample Date: Comments:	12/27/201 1/3/2011 12/26/201	14:00		CAATL-Ac	uatic Tes	ting Labs	Sample ID Sample Ty Test Spec	/pe:		3 lustrial stormwater laphnia dubia
Conc-%	1	2	3	4	5	6	7	8	9	10
	4 0000	4 0000	1 0000	1 0 0 0 0		1 0 0 0 0	1	4 0000	4 0 0 0 0	4 4 4 4 4
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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

Fisher's Exact Test Treatments vs D-Control	100	>100				
Treatments vs D-Control		- 100		1		
		Line	ar Interpo	ation (200 Res	amples)	
Point % SD	95%		Skew	,	· · · · · · · · · · · · · · · · · · ·	
IC05 >100						
IC10 >100						
IC15 >100				1	.0 0.	
IC20 >100					4	
IC25 >100				0).9 -	
IC40 >100				0	0.8	
IC50 >100					4	
		······································		0	^{0.7}	
				9 0	0.6 -	
				ű		
				ğ		
				Response	.4 -	

0.3 0.2 0.1 0.0

0

50

Dose %

100

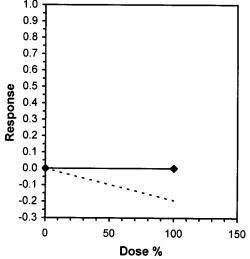
150

			Cerioda	aphnia Su	rvival and	d Reprodu	uction Tes	st-Repro	duction	
Start Date: End Date: Sample Date: Comments:	12/27/201 1/3/2011 1 12/26/201	14:00	Test ID: Lab ID: Protocol:	CAATL-Ac	quatic Tes	ting Labs	Sample ID Sample Ty Test Spec	ype:		3 lustrial stormwater laphnia dubia
Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	25.000	20.000	26.000	21.000	23.000	25.000	23.000	30.000	25.000	23.000
D-Control										

		_		Transform	n: Untran	sformed			1-Tailed	Isotonic		
Conc-%	Mean	N-Mean	Mean	Min	Мах	CV%	Ν	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	24.100	1.0000	24.100	20.000	30.000	11.646	10				26.450	1.0000
100	28.800	1.1950	28.800	25.000	33.000	10.063	10	-3.684	1.734	2.212	26.450	1.0000

Auxiliary Tests	Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.9602		0.905		0.32547	-0.5479
F-Test indicates equal variances (p = 0.93)	1.06629		6.54109			
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	2.21239	0.0918	110.45	8.13889	0.0017	1, 18
Treatments vs D-Control						.,

			Lii	near Interpolation (2	200 Resamples)	
Point	%	SD	95% CL	Skew	. ,	
IC05	>100			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
IC10	>100					
IC15	>100				1.0	
IC20	>100				0.9	
IC25	>100				4	
IC40	>100				0.8 -	
IC50	>100				0.7	
			·····		0.6 -	
					9 , 0.5	



CERIODAPHNIA DUBIA CHRONIC BIOASSAY EPA METHOD 1002.0 Raw Data Sheet



Lab No.: A-10122703-001 Client ID: TestAmerica - Outfall 006

Start Date: 12/27/2010

Client ID: 1	estAmen			0								<u> </u>	Start Date: 12/27/2010			10	
		DA	AY 1	D/	AY 2		DAY	3	DA	AY 4	1	DAY 5		DA	AY 6	D/	AY 7
	ĺ	0 hr	24hr	0 hr	24hr	0 h	r	24hr	0 hr	24hr	0 hr	24	4hr 0) hr	24hr	0 hr	24hr
Analyst I	nitials:	h	Rom	- C-	har	12	~/	2 m	h	han	k	Λ		h	h	M	R
Time of Re	eadings:	1520	140	1400	1400	144	> /4	ΙW	1400	15a	Isa	140	1 ju	in	Ka	15 OV	1400
	DO	8.3	8.5	9.0	8.3	8.9		$F_{i}I$	83	8-4	9.3	8.	18	M	8.0	8-1	8.2
Control	pН	8.2	8.3	8.2	8.2	8	28	2	8.3	8-0	8.2	18	.z. 8	2.2	8.2	8.2	8.Z
	Temp	243	24.0	25.4	24.2	24.	32	¥.4	25.0	241	24.5	24			247	24.4	24.2
	DO	9.6	8.9	11.2	8.7	1/1	4 8		9.1	90	9.7	78	29	3	7.4	9.9	81
100%	pН	7-8	8.3	7.8	8.2	2.9	$\hat{\mathbf{x}}$:3	8.0	8.3	8.0		48	,Z	8-4	8.1	8.4
	Temp	24.5	24.2	╺╼╩╾┈┥┝╼╧╼╼┿╼╩┷╴╌╖┝╼╧╼╸									324	1.Z	24.2	24.1	243
	Ad	iditional	Paramete	rs					Cor	ntrol]	100% Sam	ple	
	Co	nductivity	(umohm	5)					3	I V					156		
	All	kalinity (n	ng/l CaCC	D ₃)				2	2					68			
	Ha	ardness (m	g/l CaCC	93)				б	8					62			
	An	nmonia (n	1g/l NH ₃ -1	N)			Lo.1 0.1										
Source of Neonates																	
Rep	licate:		A	В		2	D		E	F		G	н		1		J
Broo	od ID:		1-	2 D	21	-	24		15	49	+ 3	B	6	E_	<i>S F</i>	6	2
Sample		Day			.	Numb	er of Y	Young P	roduced				Total L		No. Live		nalyst
					С	D	E	F	G	н	1	J	Young	g	Adults		nitials
		1		- u	$ \mathcal{Q} $	\mathcal{D}	\mathcal{Q}	v	0	0	\underline{Q}	0	<u> </u>		10		22
		2			0 K	0 2	D	0	0	\mathcal{O}	0	\mathcal{O}	0		$\frac{0}{10}$		2
		4	- 4		V	~	$\frac{0}{3}$	4	$\frac{3}{0}$	05	3	$\frac{2}{3}$	<u>13</u> 21		$\frac{10}{11}$		$\langle \rangle$
Control		5		00	9	7	0	$\overline{0}$	17	G	0	8	<u> </u>		10	- 4	It
		6	0		U	12	8	7	13	110	6	0	78		10		M
		7	(7	2 10	13	0	12	14	0	0	14	12	89		IV	/	TPC .
		Total	20	5 20	26	21	23	75	23	30	25 é	23	24		jŰ		M
		1	_0	0	0	0	O	0	0	0	0	0	\mathcal{O}		10		0
		2	-0	$ \rho $	0	0	0	0	D	0		0	\mathcal{O}		Jυ		
		3	$-\vec{2}$	$\downarrow Q$	3	0	$\underline{\mathcal{O}}$	0	3	2	3	2	13		10		F-
100%		4	-1	25	$\left \begin{array}{c} 0 \\ \end{array} \right $	4	5	4		\leq	$\frac{2}{2}$	Ş	23	_	10		Arr
	┣	5	$-\frac{5}{10}$	7 0	9	-4	6	9	$\left \begin{array}{c} 0 \\ 12 \end{array} \right $		4	6	47	2	10		W L
		7	$-\mu$	50	0	र्त	<u>0</u> 18	19	13	出	19	<u>)</u> 15	54	2	$- \frac{U}{D}$		m
		Total				26	29	3-	27	26		<u>12</u> みん	<u></u>		$\frac{1}{1}$	╢┵	A
	with head	ليشتعك المستعين		<u> </u>	11 T	<u>v L</u>		1 2		<u> </u>		-10	2 IL	_11/	. 11 2	, –	

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



CHAIN OF CUSTODY



 $\left(\right)$

CHAIN OF CUSTODY FORM

Client Name/Ac				Project:											A	ANALYSIS REQUIRED																						
IMWH-Arcadi			ļ	Boeing-		PDES					1				ΠÎ				T																			
618 Michillinda		uite 200		Routine				à				ń	0), Gross Beta(900.0), .0), Sr-90 (905 0), Total n 226 (903 0 or 903.1) & .0), Uranium (908 0), K- 0 or 901.1)																									
Arcadia, CA 9				COMPC	DSITE /	HIGH		, C				đ	0.0 0.0 0.0																									
				Stormw	ater at	FSDF-2	i	ğ				5 C	906 906																									
Test America C	Contact:	Debby Wils	ion									Cd, Cu,	905 m (
								Sb,				Sb. (8 S 8 90 (1 11 (1																									
								tals	ers			ŝ	51-5 51-5 5 (9 901					1		Comments																		
								Š.	Jen	z		tals	ar, 0, 0, 0							Comments																		
Project Manag	er: Bror	wyn Kelly		Phone I	Number	r:		Recoverable Metals: I	ũ	ģ		Me	ss Alpha(900.0), Gross Beta(900 ium (H-3) (906.0), Sr-90 (905 0). mbined Radium 226 (903 0 or 90 dium 228 (904 0), Uramium (908 CS-137 (901.0 or 901.1)																									
P.	KR	AND A		(626) 568-6691				era	ail o	+		ved	(90 (30 (30 (30 (30 (30 (30 (30 (30 (30 (3	ícit)																								
Sampler: Ro	00	1110		Fax Number:				Fax Number:		Fax Number:		Fax Number:		ax Number:												Ň.	p	2 Z	S	sol	4-3 4 F 37 37	T _{ox}						
Ro	ひた	113		(626) 568-6515				A A) (a	ð	12	Dis	S-1	2	ę																							
Sample	Sample	Container	# 0f	Sampling Dentile #			Total F Hg, TI	TCDD (and all congeners)	CI, SO4, NO3+NO2-N	TDS, TSS	Total Dissolved Metals: Hg, Ti	Gross Alpha(9 Tritium (H-3) (1 Combined Rac Radium 228 (1 40. CS-137 (9)	Chronic Toxícity	Cyanide																								
Description	Matrix	Туре	Cont	Date/					¥	ō	<u>۲</u>	ĔĔ	A0. 40.	5	σ																							
Outfall 006	w	1L Poly	1	12-2	200	HNO ₃	2A	X			ļ			 																								
Outfall 006 Dup	W	1L Poly	1	2/	28	HNO ₃	28	X		<u> </u>				ļ																								
Outfall 006	W	1L Amber	2			None	3A. 3B		X																													
Outfall 006	w	500 mL Poly	2			None	4A, 4B			X																												
Outfall 006	w	500 mL Poly	1			None	5	ļ	L	ļ	×	ļ																										
Outfall 006	w	1L Poly	1			None	6					×								Filter w/in 24hrs of receipt at lab																		
		2 5 Gal Cube	1			None	7A						, v							Unfiltered and unpreserved																		
Outfall 006	W	500 mL Amber	1	1 mb	,	None	7B			-		1	×							analysis																		
Outfall 006	w	1 Gal Poly	Ι.	1) 94	5-2012	None	8				<u>†</u>	†		×	+	+ + +				Only test if first or second rain																		
			<u> </u>		~~~	ļ	9					<u> </u>			×					events of the year																		
Outfall 006		500 mL Poly	1	12/.9	5 <i>4</i> _	NaOH	9			+				┼	<u>†</u>																							
										<u> </u>			+		+	<u> </u>		-																				
					_																																	
				1																																		
			T																																			
	<u> </u>	h e open 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999	1			coo	C Page 2	of 2 lis	t the	Com	posite	Sam	oles for Outfall	006	for th	is storm event.																						
				·····		ese must b	e added t	ρ the ≸	ame	work	orde	r for C	OC/Page 1 of 2	2 for (Outfa	II 006 for the san																						
Relinquished By	4		Date/T	ime:		7-2010	Received E	X	1		~	ate/Time	110	11-7	1.	Tum-around time: (Che																						
	(1					2010		\sum	6)			10	24 Hour 48 Hour	72 Hour 5 Day: _			10 Day:																		
10mg		7		\cap	13	500		\rightarrow	×,		_ /	5	$\sqrt{3}$	كان ا		48 Hour	5 Day: _	\mathbf{X}_{-}		Normal:																		
Relinquished By			Date	ime:	. 7 1	-10	Received	A 1	1	1	D	ate/Time			1.	1																						
	6		1		1010	- 1/10		/	//	ろ	A	11	2-51)-K	/	Sample Integrity. (Chec																						
	No.	h			1	445	1/	H	/	ア	/ /	JL	- 14	4	>	Intact On																						
Relinguished By	XF	-/	Date/1	ime:		1 1-	Received	Зу		1-	- / _	/ ate/Time	<u> </u>			-1	r																					
	/									-						Data Requirements: (C	eck)																					
							Y									No Level IV:	All Level I	v																				

