APPENDIX G

Section 1

Outfall 004, December 15, 2008

MEC^X Data Validation Reports

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: IRL1714

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL NPDES
Contract Task Order:	1261.100D.00
Sample Delivery Group:	IRL1714
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 004	IRL1714-01	31268-001, F8L170177-001, D8L170253-001	Water	12/15/08 11:30	200.8. 245.1, 245.1 (Diss), 900.0, 901.1, 903.0, 904.0, 905.0, 906.0, 908.0, 1613B

II. Sample Management

No anomalies were observed regarding sample management. The samples were received at all laboratories within the temperature limit of 4 ±2°C. According to the case narrative for this SDG, the samples were received intact at all laboratories. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the sample was couriered to TestAmerica-Irvine, custody seals were not required. Custody seals were intact upon arrival at TestAmerica-Denver, TestAmerica-St. Louis, and Vista. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: S. Dellamia
Date Reviewed: January 21, 2009

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 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 not analyzed prior to the initial calibration sequence or at the beginning of each analytical sequence; however, the first and last eluting congeners and isomer specificity compounds were added to the midpoint of the initial calibration and to the continuing calibration standards. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.

    - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.

- Calibration: Calibration criteria were met.

    - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs $\leq$20% for the 16 native compounds (calibration by isotope dilution) and $\leq$35% for the one 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 no target compound detects above the EDL.

- Blank Spikes and Laboratory Control Samples: 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 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 any sample detects and a representative number of blank spike concentrations. The laboratory calculated and reported compound-specific detection limits. Sample results detected below the laboratory lower calibration level were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. The EMPC value for Total HpCDF in sample Outfall 004 was qualified as an estimated nondetect, "UJ." Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 245.1—Mercury

Reviewed By: P. Meeks
Date Reviewed: January 26, 2009

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Methods 200.8 and 245.1,* and the *National Functional Guidelines for Inorganic Data Review* (10/04).

- Holding Times: The analytical holding time, 28 days for mercury, was met.

- Tuning: Not applicable to this method.

- Calibration: Calibration criteria were met. The mercury initial calibration r^2 value was $\geq$0.995 and all initial and continuing calibration recoveries were within 85-115%. The CRA and check standard was recovered within the control limit of 70-130%.

- Blanks: There were no applicable detects in the method blanks or CCBs.

- Interference Check Samples: Not applicable to this method.

- Blank Spikes and Laboratory Control Samples: The recovery was within the laboratory-established 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.

- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.

- Internal Standards Performance: Not applicable to this method.

- Sample Result Verification: Calculations were verified and the sample results reported on the sample result summaries were verified against the raw data. No transcription errors or calculation errors were noted. Detects reported below the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

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

C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks
Date Reviewed: January 26, 2009

The sample listed in Table 1 for this analysis was 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* (2/94).

- Holding Times: The tritium sample was analyzed within 180 days of collection. Aliquots for gross alpha, gross beta radium-226, radium-228, strontium-90, and total uranium were prepared within the five-day holding time for unpreserved samples. The aliquot for gamma spectroscopy was prepared beyond the five-day holding time for unpreserved

samples; therefore, the nondetected results for these analytes were qualified as estimated, "UJ."

- 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, the detected gross alpha result in the sample was qualified as estimated, "J." The gross beta detector efficiency was greater than 20%.

  The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. The tritium detector efficiency for the sample was at least 20% and was considered acceptable. The strontium chemical yield greater than 60% and was considered acceptable. The strontium and radium-226 continuing calibration results were within the laboratory control limits. The radium-228 tracer, yttrium oxalate, yields were greater than 70%. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis. All KPA calibration check standard recoveries were within 90-110% and were deemed acceptable.

- Blanks: Radium-226 and radium-228 were detected in the method blanks but were not detected in the sample. There were no other analytes detected in the method blanks.

- Blank Spikes and Laboratory Control Samples: The radium-226 LCS recovery was 52%; therefore, the nondetected result for radium-226 was qualified as estimated, "UJ." The radium-226 and radium-228 LCS/LCSD RPDs were 53% and 38%, respectively; therefore, the nondetected results for radium-226 and radium-228 were qualified as estimated, "UJ." The remaining recoveries and the strontium-90 RPD were within laboratory-established control limits.

- Laboratory Duplicates: No duplicate analyses were performed on the sample in this SDG.