DEC. 27. 2010 6:00PM TESTAMERICA

NO. 997 P. 1

SUBCONTRACT ORDER TestAmerica Irvine

ITL2487

SENDING LABORATOR	<u>Y:</u>			ABORATORY:
TestAmerica Irvine 17461 Derian Avenue. Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 260-3297 Project Manager: Debb	2		4350 Transp Ventura, CA Phone :(805) Fax: (805) 6 Project Locat	650-0546
Analysis	Units	Due	Expires	Comments
Analysis Sample ID; ITL2487-02 ((

1222116

Released By

Date/Time

1445 7-27-10 Received By Date/Time

Released By

Date/Time

Received By



REFERENCE TOXICANT DATA

CERIODAPHNIA CHRONIC BIOASSAY EPA METHOD 1002.0 REFERENCE TOXICANT - NaCl



QA/QC Batch No.: RT-101207

Date Tested: 12/07/10 to 12/13/10

TEST SUMMARY

Test type: Daily static-renewal. Species: *Ceriodaphnia dubia*. Age: <24 hrs; all released within 8 hrs. Test vessel size: 30 ml. Number of test organisms per vessel: 1. Temperature: $25 + /-1^{\circ}$ C. Dilution water: Mod. hard reconstituted (MHRW). Reference Toxicant: Sodium chloride (NaCl). Endpoints: Survival and Reproduction. Source: In-laboratory culture. Food: .1 ml YTC, algae per day. Test solution volume: 20 ml. Number of replicates: 10. Photoperiod: 16/8 hrs. light/dark cycle. Test duration: 6 days. Statistics: ToxCalc computer program.

Sample Concentration	Percent Sur	vival	Mean Number of Young Per Female								
Control	100%		23.3								
0.25 g/l	100%		25.2								
0.5 g/l	100%		23.7								
1.0 g/l	100%		16.0	*							
2.0 g/l	100%		2.9	*							
4.0 g/l	0%	*	0	**							
* Statistically significantly less than control at P = 0.05 level ** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.											

RESULTS SUMMARY

CHRONIC TOXICITY

Survival LC50	2.8 g/l
Reproduction IC25	0.86 mg/l

QA/QC TEST ACCEPTABILITY

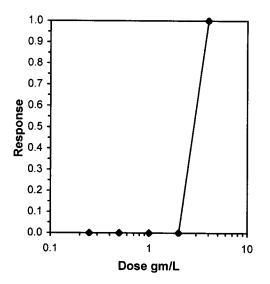
Parameter	Result
Control survival ≥80%	Pass (100% Survival)
≥15 young per surviving control female	Pass (23.3 young)
≥60% surviving controls had 3 broods	Pass (80% with 3 broods)
PMSD <47% for reproduction	Pass (PMSD = 18.9%)
Stat. sig. diff. conc. relative difference $> 13\%$	Pass (Stat. sig. diff. conc. Relative difference = 31.3%)
Concentration response relationship acceptable	Pass (Response curve normal)

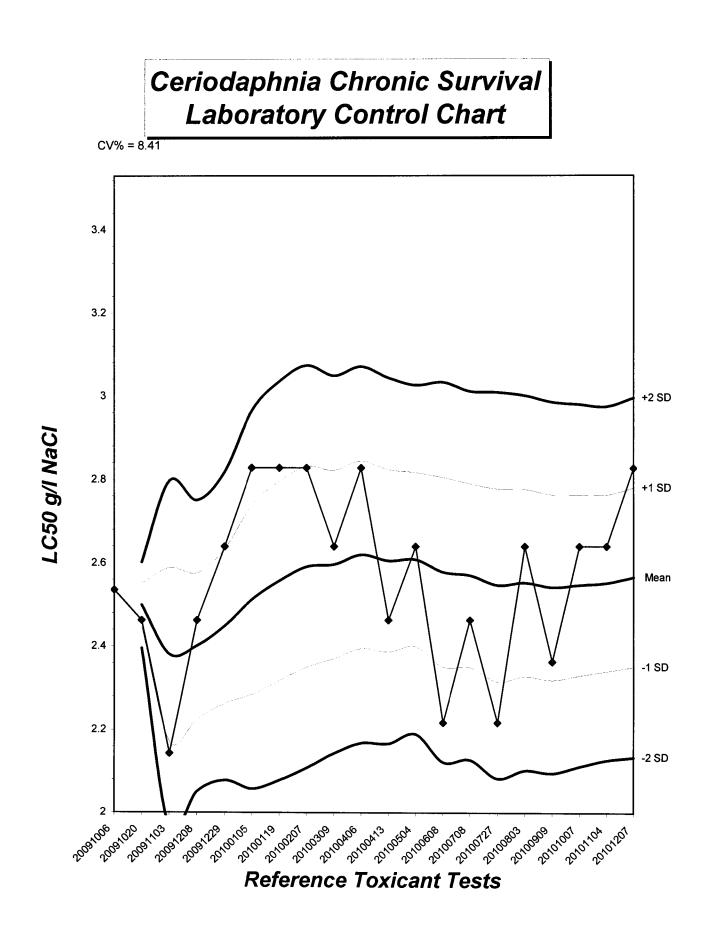
			Cerioda	aphnia Su	rvival and	Reprodu	uction Tes	st-Surviv	al Day 6		
Start Date:	12/7/2010	14:00		RT101207			Sample ID		REF-Ref Toxicant		
End Date:	12/13/201	0 14:00	Lab ID:	CAATL-Ad	quatic Tes	ting Labs	Sample T	vpe:		lium chloride	
Sample Date:	12/6/2010			FWCH EF		U	Test Spec			laphnia dubia	
Comments:				÷			r				
Conc-gm/L	1	2	3	4	5	6	7	8	9	10	
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
0.25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

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

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	
Fisher's Exact Test	2	4	2.82843		
Treatments vs D-Control					
			Grap	hical Method	
Trim Level EC50			•		
0.0% 2.8284			·		

2.8284



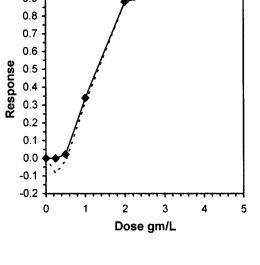


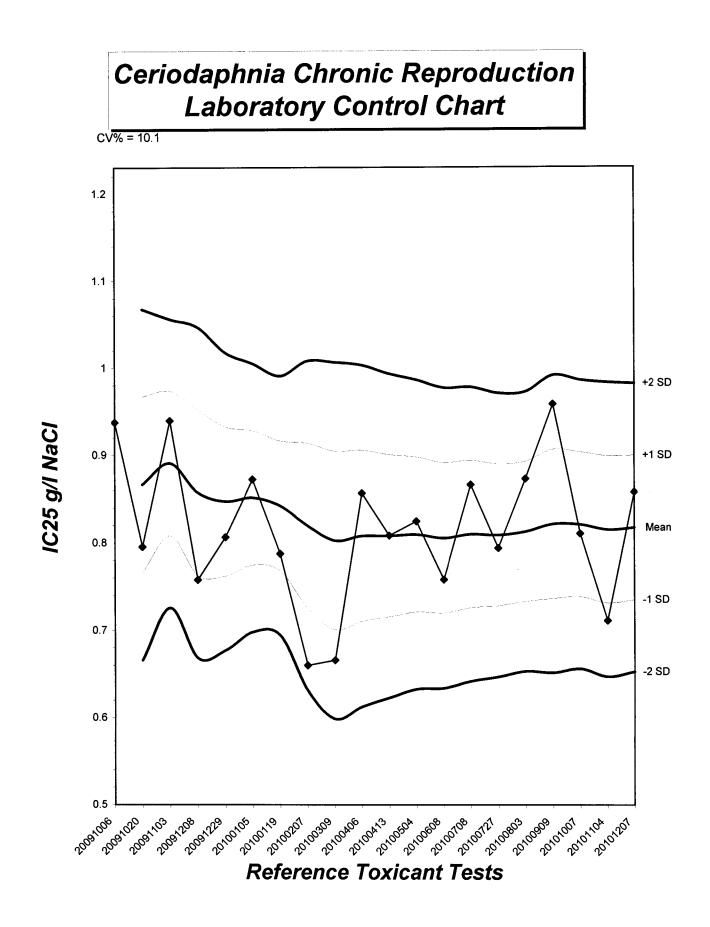
			Ceriod	aphnia Su	rvival and	d Reprodu	uction Tes	st-Repro	duction	
Start Date:	12/7/2010	14:00	Test ID:	RT101207	Ċ		Sample ID):	REF-Ref 1	
End Date:	12/13/201	0 14:00	Lab ID:	CAATL-Ac	juatic Tes					lium chloride
Sample Date:	12/6/2010		Protocol:	FWCH EP	A		Test Spec	ies:	CD-Cerioo	laphnia dubia
Comments:		-								
Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	11.000	28.000	27.000	26.000	28.000	21.000	28.000	27.000	15.000
0.25	28.000	29.000	21.000	21.000	28.000	28.000	28.000	25.000	25.000	19.000
0.5	25.000	17.000	20.000	26.000	24.000	29.000	29.000	23.000	25.000	19.000
1	10.000	10.000	20.000	22.000	20.000	11.000	15.000	12.000	24.000	16.000
2	0.000	2.000	7.000	4.000	2.000	4.000	0.000	5.000	2.000	3.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			•	Transform	n: Untran	sformed			1-Tailed		Isot	onic
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	23.300	1.0000	23.300	11.000	28.000	25.913	10				24.250	1.0000
0.25	25.200	1.0815	25.200	19.000	29.000	14.466	10	-0.959	2.223	4.404	24.250	1.0000
0.5	23.700	1.0172	23.700	17.000	29.000	17.000	10	-0.202	2.223	4.404	23.700	0.9773
*1	16.000	0.6867	16.000	10.000	24.000	32.676	10	3.686	2.223	4.404	16.000	0.6598
*2	2.900	0.1245	2.900	0.000	7.000	75.285	10	10.299	2.223	4.404	2.900	0.1196
4	0.000	0.0000	0.000	0.000	0.000	0.000	10				0.000	0.0000

Auxiliary Tests				Statistic		Critical		Skew	Kurt	
Shapiro-Wilk's Test indicates nor		0.96459		0.947		-0.5938	0.09413			
Bartlett's Test indicates equal var	iances (p =	0.06)			8.97697		13.2767			
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	0.5	1	0.70711		4.40372	0.189	860.47	19.6156	5.6E-15	4, 45
Treatments vs D-Control										

				Linea	r Interpolatio	n (200 Resamples)	
Point	gm/L	SD	95%	CL	Skew		
C05	0.5430	0.1060	0.2194	0.6041	-1.2164		
10	0.6218	0.0833	0.4101	0.7081	-1.1699		
215	0.7005	0.0819	0.5141	0.8292	-0.4850	1.0	
220	0.7792	0.0859	0.5998	0.9452	0.1951	0.9	
25	0.8580	0.0903	0.6963	1.0439	0.3636	0.8	
240	1.1107	0.1011	0.9055	1.2772	-0.0498	4	
C50	1.2958	0.0936	1.0659	1.4429	-0.4534	0.7	
						0.6 -	
						% 0.5	ł





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



QA/QC No.: RT-101207

Start Date:12/07/2010

				Nu	mbei	r of Y	oung	Produ	uced			Total	No.	Analyst
Sample	Day	Α	В	С	D	E	F	G	н	Ι	J	Live Young	Live Adults	Initials
	1	D	0	0	\mathcal{O}	0	Ö	0	0	0	0	\mathcal{O}	10	h
	2	0	0	0	0	0	0	0	0	0	0	0	10	Ru
	3	0	U	4	0	\mathcal{O}	\cup	0	0	0	\mathcal{O}	4	10	ha
Control	4	3	3	0	ک	Ц	Z	3	4	4	3	31	10	n
Control	5	9	8	6	7	8	9	6	9	7	0	69	10	1
	6	10	0	18	15	14	\square	12	۱۶	16	12	129	10	\square
	7	-	-	-	<u> </u>	^			^	-	<u> </u>	_		
	Total	22	u	28	57	76	38	21	28	27	15	233	10	
	1	0	\mathcal{O}	0	0	0	0	0	0	0	U	\mathcal{O}	10	R
	2	0	0	0	0	0	0	0	0	0	0	\mathcal{O}	JU	h
	3	0	0	4	0	0	0	0	0	0	0	4	1U	ha
0.25 ~/1	4	Ц	3	U	4	5	4	4	ろ	4	Ч	35	jU	n
0.25 g/l	5	6	9	7	0	8	10	9	7	7	\mathcal{O}	63	10	In
	6	18	17	10	17	15	14	15	15	14	15	150	U	.h
	7			-	-	\frown		_	\sim	-	-	\sim	\square	
	Total	28	29	21	21	To	28	28	25	25	19	252	JU	
	1	0	0	0	0	0	0	0	0	0	0	\mathcal{O}	10	R
	2	0	0	0	0	0	0	0	0	\mathcal{O}	0	0	U]	h
	3	0	0	0	4	0	0	0	0	0	0	4	10	R
0.5 g/l	4	4	3	4	0	۶	4	4	3	3	Ч	34	jŪ	h
0.5 g/1	5	6	0	6	8	7	9	2	6	7	O	55	10	
	6	15	14	10	14	12	16	18	H	15	15	143	ίυ	
	7	\sim	-			-	-	_	-	_	-	(· -	
	Total 2517 202624292923251923710													
Circled fourth 7 th day only u	t brood not use sed if <60% c	ed in s of the s	statisti surviv	ical ar ing co	nalysi ontrol	s. fema	les ha	ve pro	duced	l their	third b	prood.		-

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



QA/QC No.: RT-101207

Start Date: 12/07/2010

	-			Nu	mbei	r of Y	oung I	Produ	ced	<u> </u>		Total	No. Live	Analyst
Sample	Day	Α	В	С	D	E	F	G	H	Ι	J	Live Young	Adults	Initials
	1	0	0	0	0	0	0	\mathcal{O}	\mathcal{O}	0	Ó	\mathcal{O}	U	m
	2	0	D	0	0	0	0	0	0	\mathcal{O}_{-}	0	0	ίJ	h
	3	0	0	0	0	0	0	Ô	\mathcal{O}	0	0	\mathcal{Q}	10	R
1.0 c/l	4	9	3	5	Ч	5	5	3	ч	Ч	3	30	IV	R
1.0 g/l	5	0	7	6	6	7	\mathcal{O}	0	Û	6	6	38	10	n
	6	6	0	10	12	8	7	12	8	14	2	84	10	1
	7		•	-	-	-	1	(~	_	_			
	Total	10	10	20	22	20	11	15	12	24	16	160	V	
	1	0	0	0	0	0	0	0	0	0	0	\mathcal{O}	10	R
	2	0	0	0	0	0	0	0	0	0	0	0	10	R
	3	0	0	0	0	0	0	0	0	0	0	\mathcal{O}	10	g-
2.0 g/l	4	\cup	0	0	C	2	Ċ	C	2	C	\mathcal{O}	U	JU	R
2.0 g/1	5	U	2	3	\mathcal{C}	0	4	\mathcal{U}	0	2	0	.]]	jU	
	6	Ô	0	4	4	\mathcal{O}	Ò	0	3	\mathcal{O}	3	14	10	1V
	7	-	-	-	-	-	-		$\overline{}$		-			
	Total	0	2	2	4	2	4	U	5	2	3	24	U]	2
	1	X	X	乄	\mathbf{X}		X	\swarrow	X	X	\times	0	\mathcal{O}	R
	2	<u> </u>	-		<u> </u>		_	~	-	-			^	
	3		_	-	-		-	_	-				(
4.0 g/l	4	<u> </u>	-	-		-	-	~			\sim		-	
4.0 g/1	5		<u> </u>			-		-	_	_	_	~		
	6	\square	-		-		-	-	_		-		(
	7	-	<u> </u>	-		<u>+</u> ~	~	-	_		1		_	
	Total OOCCCCCCCCCC													
	Circled fourth brood not used in statistical analysis. 7 th day only used if <60% of the surviving control females have produced their third brood.													

CERIODAPHNIA DUBIA CHRONIC BIOASSAY Reference Toxicant - NaCl Water Chemistries Raw Data Sheet



QA/QC No.: RT-101207

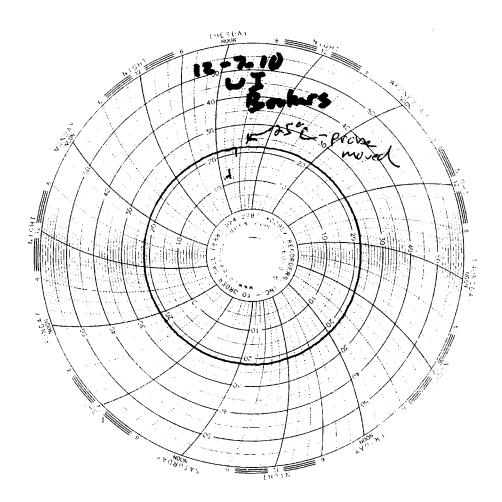
Start Date: 12/07/2010

QA/QC IN			1.												
		DA	Y 1	DA	Y 2	D	AY 3	D	AY 4	DA	Y 5	DA	Y 6	DA	Y 7
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Analyst I	nitials:	L~	R	hr	ŝ	L-	Lan	Br	án	h	p	h	ん	K	\square
Time of R	eadings:	140	/sw	ISW	140	1400	1400	1400	1300	1300	1330	1330	14/2	<u> </u>	
	DO	8.4	8.7	8.4	8.6	8.7	8.3	8.2	-8.4	8.1	7.9	8,2	26		<u> </u>
Control	pН	8.2	8.3	8.4	7.9	8.2	.8.0	8.2	8.0	8.1	7.9	8.2	8.Z	-	~
	Temp	25.0	24.3	25.0	24.5	25.0	246	24.8	24.7	25.1	250	75.3	25.2	-	-
	DO	8.4	8.8	8.4		8.6		8.2	8.4	8.2	24	82	7.7	_	1
0.25 g/l	pН	8.2	8.3	8.3	7.9	8.2		82	8.0	8.1	8.1	8.2	8.2		~
	Temp	25.0	24.6	25.0	24.8	25.0	25.0	24.8	24.8	25,1	24N	052	252		
	DO	8.5	8.8	8.4	8.7	8.6	8.4	8.2	8.3	8,2	7.4	8.3	7.6	-	-
0.5 g/l	pН	8.2	8.2	8.3	7.9	8.2	-8.0	8.2	8.0	8.1	74	8.2	8.	-	
	Temp	25.0	24.7	25.1	24.8	2 <u>5.</u> (25.1	24.0	124.9	25.0	24	24-6	z1	$\square \frown$	
	DO	8.5	8.7	8.4	8.7 8.5 8.4		8.2	8.3	8.2	83	83	7.2	<u> </u>	—	
1.0 g/l	pН	8.2	8.2	8.3	7.9 8.2		8.0	8.2	8.0	8.2	74	8.2	8.1	_	_
	Temp	24.9	24.6	25.1	24.9	25.1	25.0	24.0	24.924.9		240	245	24.9	\sim	-
	DO	8.6	8.6	8.5	8.8	8.3	8.4	8.2	- 8.5	8.2	8.2	8.Z	24	<u> </u>	-
2.0 g/l	pН	8.2	8.2	8.3	7.9	8.1	8.0	8.2	8.0	8.2	7.4	82	8-1	-	-
	Temp	24-8	24.8	25.2	24.8	25.7	24.9	<u>25.c</u>	24-8	24.9	244	245	25.2		
	DO	8.7	8.8		-					_		-	-		-
4.0 g/l	pН	8.1	8.2		-		_					-	~		-
L	Temp	24.6	24.8		-	_					-	-	_		_
	Di	ssolved	Oxyge	en (DO)	reading	gs are i	n mg/l	O ₂ ; Ten	nperature	e (Temp) readin	gs are ii	ı ℃.		
	Additional	Paramat	ars		Control High Concentration									ion	
					Day		Day	3	Day 5		Day 1		Day 3	D	ay 5
	Conducti	vity (µS)		32	5	320	,	322		2470	3	690	34	130
	Alkalinity (mg/l CaC	O ₃)		24		73		73				24		74
Hardness (mg/1 CaCO3) 87 88 89 90 89 89											°9				
					1			Neonates			<u> </u>		T		
	licate:	_	A	B			D	E	F		G	H			J
L Broo	od ID:		A	2A	رک _	3A 3B		<u> </u>	<u> </u>	12	27 /		IJ 2J		T



Test Temperature Chart

Test No: RT-101207 Date Tested: 12/07/10 to 12/13/10 Acceptable Range: 25+/- 1°C





EBERLINE ANALYTICAL CORPORATION 2030 Wright Avenue Richmond, California 94804-3849 Phone (510) 235-2633 Fax (510) 235-0438 Toll Free (800) 841-5487 www.eberlineservices.com

February 1, 2011

Ms. Debby Wilson Test America Irvine 17461 Derian Ave., Ste. 100 Irvine, CA 92614

Reference: Test America-Irvine ITL2487 Eberline Analytical Report S012367-8652 Sample Delivery Group 8652

Dear Ms. Wilson:

Enclosed is a Level IV CLP-like data package (on CD) for one water sample received under Test America Job No. ITL2487. The sample was received on December 29, 2010.