- Matrix Spike/Matrix Spike Duplicate: No matrix spike analyses were performed on the sample. Method accuracy and precision were evaluated base on LCS and LCS/LCSD 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. Total uranium, normally reported in aqueous units, was converted to pCi/L using a conversion factor for naturally occurring uranium. Detects reported below 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.

- 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.

Sample ID: ~~IRL1714-01~~ Outfall 004 fm 01-21-09 **EPA Method 1613**

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Client Data		Sample Data		Laboratory Data			
Name:	Test America-Irvine, CA	Matrix:	Aqueous	Lab Sample:	31268-001	Date Received:	17-Dec-08
Project:	IRL1714	Sample Size:	1.02 L	QC Batch No.:	1770	Date Extracted:	17-Dec-08
Date Collected:	15-Dec-08			Date Analyzed DB-5:	18-Dec-08	Date Analyzed DB-225:	NA
Time Collected:	1130						

Analyte	Conc. (ug/L)		DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	U	0.000000693		
1,2,3,7,8-PeCDD	ND	↓	0.00000208		
1,2,3,4,7,8-HxCDD	ND		0.00000409		
1,2,3,6,7,8-HxCDD	ND		0.00000399		
1,2,3,7,8,9-HxCDD	ND		0.00000375		
1,2,3,4,6,7,8-HpCDD	0.0000114	J/DNQ			J
OCDD	0.000171				
2,3,7,8-TCDF	ND	U	0.000000577		
1,2,3,7,8-PeCDF	ND	↓	0.00000132		
2,3,4,7,8-PeCDF	ND		0.00000150		
1,2,3,4,7,8-HxCDF	ND		0.000000883		
1,2,3,6,7,8-HxCDF	ND		0.00000110		
2,3,4,6,7,8-HxCDF	ND		0.00000134		
1,2,3,7,8,9-HxCDF	ND		0.00000198		
1,2,3,4,6,7,8-HpCDF	ND		0.00000260		
1,2,3,4,7,8,9-HpCDF	ND	↓	0.00000183		
OCDF	0.00000516	J/DNQ			J

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	108	25 - 164	
	13C-1,2,3,7,8-PeCDD	114	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	98.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	105	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	99.9	23 - 140	
	13C-OCDD	82.3	17 - 157	
	13C-2,3,7,8-TCDF	106	24 - 169	
	13C-1,2,3,7,8-PeCDF	110	24 - 185	
	13C-2,3,4,7,8-PeCDF	106	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	108	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	95.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	95.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	101	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	94.3	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	92.4	26 - 138	
	13C-OCDF	84.5	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	89.7	35 - 197	

Totals				
Total TCDD	ND	U	0.000000693	
Total PeCDD	ND	↓	0.00000208	
Total HxCDD	ND		0.00000394	
Total HpCDD	0.0000270			
Total TCDF	ND	U	0.000000577	
Total PeCDF	ND	↓	0.00000202	
Total HxCDF	ND		0.00000263	
Total HpCDF	ND	UJ/DNQ		0.00000543

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: MAS

Approved By: William J. Luksemburg 19-Dec-2008 11:13

LEVEL IV

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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

MCAWW 245.1

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Outfall 004									
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
Mercury U	MCAWW 245.1	8353495	0.027	0.2	ND	1	12/18/08	12/18/08	

LEVEL IV

TestAmerica Irvine

Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

MCAWW 245.1-Diss

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Outfall 004									
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
Mercury-diss U	MCAWW 245.1-Diss	8353517	0.027	0.2	ND	1	12/18/08	12/18/08	