Please call me, if you have any questions concerning the enclosed report.

Sincerely,

ulh

N. Joseph Verville Client Services Manager

NJV/ljb

Enclosure: Level IV CLP-like Data Package CD

Case Narrative, page 1

February 1, 2011

1.0 General Comments

Sample delivery group 8652 consists of the analytical results and supporting documentation for one water sample. Sample ID's and reference dates/times are given in the Sample Summary section of the Summary Data report. The sample was received as stated on the chain-of-custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. No holding times were exceeded.

Tritium and gamma analyses were performed on the sample as received i.e. the sample was not filtered. The analytical volumes for all other analyses were subjected to a full nitric acid/hydrofluoric acid dissolution, and analyses were performed on the dissolution volume.

2.0 Quality Control

For efficiency of analysis, sample ITL2485-02 was analyzed in a common prep batch with other TA samples. The QC samples from that common prep batch were assigned to SDG 8654 and are reported herein. Quality Control Samples consisted of laboratory control samples (LCS), method blanks, duplicate analyses and matrix spike analyses. Included in the data package are copies of the Eberline Analytical radiometrics data sheets. The radiometrics data sheets for the QC LCS and QC blank samples indicate Eberline Analytical's standard QC aliquot of 1.0 sample; results for those QC types are calculated as pCi/sample. The QC LCS and QC blank sample results reported in the Summary Data Section have been divided by the appropriate method specific aliquot (see the Lab Method Summaries for specific aliquots) in order to make the results comparable to the field sample results. All QC sample results were within required control limits.

3.0 Method Errors

The error for each result is an estimate of the significant random uncertainties incurred in the measurement process. These are propagated to each final result. They include the counting (Poisson) uncertainty, as well as those intrinsic errors due to carrier or tracer standardization, aliquoting, counter efficiencies, weights, or volumes. The following method errors were propagated to the count error to calculate the 2σ error (Total):

Analysis	Method Error
Gross alpha	20.6%
Gross beta	11.0%
Tritium	10.0%
Sr-90	10.4%
Ra-226	16.4%
Ra-228	10.4%
Uranium,Total	
Gamma Spec.	7.0%

Case Narrative, page 2

February 1, 2011

4.0 Analysis Notes

- **4.1 Gross Alpha/Gross Beta Analysis** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- **4.2 Tritium Analysis** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- **4.3 Strontium-90 Analysis -** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- **4.4 Radium-226 Analysis -** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits
- **4.5 Radium-228 Analysis -** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits
- **4.6 Total Uranium Analysis -** No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- **4.7 Gamma Spectroscopy** The K-40 MDA for sample ITL2489-03 (53.7 pCi/L) and the duplicate of sample ITL2489-03 (53.7 pCi/L) were greater than the required detection limit of 25 pCi/L, due to an elevated K40 background in the ROI for K40 on the detector used for analysis. No other problems were encountered during the processing of the samples. All other quality control sample results were within required control limits.

5.0 Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

N. Joseph Verville Client Services Manager

Date

SDG	8652	
Contact	N. Joseph	Verville

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

SUMMARY DATA SECTION

TABLE OF	со	N T	ΕN	T S	
About this section	•	•	. •	•	1
Sample Summaries	•	•	•	•	3
Prep Batch Summary		•	•	•	5
Work Summary	•	•	•	•	6
Method Blanks	•	•	•	•	8
Lab Control Samples	•	•	•	•	9
Duplicates	•	•	•	•	10
Data Sheets	. •	•	•	•	11
Method Summaries	•	•	•	•	12
Report Guides	•	•	•	•	20
End of Section	•	•	•	•	34

B

Prepared by

Reviewed by

hill

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-TOC</u>
Version <u>3.06</u>
Report date <u>02/01/11</u>

SDG	8652	
-----	------	--

SDG	8652
Contact	N. Joseph Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

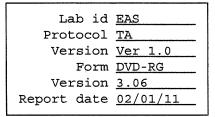
The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

REPORT GUIDES Page 1 SUMMARY DATA SECTION Page 1



SDG 8652

SDG	86	52	· · · · · · · · · · · · · · · · · · ·
Contact	<u>N.</u>	Joseph	Verville

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

REPORT GUIDES Page 2 SUMMARY DATA SECTION Page 2

SDG 8652

SDG <u>8652</u>

Contact N. Joseph Verville

LAB SAMPLE SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAS NO	CHAIN OF CUSTODY	COLLECTED
S012367-01	ITL2487-02	Boeing - SSFL	WATER			ITL2487	12/26/10 21:58
S012369-03	Lab Control Sample		WATER				
S012369-04	Method Blank		WATER				
S012369-05	Duplicate (S012369-01)	Boeing - SSFL	WATER				12/26/10 08:58

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LS
Version	3.06
Report date	02/01/11

LAB SUMMARY Page 1 SUMMARY DATA SECTION Page 3

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

SDG 8652

QC SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SAMPLE MOIST AMOUNT	BASIS AMOUNT	DAYS S		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
8652	ITL2487	ITL2487-02	WATER	10.0 L		12/29/10	3	S012367-01	8652-001
8654		Method Blank . Lab Control Sample Duplicate (S012369-01)	WATER WATER WATER	10.0 L		12/29/10	3	S012369-04 S012369-03 S012369-05	8654-004 8654-003 8654-005

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-QS</u> Version <u>3.06</u> Report date <u>02/01/11</u>

QC SUMMARY Page 1 SUMMARY DATA SECTION Page 4

SDG 8652

SDG <u>8652</u>

Contact N. Joseph Verville

PREP BATCH SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

			PREPARATION	ERROR			- PLA	NCHETS	ANALYZ	ED	QUALI-
TEST	MATRIX	METHOD	BATCH	2σ ¥	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS
Beta	Counting										
AC	WATER	Radium-228 in Water	7271-037	10.4	1			1	1	1/0/1	
SR	WATER	Strontium-90 in Water	7271-037	10.4	1			1	1	1/0/1	
Gas P	roportiona	al Counting									
80A	WATER	Gross Alpha in Water	7271-037	20.6	1			l	1	1/0/1	
80B	WATER	Gross Beta in Water	7271-037	11.0	l			1	1	1/0/1	
Gamma	Spectroso	сору	· ·								
GAM	WATER	Gamma Emitters in Water	7271-037	7.0	1			1	1	1/0/1	-
Kinet	ic Phospho	primetry, ug									
U_T	WATER	Uranium, Total	7271-037		1			1	1	1/0/1	
Liqui	d Scintill	lation Counting									
н	WATER	Tritium in Water	7271-037	10.0	1			1	1	1/0/1	
Radon	Counting										
RA	WATER	Radium-226 in Water	7271-037	16.4	1			1	1	1/0/1	

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample. In counts like 'a/b/c', 'a' = QC planchets, 'b' = Originals in this SDG, 'c' = Originals in other SDGs.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-PBS
Version	3.06
Report date	02/01/11

PREP BATCH SUMMARY Page 1 SUMMARY DATA SECTION Page 5

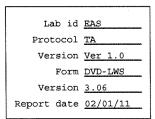
SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB WORK SUMMARY

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

LAB SAMPLE	CLIENT SAMPLE ID								
COLLECTED RECEIVED	LOCATION CUSTODY SAS no	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
S012367-01	ITL2487-02		8652-001	80A/80		01/06/11	01/07/11	BW	Gross Alpha in Water
12/26/10	Boeing - SSFL	WATER	8652-001	80B/80		01/06/11	01/07/11	BW	Gross Beta in Water
12/29/10	ITL2487		8652-001	AC		01/24/11	01/25/11	BW	Radium-228 in Water
			8652-001	GAM		01/07/11	01/11/11	MWT	Gamma Emitters in Water
			8652-001	H		01/12/11	01/18/11	BW	Tritium in Water
			8652-001	RA		01/22/11	01/24/11	BW	Radium-226 in Water
			8652-001	SR		01/13/11	01/25/11	BW	Strontium-90 in Water
			8652-001	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012369-03	Lab Control Sample		8654-003	80A/80		01/06/11	01/07/11	BW	Gross Alpha in Water
		WATER	8654-003	80B/80		01/06/11	01/07/11	BW	Gross Beta in Water
			8654-003	AC		01/24/11	01/25/11	BW	Radium-228 in Water
			8654-003	GAM		01/05/11	01/11/11	MWT	Gamma Emitters in Water
			8654-003	н		01/12/11	01/18/11	BW	Tritium in Water
			8654-003	RA		01/22/11	01/24/11	BW	Radium-226 in Water
			8654-003	SR		01/13/11	01/25/11	BW	Strontium-90 in Water
			8654-003	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012369-04	Method Blank		8654-004	80A/80		01/06/11	01/07/11	BW	Gross Alpha in Water
		WATER	8654-004	80B/80		01/06/11	01/07/11	BW	Gross Beta in Water
			8654-004	AC		01/24/11	01/25/11	BW	Radium-228 in Water
			8654-004	GAM		01/05/11	01/11/11	MWT	Gamma Emitters in Water
			8654-004	н		01/12/11	01/18/11	BW	Tritium in Water
			8654-004	RA		01/22/11	01/24/11	BW	Radium-226 in Water
			8654-004	SR		01/13/11	01/25/11	BW	Strontium-90 in Water
			8654-004	U_T		01/20/11	01/24/11	BW	Uranium, Total
S012369-05	Duplicate (S012369-01)		8654-005	80A/80		01/06/11	01/07/11	BW	Gross Alpha in Water
12/26/10	Boeing - SSFL	WATER	8654-005	80B/80		01/06/11	01/07/11	BW	Gross Beta in Water
12/29/10			8654-005	AC		01/24/11	01/25/11	BW	Radium-228 in Water
		•	8654-005	GAM		01/05/11	01/11/11	MWT	Gamma Emitters in Water
			8654-005	н		01/12/11	01/18/11	BW	Tritium in Water
			8654-005	RA		01/22/11	01/24/11	BW	Radium-226 in Water
			8654-005	SR		01/13/11	01/25/11	BW	Strontium-90 in Water
			8654-005	U_T		01/20/11	01/24/11	BW	Uranium, Total



WORK SUMMARY Page 1 SUMMARY DATA SECTION Page 6

SDG 8652

SDG <u>8652</u>

Contact N. Joseph Verville

WORK SUMMARY, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

TEST	SAS no	COUNTS METHOD		TESTS REFERENCE	ВҮ	SAMPLE TYPE CLIENT MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
80A/80		Gross Alpha in Water		900.0		1		1	l	1	4
80B/80		Gross Beta in Water	:	900.0		1		1	1	1	4
AC		Radium-228 in Water	:	904.0		1		1	1	1	4
GAM		Gamma Emitters in Water	I	901.1		1		l	1	1	4
н		Tritium in Water		906.0		1		1	1	1	4
RA		Radium-226 in Water	:	903.1		1		1	1	1	4
SR		Strontium-90 in Water	:	905.0		1		1	1	1	4
U_T		Uranium, Total	1	D5174		1		1	1	1	4
TOTALS						8		8	8	8	32