LEVEL IV

TestAmerica Irvine

Joseph Doak
Project Manager

Outfall 004

TestAmerica Irvine

Client Sample ID: 1714-01

Radiochemistry

Lab Sample ID: F8L170177-001
Work Order: K4VK8
Matrix: WATER

Date Collected: 12/15/08 1130
Date Received: 12/17/08 0930

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	mdc	Prep Date	Analysis Date
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L	Batch # 8359107		Yld %
Cesium 137 UJ/H	0.0	U	7.3	20.0	14	12/24/08	01/11/09
Potassium 40 ↓ ↓	-40	U	230		210	12/24/08	01/11/09
Gross Alpha/Beta EPA 900				pCi/L	Batch # 8353165		Yld %
Gross Alpha J/R, DNQ	1.6	J	1.1	3.0	1.5	12/18/08	12/21/08
Gross Beta	8.9		1.3	4.0	0.9	12/18/08	12/21/08
Radium 226 by EPA 903.0 MOD				pCi/L	Batch # 8352386		Yld % 75
Radium (226) UJ/L, *III	0.07	U	0.12	1.00	0.20	12/17/08	01/09/09
Radium 228 by GFPC EPA 904 MOD				pCi/L	Batch # 8352387		Yld % 55
Radium 228 UJ/*III	-0.33	U	0.30	1.00	0.59	12/17/08	01/09/09
TRITIUM (Distill) by EPA 906.0 MOD				pCi/L	Batch # 9012073		Yld %
Tritium U	60	U	200	500	330	01/12/09	01/13/09
SR-90 BY GFPC EPA-905 MOD				pCi/L	Batch # 8352461		Yld % 61
Strontium 90 U	-0.12	U	0.39	3.00	0.68	12/17/08	01/10/09
Total Uranium by KPA ASTM 5174-91				pCi/L	Batch # 8354127		Yld %
Total Uranium U	0.124	U	0.013	0.693	0.21	12/19/08	12/21/08

LEVEL IV

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.
Bold results are greater than the MDC.

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

APPENDIX G

Section 2

Outfall 004, December 15, 2008

Test America Analytical Laboratory Report

TestAmerica
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: Semi-Annual Outfall 004

Sampled: 12/15/08
Received: 12/15/08
Issued: 01/29/09 14:09

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

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL INFORMATION: This report has been revised to correct the Total Uranium units to pCi/L per client request (the original incorrect report from TestAmerica St. Louis Laboratory has been removed).

LABORATORY ID	CLIENT ID	MATRIX
IRL1714-01	Outfall 004	Water

Reviewed By:

TestAmerica Irvine

Trupti Mistry For Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	8L16092	0.20	2.0	**0.40**	1	12/16/08	12/17/08	J
Cadmium	EPA 200.8	8L16092	0.11	1.0	ND	1	12/16/08	12/17/08	
Copper	EPA 200.8	8L16092	0.75	2.0	**2.7**	1	12/16/08	12/17/08	
Lead	EPA 200.8	8L16092	0.30	1.0	**0.96**	1	12/16/08	12/17/08	J
Thallium	EPA 200.8	8L16092	0.20	1.0	ND	1	12/16/08	12/17/08	

TestAmerica Irvine

Trupti Mistry For Joseph Doak
Project Manager

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

Project ID: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

DISSOLVED METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8-Diss	8L17121	0.20	2.0	**0.39**	1	12/17/08	12/18/08	B, J
Cadmium	EPA 200.8-Diss	8L17121	0.11	1.0	ND	1	12/17/08	12/18/08	
Copper	EPA 200.8-Diss	8L17121	0.75	2.0	**1.3**	1	12/17/08	12/18/08	B, J
Lead	EPA 200.8-Diss	8L17121	0.30	1.0	ND	1	12/17/08	12/18/08	
Thallium	EPA 200.8-Diss	8L17121	0.20	1.0	ND	1	12/17/08	12/18/08	

TestAmerica Irvine

Trupti Mistry For Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: mg/l									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	8L19123	1.3	4.8	**3.3**	1	12/19/08	12/19/08	B, J
Chloride	EPA 300.0	8L15075	2.5	5.0	**31**	10	12/15/08	12/16/08	
Nitrate/Nitrite-N	EPA 300.0	8L16086	0.15	0.26	**0.37**	1	12/16/08	12/16/08	
Sulfate	EPA 300.0	8L15075	0.20	0.50	**11**	1	12/15/08	12/16/08	
Total Dissolved Solids	SM2540C	8L16052	10	10	**140**	1	12/16/08	12/17/08	
Sample ID: IRL1714-01 (Outfall 004 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	8L18054	0.90	4.0	ND	1	12/18/08	12/18/08	

TestAmerica Irvine

Trupti Mistry For Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

DIOXIN (EPA 1613)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
2,3,7,8-TCDD	1613-Dioxin-HR Alta	1770	0.00000069	0.00000492	ND	1	12/17/08	12/18/08	
1,2,3,7,8-PeCDD	1613-Dioxin-HR Alta	1770	0.00000208	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,4,7,8-HxCDD	1613-Dioxin-HR Alta	1770	0.00000409	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,6,7,8-HxCDD	1613-Dioxin-HR Alta	1770	0.00000399	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,7,8,9-HxCDD	1613-Dioxin-HR Alta	1770	0.00000375	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,4,6,7,8-HpCDD	1613-Dioxin-HR Alta	1770	0.00000201	0.0000246	**0.0000114**	1	12/17/08	12/18/08	Ja
OCDD	1613-Dioxin-HR Alta	1770	0.00000245	0.0000492	**0.000171**	1	12/17/08	12/18/08	
2,3,7,8-TCDF	1613-Dioxin-HR Alta	1770	0.00000057	0.00000492	ND	1	12/17/08	12/18/08	
1,2,3,7,8-PeCDF	1613-Dioxin-HR Alta	1770	0.00000132	0.0000246	ND	1	12/17/08	12/18/08	
2,3,4,7,8-PeCDF	1613-Dioxin-HR Alta	1770	0.0000015	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,4,7,8-HxCDF	1613-Dioxin-HR Alta	1770	0.00000088	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,6,7,8-HxCDF	1613-Dioxin-HR Alta	1770	0.0000011	0.0000246	ND	1	12/17/08	12/18/08	
2,3,4,6,7,8-HxCDF	1613-Dioxin-HR Alta	1770	0.00000134	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,7,8,9-HxCDF	1613-Dioxin-HR Alta	1770	0.00000198	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,4,6,7,8-HpCDF	1613-Dioxin-HR Alta	1770	0.0000026	0.0000246	ND	1	12/17/08	12/18/08	
1,2,3,4,7,8,9-HpCDF	1613-Dioxin-HR Alta	1770	0.00000183	0.0000246	ND	1	12/17/08	12/18/08	
OCDF	1613-Dioxin-HR Alta	1770	0.00000366	0.0000492	**0.00000516**	1	12/17/08	12/18/08	Ja
Total TCDD	1613-Dioxin-HR Alta	1770	.00000069	3 0.00000492	ND	1	12/17/08	12/18/08	
Total PeCDD	1613-Dioxin-HR Alta	1770	.00000208	0.0000246	ND	1	12/17/08	12/18/08	
Total HxCDD	1613-Dioxin-HR Alta	1770	.00000375	0.0000246	ND	1	12/17/08	12/18/08	
Total HpCDD	1613-Dioxin-HR Alta	1770	.00000201	0.0000246	**0.0000270**	1	12/17/08	12/18/08	
Total TCDF	1613-Dioxin-HR Alta	1770	.00000057	7 0.00000492	ND	1	12/17/08	12/18/08	
Total PeCDF	1613-Dioxin-HR Alta	1770	.00000132	0.0000246	ND	1	12/17/08	12/18/08	
Total HxCDF	1613-Dioxin-HR Alta	1770	.00000088	3 0.0000246	ND	1	12/17/08	12/18/08	
Total HpCDF	1613-Dioxin-HR Alta	1770	.00000183	0.0000246	ND	1	12/17/08	12/18/08	
Surrogate: 13C-2,3,7,8-TCDD (25-164%)					*108 %*				
Surrogate: 13C-1,2,3,7,8-PeCDD (25-181%)					*114 %*				
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-141%)					*98.2 %*				
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-130%)					*105 %*				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23-140%)					*99.9 %*				
Surrogate: 13C-OCDD (17-157%)					*82.3 %*				
Surrogate: 13C-2,3,7,8-TCDF (24-169%)					*106 %*				
Surrogate: 13C-1,2,3,7,8-PeCDF (24-185%)					*110 %*				
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178%)					*106 %*				
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-152%)					*108 %*				
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-123%)					*95.1 %*				
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-136%)					*95.6 %*				
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-147%)					*101 %*				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28-143%)					*94.3 %*				
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26-138%)					*92.4 %*				
Surrogate: 13C-OCDF (17-157%)					*84.5 %*				

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DIOXIN (EPA 1613)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
Surrogate: 37Cl-2,3,7,8-TCDD (35-197%)					*89.7 %*				

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MCAWW 245.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
Mercury	MCAWW 245.1	8353495	0.027	0.2	ND	1	12/18/08	12/18/08	