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-LWS</u> Version <u>3.06</u> Report date <u>02/01/11</u>

WORK SUMMARY Page 2 SUMMARY DATA SECTION Page 7

8654-004

Method Blank

METHOD BLANK

SDG <u>8652</u>	Client	<u>Test America, Inc.</u>
Contact <u>N. Joseph Verville</u>	Contract	ITL2487
Lab sample id <u>S012369-04</u> Dept sample id <u>8654-004</u>	Client sample id Material/Matrix	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	0.205	0.31	0.492	3.00	υ	80A
Gross Beta	12587472	-0.321	0.59	0.999	4.00	υ	80B
Tritium	10028178	22.6	160	272	500	υ	н
Radium-226	13982633	0.034	0.34	0.640	1.00	U	RA
Radium-228	15262201	-0.118	0.17	0.473	1.00	U	AC
Strontium-90	10098972	0.064	0.30	0.666	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	υт
Potassium-40	13966002	U		20.1	25.0	υ	GAM
Cesium-137	10045973	U		1.73	20.0	U	GAM

QC-BLANK #76729

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-DS
Version	3.06
Report date	02/01/11

METHOD BLANKS Page 1 SUMMARY DATA SECTION Page 8

SDG 8652

8654-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>8652</u> Contact <u>N. Joseph Verville</u> Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

Lab sample id <u>S012369-03</u> Dept sample id <u>8654-003</u> Client sample id <u>Lab Control Sample</u> Material/Matrix

WΔ	TER	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	20 ERR pCi/L	REC %	2σ LMTS (TOTAL)	PROTOCOI LIMITS
Gross Alpha	36.6	2.4	0.654	3.00		80A	40.4	1.6	91	80-120	70-130
Gross Beta	33.6	1.6	1.58	4.00		80B	35.0	1.4	96	88-112	70-130
Tritium	2420	260	271	500		н	2550	100	95	86-114	80-120
Radium-226	58.4	1.9	0.577	1.00		RA	55.7	2.2	105	82-118	80-120
Radium-228	4.53	0.30	0.432	1.00		AC	4.62	0.18	98	87-113	60-140
Strontium-90	17.9	1.4	0.597	2.00		SR	17.5	0.70	102	86-114	80-120
Uranium, Total	59.8	7.2	0.174	1.00		υ_т	62.5	2.5	96	88-112	80-120
Cobalt-60	94.8	4.6	2.23	10.0		GAM	102	4.1	93	91-109	80-120
Cesium-137	114	4.2	2.92	20.0		GAM	110	4.4	104	91-109	80-120

QC-LCS #76728

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-LCS Version 3.06 Report date 02/01/11

LAB CONTROL SAMPLES Page 1 SUMMARY DATA SECTION Page 9

SDG 8652

8654-005

ITL2489-03

DUPLICATE

	8652 N. Joseph Verville				Client Contract	<u>Test America, Inc.</u> ITL2487	
	DUPLICATE			ORIGINAL			
Lab sample id	<u>S012369-05</u>	Lab	sample id	<u> 5012369-01</u>	Client sample id	ITL2489-03	
Dept sample id	8654-005	Dept	sample id	8654-001	Location/Matrix	Boeing - SSFL	WATER
			Received	12/29/10	Collected/Volume	12/26/10 08:58 10.0	<u>L</u>
	-				Chain of custody id	ITL2489	

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	DER Ø
Gross Alpha	1.65	0.42	0.342	3.00	J	80A	1.89	0.47	0.400	J	14	69	0.6
Gross Beta	3.05	0.59	0.819	4.00	J	80B	3.06	0.63	0.885	J	0	48	0
Tritium	44.4	160	267	500	σ	н	-40.3	150	270	U	-		0.8
Radium-226	-0.022	0.31	0.592	1.00	U	RA	0.097	0.36	0.653	U	-		0.5
Radium-228	0.035	0.16	0.446	1.00	υ	AC	0.109	0.17	0.456	υ	-		0.6
Strontium-90	-0.005	0.29	0.693	2.00	υ.	SR	0.222	0.33	0.684	U	-		1.0
Uranium, Total	0.164	0.023	0.017	1.00	J	U_T	0.177	0.022	0.017	J	8	28	0.8
Potassium-40	υ		53.7	25.0	υ	GAM	U		53.7	U	-		0
Cesium-137	υ		2.68	20.0	υ	GAM	υ		2.68	U	-		0

QC-DUP#1 76730

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-DUP</u> Version <u>3.06</u> Report date <u>02/01/11</u>

DUPLICATES Page 1 SUMMARY DATA SECTION Page 10

SDG 8652

8652-001

ITL2487-02

DATA SHEET

1	8652 N. Joseph Verville	Client Contract	<u>Test America, Inc.</u> ITL2487	
Lab sample id Dept sample id Received	<u>8652-001</u> 12/29/10	Client sample id Location/Matrix Collected/Volume ain of custody id	Boeing - SSFL 12/26/10 21:58 10.0 L	WATER

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	1.12	0.39	0.384	3.00	J	80A
Gross Beta	12587472	2.56	0.68	1.02	4.00	J	80B
Tritium	10028178	-36.2	160	272	500	U	н
Radium-226	13982633	0.039	0.31	0.567	1.00	U	RA
Radium-228	15262201	0.110	0.16	0.434	1.00	U	AC
Strontium-90	10098972	0.051	0.28	0.587	2.00	U	SR
Uranium, Total		0.195	0.023	0.017	1.00	J	υ_т
Potassium-40	13966002	υ		19.4	25.0	U	GAM
Cesium-137	10045973	υ		1.58	20.0	U	GAM

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-DS</u> Version <u>3.06</u> Report date <u>02/01/11</u>

DATA SHEETS Page 1 SUMMARY DATA SECTION Page 11

SDG 8652

Test	AC Matrix WATER
SDG	8652
Contact	N. Joseph Verville

LAB METHOD SUMMARY RADIUM-228 IN WATER BETA COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

Preparation b	atch 7271-037				
S012367-01	8652-001	ITL2487-02	υ		
S012369-03	8654-003	Lab Control Sample	ok		
S012369-04	8654-004	Method Blank	U		
S012369-05	8654-005	Duplicate (S012369-01)	- U		

METHOD PERFORMANCE

LAB	RAW SUF-		MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	\mathbf{L}	FAC	TION	*	ş	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
															· · · · · · · · · · · · · · · · · · ·
Preparation	batch 727	1-037 2σ prep er	ror 10.4 % Re	eference	Lab 1	Notebool	k No.'	7271	pg.037	7					
S012367-01		ITL2487-02	0.434	1.80			73		150			29	01/24/11	01/24	GRB-223
S012369-03		Lab Control Sample	0.432	1.80			74		150				01/24/11	01/24	GRB-230
S012369-04		Method Blank	0.473	1.80			73		150				01/24/11	01/24	GRB-231
S012369-05	•	Duplicate (S012369-	01) 0.446	1.80			73		150			29	01/24/11	01/24	GRB-232
Nominal val	ues and li	mits from method	1.00	1.80			30-10	5	50			180			
							•								

PROCEDURES	REFERENCE DWP-894	904.0 Sequential Separation of Actinium-228 and	AVERAGES ± 2 SD FOR 4 SAMPLES	MDA <u>0.446</u> ± <u>0.038</u> YIELD <u>73</u> ± <u>1</u>
	ř.	Radium-226 in Drinking Water (>1 Liter Aliquot), rev 5		

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 1 SUMMARY DATA SECTION Page 12

SDG 8652

Test <u>SR</u> Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY STRONTIUM-90 IN WATER BETA COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium-90	
Preparation	batch 727	1-037			· · · · · · · · · · · · · · · · · · ·
S012367-01		8652-001	ITL2487-02	U	
5012369-03		8654-003	Lab Control Sample	ok	
5012369-04		8654-004	Method Blank	υ	
S012369-05		8654-005	Duplicate (S012369-01)	- U	

METHOD PERFORMANCE

LAB	RAW SUF-	MDA	ALIQ	PREP	DILU-		EFF %						ANAL- YZED	DETECTOR
SAMPLE ID	TEST FIX CLIENT SAMPLE ID	pCi/L	L	FAC	TION	8	5	min	keV	KeV	нвто	PREPARED	IZED	DETECTOR
Preparation	batch 7271-037 2σ prep error 2	10.4 % Re:	ference	Lab N	lotebool	k No. 7	7271	pg.037	7					
S012367-01	ITL2487-02	0.587	0.500			70		78			24	01/19/11	01/13	GRB-222
S012369-03	Lab Control Sample	0.597	0.500			83		50				01/08/11	01/13	GRB-222
S012369-04	Method Blank	0.666	0.500			82		50				01/08/11	01/13	GRB-201
S012369-05	Duplicate (S012369-01)	0.693	0.500			72		50			18	01/08/11	01/13	GRB-202
Nominal val	ues and limits from method	2.00	0.500			30-10	5	50			180			

	PROCEDURES	REFERENCE	905.0	AVERAGES ± 2 SD	MDA	0.636 ±	0.104
		DWP-380	Strontium in Drinking Water, rev 8	FOR 4 SAMPLES	YIELD	<u>77</u> ±	
-							

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 2 SUMMARY DATA SECTION Page 13

SDG 8652

Test <u>80A</u> Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY GROSS ALPHA IN WATER GAS PROPORTIONAL COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation	batch 727	1-037			
S012367-01	80	8652-001	ITL2487-02	1.12 J	
S012369-03	80	8654-003	Lab Control Sample	ok	
5012369-04	80	8654-004	Method Blank	U ·	
S012369-05	80	8654-005	Duplicate (S012369-01)	ok J	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 727	1-037 2σ prep error	20.6 % Re	ference	Lab N	loteboo	k No. '	7271	pg.037	,				
S012367-01	80	ITL2487-02	0.384	0.300			45		400		11	01/06/11	01/06	GRB-103
S012369-03	80	Lab Control Sample	0.654	0.250			60		400			01/06/11	01/06	GRB-107
- S012369-04	80	Method Blank	0.492	0.250			62		400			01/06/11	01/06	GRB-109
S012369-05	80	Duplicate (S012369-01)	0.342	0.300			31		400		11	01/06/11	01/06	GRB-111
Nominal val	ues and lin	mits from method	3.00	0.250			0-20	0	100		180			

PROCEDURES	REFERENCE	900.0		AVERAGES ± 2 SD	MDA <u>0.468</u> ± <u>0.278</u>
	DWP-121	Gross Alpha and Gross Beta in Drinking Water,		FOR 4 SAMPLES	RESIDUE <u>50</u> ± <u>29</u>
		rev 10	:	L	· · · · · · · · · · · · · · · · · · ·

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 3 SUMMARY DATA SECTION Page 14

SDG 8652

Test <u>80B</u> Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY GROSS BETA IN WATER GAS PROPORTIONAL COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