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MCAWW 245.1-Diss

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRL1714-01 (Outfall 004 - Water) - cont.									
Reporting Units: ug/L									
Mercury-diss	MCAWW 245.1-Diss	8353517	0.027	0.2	ND	1	12/18/08	12/18/08	

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SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 004 (IRL1714-01) - Water					
EPA 300.0	2	12/15/2008 11:30	12/15/2008 18:15	12/16/2008 13:00	12/16/2008 15:18

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8L16092 Extracted: 12/16/08											
Blank Analyzed: 12/17/2008 (8L16092-BLK1)											
Antimony	ND	2.0	0.20	ug/l							
Cadmium	ND	1.0	0.11	ug/l							
Copper	ND	2.0	0.75	ug/l							
Lead	ND	1.0	0.30	ug/l							
Thallium	ND	1.0	0.20	ug/l							
LCS Analyzed: 12/17/2008 (8L16092-BS1)											
Antimony	83.1	2.0	0.20	ug/l	80.0		104	85-115			
Cadmium	81.2	1.0	0.11	ug/l	80.0		101	85-115			
Copper	78.8	2.0	0.75	ug/l	80.0		99	85-115			
Lead	79.1	1.0	0.30	ug/l	80.0		99	85-115			
Thallium	81.4	1.0	0.20	ug/l	80.0		102	85-115			
Matrix Spike Analyzed: 12/17/2008 (8L16092-MS1)						**Source: IRL1721-01**					
Antimony	82.4	2.0	0.20	ug/l	80.0	2.39	100	70-130			
Cadmium	79.8	1.0	0.11	ug/l	80.0	2.50	97	70-130			
Copper	81.9	2.0	0.75	ug/l	80.0	4.87	96	70-130			
Lead	81.9	1.0	0.30	ug/l	80.0	2.16	100	70-130			
Thallium	85.6	1.0	0.20	ug/l	80.0	ND	107	70-130			
Matrix Spike Analyzed: 12/17/2008 (8L16092-MS2)						**Source: IRL1706-01**					
Antimony	84.1	2.0	0.20	ug/l	80.0	0.415	105	70-130			
Cadmium	81.1	1.0	0.11	ug/l	80.0	ND	101	70-130			
Copper	78.8	2.0	0.75	ug/l	80.0	0.930	97	70-130			
Lead	82.0	1.0	0.30	ug/l	80.0	ND	102	70-130			
Thallium	84.1	1.0	0.20	ug/l	80.0	ND	105	70-130			
Matrix Spike Dup Analyzed: 12/17/2008 (8L16092-MSD1)						**Source: IRL1721-01**					
Antimony	86.2	2.0	0.20	ug/l	80.0	2.39	105	70-130	5	20	
Cadmium	82.8	1.0	0.11	ug/l	80.0	2.50	100	70-130	4	20	
Copper	84.2	2.0	0.75	ug/l	80.0	4.87	99	70-130	3	20	
Lead	86.4	1.0	0.30	ug/l	80.0	2.16	105	70-130	5	20	
Thallium	90.1	1.0	0.20	ug/l	80.0	ND	113	70-130	5	20	