01 TTL2487-02	2 56 J	
	ok	
-	υ	
05 Duplicate (S012369-01)	ok J	
- 0 - 0	-004 Method Blank	-003 Lab Control Sample ok -004 Method Blank U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC		RESID mg	EFF %	COUNT min			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 727	1-037 2σ prep error 1	1.0 % Re	ference	Lab I	Notebool	k No. '	7271	pg.037	7				
S012367-01	80	ITL2487-02	1.02	0.300			45		400		11	01/06/11	01/06	GRB-103
S012369-03	80	Lab Control Sample	1.58	0.250			60		400			01/06/11	01/06	GRB-107
S012369-04	80	Method Blank	0.999	0.250			62		400			01/06/11	01/06	GRB-109
S012369-05	80	Duplicate (S012369-01)	0.819	0.300			31		400		11	01/06/11	01/06	GRB-111
Nominal val	ues and li	mits from method	4.00	0.250			0-20	0	100		 180			

PROCEDURES	REFERENCE	900.0	AVERAGES ± 2 SD	MDA <u>1.10</u> ± <u>0.659</u>
	DWP-121	Gross Alpha and Gross Beta in Drinking Water,	FOR 4 SAMPLES	RESIDUE <u>50</u> ± <u>29</u>
		rev 10	· ·	

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 15

SDG 8652

Test	GAM_ Matrix WATER
SDG	8652
Contact	N. Joseph Verville

LAB METHOD SUMMARY

GAMMA EMITTERS IN WATER GAMMA SPECTROSCOPY Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Cobalt-60	Cesium-137	
Preparation	n batch 7271-037			· · · · · · · · · · · · · · · · · · ·	
S012367-01	8652-001	ITL2487-02		υ	
S012369-03	8654-003	Lab Control Sample	ok	ok	
S012369-04	8654-004	Method Blank		υ	
S012369-05	8654-005	Duplicate (S012369-01)		- U	
Nominal val	lues and limits from m	ethod RDLs (pCi/L)	10.0	20.0	

METHOD PERFORMANCE

LAB	RAW SUF-		MDA	ALIQ	PREP				COUNT					ANAL-	
SAMPLE ID	TEST FIX CLI	ENT SAMPLE ID	pCi/L	L	FAC	TION	*	*	min	keV	KeV	HEID	PREPARED	YZED	DETECTOR
Preparation	batch 7271-03	7 20 prep error		eference	Lab N	Notebool	k No.	7271	pg.03	7					
S012367-01	ITL	2487-02		2.00					604			12	01/05/11	01/07	01,01,00
S012369-03	Lab	Control Sample		2.00					540				01/05/11	01/05	MB,02,00
S012369-04	Met	hod Blank		2.00					541				01/05/11	01/05	01,04,00
S012369-05) Dup	licate (S012369-01)		2.00					540			10	01/05/11	01/05	MB,05,00
											<u>.</u>				
Nominal val	ues and limits	from method	6.00	2.00					400			180			

PROCEDURES	REFERENCE	901.1
	DWP-100	Preparation of Drinking Water Samples for Gamma
		Spectroscopy, rev 5

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 5 SUMMARY DATA SECTION Page 16

SDG 8652

Test <u>U T</u> Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY URANIUM, TOTAL KINETIC PHOSPHORIMETRY, UG

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB	RAW SUF-			Uranium,	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Total	
Preparation	batch 727	1-037		τ.	
S012367-01		8652-001	ITL2487-02	0.195 J	
S012369-03		8654-003	Lab Control Sample	ok	
S012369-04		8654-004	Method Blank	U	
S012369-05		8654-005	Duplicate (S012369-01)	ok J	

Nominal val	ues and li	mits from m	ethod RDLs (pCi/L)	1.00	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA AL pCi/L L	IQ PREP	DILU- TION	YIELD %	EFF %					PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7271-037 20 prep error	Refere	nce Lab I	Noteboo	k No.	7271	pg.03	7					r
- S012367-01	ITL2487-02	0.017 0.02	00							25	01/20/11	01/20	KPA-001
S012369-03	Lab Control Sample	0.174 0.02	00								01/20/11	01/20	KPA-001
S012369-04	Method Blank	0.017 0.02	00								01/20/11	01/20	KPA-001
S012369-05	Duplicate (S012369-01)	0.017 0.02	00							25	01/20/11	01/20	KPA-001
Nominal val	ues and limits from method	1.00 0.02	:00						<u> </u>	180			

PROCEDURES REFERENCE D5174

AVERAGES ± 2 SD	MDA <u>0.056</u> ± <u>0.157</u>
FOR 4 SAMPLES	YIELD ±

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 6 SUMMARY DATA SECTION Page 17

SDG 8652

Test <u>H</u>Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY TRITIUM IN WATER LIQUID SCINTILLATION COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Trit	ium		
Preparation	batch 727	1-037	lana an an Aline Marine Mittelle and an definition and an an ann an Araban ann an Aline				
S012367-01		8652-001	ITL2487-02	U			
S012369-03		8654-003	Lab Control Sample	ok			
S012369-04		8654-004	Method Blank	U			
S012369-05		8654-005	Duplicate (S012369-01)	-	υ		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX	CLIENT	SAMPLE ID	MDA pCi/l	~	PREP FAC		AIEPD &	EFF %	COUNT min			PREPARED	ANAL- YZED	DETECTOR
•		-										 			
Preparation	batch 7271	1-037	2σ prep error	10.0 %	Reference	Lab 1	Notebool	k No.	7271	pg.03	7				
S012367-01		ITL2487	-02	272	0.0100			100		50		17	01/12/11	01/12	LSC-004
S012369-03		Lab Con	trol Sample	271	0.100			10		50			01/12/11	01/12	LSC-004
S012369-04		Method	Blank	272	0.100			10		50			01/12/11	01/12	LSC-004
S012369-05		Duplica	te (S012369-01)	267	0.0100			100		50		17	01/12/11	01/12	LSC-004
Nominal val	ues and lir	nits fro	m method	500	0.0100					100		 180			

DWP-212 Tritium in Drinking Water by Distillation, rev 8 FOR 4 SAMPLES YIELD <u>55</u> ± <u>104</u>	PROCEDURES	REFERENCE	906.0	AVERAGES ± 2 SD	MDA 270 ± 4.76
		DWP-212	Tritium in Drinking Water by Distillation, rev 8	FOR 4 SAMPLES	YIELD <u>55</u> ± <u>104</u>

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 7 SUMMARY DATA SECTION Page 18

SDG 8652

Test <u>RA</u> Matrix <u>WATER</u> SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

LAB METHOD SUMMARY RADIUM-226 IN WATER RADON COUNTING

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Radium-226		
Preparation	batch 727	1-037				
S012367-01		8652-001	ITL2487-02	υ		
S012369-03		8654-003	Lab Control Sample	ok		
S012369-04		8654-004	Method Blank	U		
S012369-05		8654-005	Duplicate (S012369-01)	- U		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %		FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7271-037 20 prep error 1	16.4 % Re:	ference	Lab I	Notebool	c No.	7271	pg.037	,				
S012367-01	ITL2487-02	0.567	0.100			100		104		27	01/22/11	01/22	RN-012
S012369-03	Lab Control Sample	0.577	0.100			100		178			01/22/11	01/22	RN-009
S012369-04	Method Blank	0.640	0.100			100		87			01/22/11	01/22	RN-010
S012369-05	Duplicate (S012369-01)	0.592	0.100			100		87		27	01/22/11	01/22	RN-012
Nominal val	ues and limits from method	1.00	0.100					100		 180			

PROCEDURES REFERENCE 903.1	AVERAGES ± 2 SD MDA0.594 ±0.06
DWP-881A Ra-226 Screening in Drinking Water, rev 6	FOR 4 SAMPLES YIELD <u>100</u> ± <u>0</u>

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-LMS
Version	3.06
Report date	02/01/11

METHOD SUMMARIES Page 8 SUMMARY DATA SECTION Page 19

SDG 8652

SDG	8652	
Contact	N. Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES
Page 1
SUMMARY DATA SECTION
Page 20

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

SDG 8652

SDG	8652		
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG. The following notes apply to this report: The preparation batches are shown in the same order as the Method Summary Reports are printed. * Only analyses of planchets relevant to the SDG are included. * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results. The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis. These qualifiers should be reviewed as follows: X Some data has been manually entered or modified. Transcription errors are possible. P One or more results are 'preliminary'. The data is not ready for final reporting. 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets. Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

> Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date 02/01/11

REPORT GUIDES Page 2 SUMMARY DATA SECTION Page 21

SDG 8652

SDG	8652		
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice. The following notes apply to this report: * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary. SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample. The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method. PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data. * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships. * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

• REPORT GUIDES Page 3 SUMMARY DATA SECTION Page 22

Lab id Protocol	
Version	Ver 1.0
Form Version	<u>DVD-RG</u> 3.06
Report date	02/01/11

SDG 8652

SDG	8652		
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet. The following notes apply to this report: TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for. * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work. The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method. ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report. * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time. * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG. The following qualifiers are defined by the DVD system: U The RESULT is less than the MDA (Minimum Detectable Activity).

If the MDA is blank, the ERROR is used as the limit.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>02/01/11</u>

REPORT GUIDES Page 4 SUMMARY DATA SECTION Page 23

SDG 8652

SDG	8652		
Contact	<u>N.</u>	Joseph	Verville

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

DATA SHEET

J	The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
В	A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
	Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
	For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
L	Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
н	Similar to 'L' except the recovery was high.
P	The RESULT is 'preliminary'.
х	Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
2	There were two or more results available for this analyte. The reported result may not be the same as in the raw data.
	Other qualifiers are lab defined. Definitions should be in the SDG narrative.
Th	e following values are underlined to indicate possible problems:
*	An MDA is underlined if it is bigger than its RDL.
*	An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>02/01/11</u>

REPORT GUIDES Page 5 SUMMARY DATA SECTION Page 24

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>02/01/11</u>

REPORT GUIDES Page 6 SUMMARY DATA SECTION Page 25

SDG 8652

SDG	86!	52	
Contact	<u>N.</u>	Joseph	Verville

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

LAB CONTROL SAMPLE

արե	e following notes apply to this report:
1110	e forfowing notes apply to this report.
*	All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
*	An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.
	An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
*	REC (Recovery) is RESULT divided by ADDED expressed as a percent.
*	The first, computed limits for the recovery reflect:
	 The error of RESULT, including that introduced by rounding the result prior to printing.
	If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
	2. The error of ADDED.
	3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
*	The second limits are protocol defined upper and lower QC limits for the recovery.
*	The recovery is underlined if it is outside either of these ranges.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

REPORT GUIDES Page 7 SUMMARY DATA SECTION Page 26

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

REPORT GUIDES Page 8 SUMMARY DATA SECTION Page 27

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date <u>02/01/11</u>

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

Lab id EAS Protocol TA Version Ver 1.0 Form DVD-RG Version 3.06 Report date <u>02/01/11</u>

REPORT GUIDES Page 9 SUMMARY DATA SECTION Page 28

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

MATRIX SPIKE

sai	nple.
Fh	e following notes apply to this report:
*	All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.
	If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.
*	An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.
	An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
*	REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
*	The first, computed limits for the recovery reflect:
	 The errors of the two RESULTs, including those introduced by rounding them prior to printing.
	If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
	2. The error of ADDED.
	3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
*	The second limits are protocol defined upper and lower QC limits for the recovery.

Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>02/01/11</u>

REPORT GUIDES Page 10 SUMMARY DATA SECTION Page 29

SDG 8652

SDG	8652
Contact	N. Joseph Verville

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id	EAS
Protocol	<u>TA</u>
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

REPORT GUIDES Page 11 SUMMARY DATA SECTION Page 30

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

REPORT GUIDE

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

REPORT GUIDES Page 12 SUMMARY DATA SECTION Page 31

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

SDG 8652

SDG	865	52	
Contact	Ν.	Joseph	Verville

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
- * Count times are underlined if less than the nominal value

REPORT GUIDES Page 13 SUMMARY DATA SECTION Page 32

Lab id EAS Protocol <u>TA</u> Version Ver 1.0 Form <u>DVD-RG</u> Version 3.06 Report date <u>02/01/11</u>

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

METHOD SUMMARY

specified for the method.

- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

> Lab id <u>EAS</u> Protocol <u>TA</u> Version <u>Ver 1.0</u> Form <u>DVD-RG</u> Version <u>3.06</u> Report date <u>02/01/11</u>

REPORT GUIDES Page 14 SUMMARY DATA SECTION Page 33

SDG 8652

SDG <u>8652</u> Contact <u>N. Joseph Verville</u>

GUIDE, cont.

Client <u>Test America, Inc.</u> Contract <u>ITL2487</u>

METHOD SUMMARY

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id	EAS
Protocol	TA
Version	<u>Ver 1.0</u>
Form	DVD-RG
Version	3.06
Report date	02/01/11

REPORT GUIDES Page 15 SUMMARY DATA SECTION Page 34

SUBCONTRACT ORDER TestAmerica Irvine

ITL2487

8652

SENDING LABORATORY:	RECEIVING LABORATORY:
TestAmerica Irvine 17461 Derian Avenue. Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 260-3297 Project Manager: Debby Wilson	Eberline Services 2030 Wright Avenue Richmond, CA 94804 Phone :(510) 235-2633 Fax: (510) 235-0438 Project Location: California
	Receipt Temperature: °C Ice: Y / N

Analysis	Units	Due	Expires	Comments
Sample ID: ITL2487-02 (Ou	tfall 006 (Coi	nposite) - Wat	er)	21.58
Gamma Spec-O	mg/kg	01/03/11	12/26/11 21:58	Out St Louis, k-40 and cs-137 only, DO
Gross Alpha-O	pCi/L	01/03/11	06/24/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	01/03/11	06/24/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Level 4 Data Package - Ou	t N/A	01/03/11	01/23/11 21:58	
Radium, Combined-O	pCi/L	01/03/11	12/26/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Strontium 90-0	pCi/L	01/03/11	12/26/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	01/03/11	12/26/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	01/03/11	12/26/11 21:58	Out St Louis, Boeing permit, DO NOT FILTER!
Containers Supplied:				
2.5 gal Poly (J)	500 mL Amł	ber (K)		

Released By EDE F

Released By

12/28/13 17:00 Date/Time 12/29/10

Date

12:00 Received By Date īme leen 12 10:0c Page 1 of 1 Received By Date/Time

	RLIN		RICHMON SAMPLE	RECEIPT	CHECKLIST	K T	-			
TE	(T 4	MERIC	4c	ity IRVI	NE		_State	1		
Client: 19		1) balia	10:00000 No	ITL 227	2, 2485-24	86,29	87.24	1884	2489	
						havia	Yes []	N	^ []	
Container I	.D. No	N/A	Requested T		TAND P.O. Rec	JEIVEW		· · · ·		
				INSPEC	rion	Yes	ch i	NO [1 N/A [1
1. CL	istody sea	ils on shippil	ng container inte	act?	and and	1	$[\Lambda,]$		*	-
2. Cu	istody sea	als on shippi	ng container dat	ted & signed	all a	3	1	1] N/A [
3. Cu	istody sea	als on sample	e containers inti	BCL/	3 2 4	1	-	1		
			e containers da		a i		t[]	Dry [VA U
·5. Pr	acking ma		hinning contain	er: 8	_ Sample Matrix		WAT	EK		
6. Ni	umber of s	amples in S	hipping containe er sample:	*			_)			
7. NI	umber of a	e in correct (container		Yes [/]	NO[]	/	an in sector in the	n.	
		agrees with			Yes [v]	No [-		1	
		agrees when ave: Tape		abels [] R)		pels [/]	
		1		Leaking	Broken	Contair	er[]		sing []	
11. S	amples a	e. Preservi	ed [] Not pr	eserved []рН Рге	servativ	re <u>HA</u>	103		
12. 5	amples a				•			1		A
	accribe e	ny anomalie	S.				dal	11	aluda	ď
13. C		ny anomalie	client	TRIP	BLANKS		Not	IN	clude.	d
13. C		ny anomalie <u>u) O</u> / <i>N</i> ø	client coc				Not	IN 	clude.	<u>4</u>
		NO INO	<u>client</u>		BCANKS	•	Not	IN 	clude.	d
-		NO INO	<u>client</u>	Yes	BLANKS] Dr	Not		clude.	d
		رین م ا بر مراجع notified of a	<u>client</u>	Yes	BCANKS] Dr	Not te	\dot{O}		4
14. \ 15.	Nas P.M. nspected	notified of a by	iny anomalies?	Yes	BLANKS] Dr e:	Not	O Ion (Chamber nR/hr	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber	Yes	BLANKS [] No[$\frac{1}{29/10}$ Time] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. \ 15. Custom	Was P.M. nspected ner B No.	notified of a by	ion Chamber	Yes	BLANKS [] No[$\frac{1}{29/10}$ Time] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	BLANKS [] No[$\frac{1}{29/10}$ Time] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	4
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custon Sample	Was P.M. nspected ner B No.	notified of a by	ion Chamber mR/hr	Yes	$\frac{\beta (A \times K \times S)}{[]} = \frac{\beta (A \times K \times S)}{No[} = \frac{1}{No[} = \frac{1}{$] Dr e:	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Sample AU JC	Was P.M. nspected <u>No.</u> <u>Recupile</u>	I No I No rotified of a by eta/Gamma cpm L 6c	client coc iny anomalies? M ion Chamber mR/hr	Yes	BLAJKS] Dz	Not te 14 : 2 Gamma	O Ion (Chamber	
14. N 15. I Custom Sample AU JC	Avas P.M. nspected No. Recepted aber Ser. 1	No.	ion Chamber	Yes	BLANKS] Dz e: Beta/	Not te 14 : 2 Gemma cpm	O Ion (Chamber nR/hr	
14. V 15. I Custom Sample AUL SC	Nas P.M. nspected	NO.	ion Chamber mR/hr	Yes Date: <u>/</u> Wipe	BLAJKS] Dr	Not te 14 : 2 Gamma	O Ion (Chamber	
14. V 15. I Custom Sample AUL JC	Nas P.M. nspected	NO.	client coc iny anomalies? M ion Chamber mR/hr	Yes Date: <u>/</u> Wipe	BLANKS] Dr	Not ite /4 : 2 Gemma cpm 2.4 J		Chamber nR/hr	

APPENDIX G

Section 15

Outfall 008 – December 19, 2010 MECX Data Validation Report THIS PAGE LEFT INTENTIONALLY BLANK



DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: ITL1889

Prepared by

MEC^x, LP 12269 East Vassar Drive Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Contract Task Order:	Boeing SSFL NPDES 1261.100D.00
Sample Delivery Group:	ITL1889
Project Manager:	B. Kelly
Matrix:	Water
QC Level:	IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-Irvine

Table 1. Sample Identification

Client ID	Laboratory ID	Sub-Laboratory ID	Matrix	Collected	Method
Outfall 008 (composite)	ITL1889-02	G0L230567-001, S012306-01	Water	12/19/2010	200.8, 200.8 (diss), 245.1, 245.1 (diss), 314.0, 900, 901.1, 903.1, 904, 905, 906, 1613B, SM2540D, D5174

II. Sample Management

A portion of the samples in this SDG were received at TestAmerica-Irvine and TestAmerica-West Sacramento marginally below the control limit; however, as the samples were not noted to be frozen or damaged, no qualifications were required. The samples were received marginally above the temperature limit at Eberline; however, due to the nonvolatile nature of the analytes, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples were couriered to TestAmerica-Irvine, custody seals were not required. Custody seals were intact upon receipt at Eberline and TestAmerica West Sacramento. If necessary, the client ID was added to the sample result summary by the reviewer.

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.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
Е	Not applicable.	Duplicates showed poor agreement.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	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

Qualification Code Reference Table Cont.

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
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 1613—Dioxin/Furans

Reviewed By: L. Calvin Date Reviewed: January 18, 2011

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the MEC^{\times} Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 1613, and the National Functional Guidelines Chlorinated Dioxin/Furan Data Review (8/02).

- 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.
 - o 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 1613 QC limits for all standards.
 - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits.
- Blanks: The method blank had detects between the EDL and the RL for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, OCDD, OCDF, total HpCDD, and total HpCDF. The HpCDF isomers and total were reported as EMPCs in the method blank; however, due to the extent of the method blank contamination, the reviewer considered it appropriate to use the EMPCs to qualify sample results. Isomer

1,2,3,4,7,8,9-HpCDF was not detected in the sample. All other individual isomers detected in both the method blank and site sample were qualified as nondetected, "U" at the EDL, or at the level of contamination in the sample. The sample totals containing one or more peaks detected in the method blank were qualified as estimated, "J."

- Blank Spikes and Laboratory Control Samples: The LCS recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- 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.
- Internal Standards Performance: The labeled standard recoveries in the sample were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating a representative number of reportable sample results. Any individual isomers reported as EMPCs previously qualified as nondetected for method blank contamination were not further qualified as EMPCs. Any totals including EMPC peaks were qualified as estimated, "J." Any detects reported between the estimated detection limit (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.

B. EPA METHODS 200.8 and 245.1—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: January 14, 2011

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X* Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Methods 200.8 and 245.1, and the National Functional Guidelines for Inorganic Data Review (7/02).

• Holding Times: Analytical holding times, six months for ICP-MS metals and 28 days for mercury, were met.

- Tuning: The mass calibration and resolution checks criteria were met. All tuning solution %RSDs were ≤5%, and all masses of interest were calibrated to ≤ 0.1 amu and ≤0.9 amu at 10% peak height.
- Calibration: Calibration criteria were met. Mercury initial calibration r² values were ≥0.995 and all initial and continuing calibration recoveries were within 90-110% for the ICP-MS metals and 85-115% for mercury. CRDL/CRA recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Recoveries were within the laboratory- (6020) established control limits. Cadmium and copper were detected above the reporting limits in the ICSA solution; however, the reviewer was not able to determine if the detects were due to contamination present in the ISCA solution..
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed for dissolved mercury. Recoveries and the RPD were within laboratory-established QC limits.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: All sample internal standard intensities were within 30-120% of the internal standard intensities measured in the initial calibration. All CCV and CCB internal standard intensities were within 80-120% of the internal standard intensities measured in the initial calibration.
- 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.

Selenium was detected margianly above the MDL in the dissolved fraction but was not detected in the total fraction.

• 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. EPA METHOD 314.0—Perchlorate

Reviewed By: P. Meeks Date Reviewed: January 21, 2011

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the MEC^{\times} Data Validation Procedure for Metals (DVP-20, Rev. 0), EPA Method 314.0, and the National Functional Guidelines for Inorganic Data Review (10/04).

- Holding Times: The analytical holding time, 28 days, was met.
- Calibration: Calibration criteria were met. The initial calibration r² value was ≥0.995 and all initial and continuing calibration recoveries were within 90-110%. The IPC recovery was within the method-established control limit of 80-120%.
- Blanks: The method blank and CCBs had no detects.
- Blank Spikes and Laboratory Control Samples: The recovery was within the methodestablished QC limits of 85-115%.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Recoveries and RPDs were within methodestablished QC limits of 80-120% and ≤15%, respectively.
- Sample Result Verification: Calculations were verified and the sample result reported on the sample result summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the reporting limit. Perchlorate detected between the method detection limit and the reporting limit was qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit.
- 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. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks Date Reviewed: February 2011

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods* 900.0, 901.1, 903.1, 904.0, 905.0, and 906.0, ASTM Method D-5174, and the National Functional Guidelines for Inorganic Data Review (10/04).

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

The gross alpha detector efficiency was less than 20%; therefore, gross alpha detected in the sample was qualified as an estimated detect, "J." The remaining detector efficiencies were greater than 20%.

The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. All chemical yields were at least 40% and were considered acceptable. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis.

- Blanks: There were no analytes detected in the method blanks or the KPA CCBs.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratoryestablished control limits.
- 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 for the sample in this SDG. Method accuracy was evaluated based on the LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDAs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any

detects between the MDA 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 MDA.

A notation in the sample preparation logbook indicated that the aliquot for Radium-228 was filtered and that the filter was digested and added to the aliquot.

- 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.

E. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks Date Reviewed: January 14, 2011

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the MEC^{X} Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Standard Method SM2540D, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, seven days from collection, was met.
- Calibration: The balance logs were acceptable.
- Blanks: TSS was not detected in the method blank.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- 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.
- 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 ITL1889

Analysis Method 8644

Sample Name	Outfall 008 (C	Composite	e) Matri	ix Type:	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PN	Ν		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Uranium, Total		1.24	1	0.019	pCi/L			
Analysis Method	d 900							
Sample Name	Outfall 008 (C	Composite	e) Matri	ix Type:	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha	12587461	10.4	3	0.643	pCi/L		1	С
Gross Beta	12587472	12.8	4	0.852	pCi/L			
Analysis Method	d 901.1							
Sample Name	Outfall 008 (C	Composite	e) Matri	ix Type:	WATER	٧	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	Μ		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045973	ND	20	1.33	pCi/L	U	U	
Potassium-40	13966002		25					
	15900002	21	25	14.7	pCi/L	Jb	J	DNQ
Analysis Method			25	14.7	pCi/L	Jb	1	DNQ
Analysis Method				14.7 ix Type:	pCi/L WATER		J Validation Le	
	d 903.1	Composite		ix Type:		v		
Sample Name	d 903.1 Outfall 008 (0	Composite	e) Matri	ix Type:	WATER	v		
Sample Name Lab Sample Name: Analyte	d 903.1 Outfall 008 (C ITL1889-02	Composite Sam Result) Matri ple Date:	ix Type: 12/19/20	WATER 10 2:09:00 PM Result	M Lab	⁷ alidation Le Validation	vel: IV Validation
Sample Name Lab Sample Name:	d 903.1 Outfall 008 (0 ITL1889-02 CAS No 13982633	Composite Sam Result Value) Matri pple Date: RL	ix Type: 12/19/20 MDL	WATER 10 2:09:00 PM Result Units	M Lab	⁷ alidation Le Validation	vel: IV Validation
Sample Name Lab Sample Name: Analyte Radium-226	d 903.1 Outfall 008 (0 ITL1889-02 CAS No 13982633	Composite Sam Result Value 1.41	Matri pple Date: RL	ix Type: 12/19/20 MDL	WATER 10 2:09:00 PM Result Units	M Lab Qualifier	⁷ alidation Le Validation	vel: ^{IV} Validation Notes
Sample Name Lab Sample Name: Analyte Radium-226 Analysis Method	d 903.1 Outfall 008 (0 ITL1889-02 CAS No 13982633 d 904	Composite Sam Result Value 1.41 Composite	Matri pple Date: RL	ix Type: 12/19/20 MDL 0.448 ix Type:	WATER 10 2:09:00 PM Result Units pCi/L	M Lab Qualifier	Validation Le Validation Qualifier	vel: ^{IV} Validation Notes
Sample Name Lab Sample Name: Analyte Radium-226 Analysis Method Sample Name	d 903.1 Outfall 008 (0 ITL1889-02 CAS No 13982633 d 904 Outfall 008 (0	Composite Sam Result Value 1.41 Composite	 Matri ple Date: RL 1 Matri 	ix Type: 12/19/20 MDL 0.448 ix Type:	WATER 10 2:09:00 PM Result Units pCi/L WATER	M Lab Qualifier	Validation Le Validation Qualifier	vel: ^{IV} Validation Notes

Friday, February 04, 2011

Sample Name	Outfall 008 (0	Composite) Matri	x Type:	WATER	V	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098972	-0.007	2	1.11	pCi/L	U	U	
Analysis Metho	od 906							
Sample Name	Outfall 008 (0	Composite) Matri	x Type:	WATER	۲	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PI	A		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validatior Notes
Tritium	10028178	-216	500	293	pCi/L	U	U	
Analysis Metho	od EPA	200.7						
Sample Name	Outfall 008 (0	Composite) Matri	x Type:	Water	١	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Zinc	7440-66-6	43.5	20.0	6.00	ug/l			
Analysis Metho	od EPA	200.7-L	Diss					
Sample Name	Outfall 008 (0	Composite) Matri	x Type:	Water	V	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validatior Notes
Zinc	7440-66-6	7.88	20.0	6.00	ug/l	Ja	1	DNQ
Analysis Metho	od EPA	200.8						
Sample Name	Outfall 008 (0	Composite) Matri	x Type:	Water	V	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PM	М		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	ND	2.0	0.30	ug/l		U	
Cadmium	7440-43-9	0.12	1.0	0.10	ug/l	Ja	J	DNQ
Copper	7440-50-8	9.07	2.00	0.500	ug/l			
Lead	7439-92-1	6.7	1.0	0.20	ug/l			
Selenium	7782-49-2	ND	2.0	0.50	ug/l		U	
Thallium	7440-28-0							

Analysis Method 905

Friday, February 04, 2011

Sample Name	Outfall 008 (C	Composite) Matri	х Туре:	Water	۷	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PN	Л		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	ND	2.0	0.30	ug/l		U	
Cadmium	7440-43-9	ND	1.0	0.10	ug/l		U	
Copper	7440-50-8	2.60	2.00	0.500	ug/l			
Lead	7439-92-1	0.32	1.0	0.20	ug/l	Ja	1	DNQ
Selenium	7782-49-2	0.50	2.0	0.50	ug/l	Ja	J	DNQ
Thallium	7440-28-0	ND	1.0	0.20	ug/l		U	
Analysis Metho	od EPA 2	245.1						
Sample Name	Outfall 008 (C	Composite) Matri	x Type:	Water	۲	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PN	4		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	
Analysis Metho	od EPA 2	245.1 <i>-</i> 1	Diss					
Sample Name	Outfall 008 (C	Composite) Matri	x Type:	Water	۲	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PN	Λ		
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	
Analysis Metho	od EPA	314.0						
Sample Name	Outfall 008 (C	Composite) Matri	x Type:	Water	۷	alidation Le	vel: IV
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/20	10 2:09:00 PN	Λ		
Analyte	CAS No	Result	RL	MDL	Result Units	Lab Qualifier	Validation	
		Value			Units	Quaimer	Qualifier	Notes

Analysis Method EPA 200.8-Diss

Sample Name	Outfall 008 (Composite) Matrix Type: WATER						Validation Level: IV		
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/2010) 2:09:00 PM	М			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes	
1,2,3,4,6,7,8-HpCDD	35822-46-9	ND	0.0000001	0.0000001	ug/L	J, B	U	В	
1,2,3,4,6,7,8-HpCDF	67562-39-4	ND	0.0000003	0.0000003	ug/L	J, Q, B	U	В	
1,2,3,4,7,8,9-HpCDF	55673-89-7	ND	0.0000003	0.0000003	ug/L		U		
1,2,3,4,7,8-HxCDD	39227-28-6	ND	0.0000005	0.0000005	ug/L		U		
1,2,3,4,7,8-HxCDF	70648-26-9	ND	0.0000002	0.0000002	ug/L		U		
1,2,3,6,7,8-HxCDD	57653-85-7	ND	0.0000012	0.0000012	ug/L		U		
1,2,3,6,7,8-HxCDF	57117-44-9	ND	0.0000007	0.0000007	ug/L		U		
1,2,3,7,8,9-HxCDD	19408-74-3	ND	0.0000009	0.000001	ug/L		U		
1,2,3,7,8,9-HxCDF	72918-21-9	ND	0.0000004	0.0000004	ug/L		U		
1,2,3,7,8-PeCDD	40321-76-4	ND	0.0000006	0.0000006	ug/L		U		
1,2,3,7,8-PeCDF	57117-41-6	ND	0.0000007	0.0000008	ug/L		U		
2,3,4,6,7,8-HxCDF	60851-34-5	ND	0.0000005	0.0000005	ug/L		U		
2,3,4,7,8-PeCDF	57117-31-4	ND	0.0000005	0.0000005	ug/L		U		
2,3,7,8-TCDD	1746-01-6	ND	0.0000003	0.0000003	ug/L		U		
2,3,7,8-TCDF	51207-31-9	ND	0.0000005	0.0000005	ug/L		U		
OCDD	3268-87-9	ND	0.0000006	0.0000006	ug/L	J, B	U	В	
OCDF	39001-02-0	ND	0.0000003	0.0000003	ug/L	В	U	В	
Total HpCDD	37871-00-4	1.6e-005	0.0000001	0.0000001	ug/L	J, B	J	B, DNQ	
Total HpCDF	38998-75-3	4.2e-006	0.0000003	0.0000003	ug/L	J, Q, B	J	B, DNQ, *II	
Total HxCDD	34465-46-8	ND	0.0000005	0.0000005	ug/L		U		
Total HxCDF	55684-94-1	ND	0.0000002	0.0000002	ug/L		U		
Total PeCDD	36088-22-9	ND	0.0000006	0.0000006	ug/L		U		
Total PeCDF	30402-15-4	ND	0.0000005	0.0000005	ug/L		U		
Total TCDD	41903-57-5	ND	0.0000003	0.0000003	ug/L		U		
Total TCDF	55722-27-5	ND	0.0000005	0.0000005	ug/L		U		
Analysis Method	d SM 25	540D							
Sample Name	Outfall 008 (C	Composite) Matri	x Type:	Water	۲. ۱	alidation Le	vel: IV	
Lab Sample Name:	ITL1889-02	Sam	ple Date:	12/19/2010) 2:09:00 PM	M			

Analysis Method EPA-5 1613B

Analyte CAS No Result RL MDL Result Lab Validation Validation Qualifier Qualifier Value Units Notes Total Suspended Solids 150 10 1.0 TSS mg/l