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METHOD BLANK/QC DATA

DISSOLVED METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8L17121 Extracted: 12/17/08											
Blank Analyzed: 12/18/2008 (8L17121-BLK1)											
Antimony	0.481	2.0	0.20	ug/l							*J*
Cadmium	ND	1.0	0.11	ug/l							
Copper	1.97	2.0	0.75	ug/l							*J*
Lead	ND	1.0	0.30	ug/l							
Thallium	ND	1.0	0.20	ug/l							
LCS Analyzed: 12/18/2008 (8L17121-BS1)											
Antimony	82.2	2.0	0.20	ug/l	80.0		103	85-115			
Cadmium	81.0	1.0	0.11	ug/l	80.0		101	85-115			
Copper	81.1	2.0	0.75	ug/l	80.0		101	85-115			
Lead	85.0	1.0	0.30	ug/l	80.0		106	85-115			
Thallium	89.6	1.0	0.20	ug/l	80.0		112	85-115			
Matrix Spike Analyzed: 12/18/2008 (8L17121-MS1)						**Source: IRL1362-01**					
Antimony	79.1	2.0	0.20	ug/l	80.0	0.572	98	70-130			
Cadmium	74.4	1.0	0.11	ug/l	80.0	ND	93	70-130			
Copper	72.4	2.0	0.75	ug/l	80.0	1.31	89	70-130			
Lead	75.0	1.0	0.30	ug/l	80.0	ND	94	70-130			
Thallium	79.7	1.0	0.20	ug/l	80.0	ND	100	70-130			
Matrix Spike Dup Analyzed: 12/18/2008 (8L17121-MSD1)						**Source: IRL1362-01**					
Antimony	88.0	2.0	0.20	ug/l	80.0	0.572	109	70-130	11	20	
Cadmium	82.4	1.0	0.11	ug/l	80.0	ND	103	70-130	10	20	
Copper	79.1	2.0	0.75	ug/l	80.0	1.31	97	70-130	9	20	
Lead	81.5	1.0	0.30	ug/l	80.0	ND	102	70-130	8	20	
Thallium	88.2	1.0	0.20	ug/l	80.0	ND	110	70-130	10	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8L15075 Extracted: 12/15/08											
Blank Analyzed: 12/15/2008 (8L15075-BLK1)											
Chloride	ND	0.50	0.25	mg/l							
Sulfate	ND	0.50	0.20	mg/l							
LCS Analyzed: 12/15/2008 (8L15075-BS1)											
Chloride	4.94	0.50	0.25	mg/l	5.00		99	90-110			
Sulfate	10.1	0.50	0.20	mg/l	10.0		101	90-110			
Matrix Spike Analyzed: 12/15/2008 (8L15075-MS1)						**Source: IRL1621-01**					
Chloride	116	20	10	mg/l	50.0	71.2	89	80-120			
Sulfate	845	20	8.0	mg/l	100	757	88	80-120			*MHA*
Matrix Spike Analyzed: 12/15/2008 (8L15075-MS2)						**Source: IRL1706-01**					
Chloride	5.40	0.50	0.25	mg/l	5.00	0.625	95	80-120			
Sulfate	14.0	0.50	0.20	mg/l	10.0	4.57	95	80-120			
Matrix Spike Dup Analyzed: 12/15/2008 (8L15075-MSD1)						**Source: IRL1621-01**					
Chloride	111	20	10	mg/l	50.0	71.2	80	80-120	4	20	
Sulfate	834	20	8.0	mg/l	100	757	77	80-120	1	20	*MHA*
Batch: 8L16052 Extracted: 12/16/08											
Blank Analyzed: 12/16/2008 (8L16052-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 12/16/2008 (8L16052-BS1)											
Total Dissolved Solids	996	10	10	mg/l	1000		100	90-110			

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8L16052 Extracted: 12/16/08											
Duplicate Analyzed: 12/16/2008 (8L16052-DUP1)						**Source: IRL1707-01**					
Total Dissolved Solids	569	10	10	mg/l		577			1	10	
Batch: 8L16086 Extracted: 12/16/08											
Blank Analyzed: 12/16/2008 (8L16086-BLK1)											
Nitrate/Nitrite-N	ND	0.26	0.15	mg/l							
Batch: 8L18054 Extracted: 12/18/08											
Blank Analyzed: 12/18/2008 (8L18054-BLK1)											
Perchlorate	ND	4.0	0.90	ug/l							
LCS Analyzed: 12/18/2008 (8L18054-BS1)											
Perchlorate	25.5	4.0	0.90	ug/l	25.0		102	85-115			
Matrix Spike Analyzed: 12/18/2008 (8L18054-MS1)						**Source: IRL2103-01**					
Perchlorate	27.8	4.0	0.90	ug/l	25.0	3.43	98	80-120			
Matrix Spike Dup Analyzed: 12/18/2008 (8L18054-MSD1)						**Source: IRL2103-01**					
Perchlorate	29.1	4.0	0.90	ug/l	25.0	3.43	103	80-120	5	20	
Batch: 8L19123 Extracted: 12/19/08											
Blank Analyzed: 12/19/2008 (8L19123-BLK1)											
Hexane Extractable Material (Oil & Grease)	3.50	5.0	1.4	mg/l							*J*

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8L19123 Extracted: 12/19/08											
LCS Analyzed: 12/19/2008 (8L19123-BS1)											**MNR1**
Hexane Extractable Material (Oil & Grease)	21.4	5.0	1.4	mg/l	20.2		106	78-114			
LCS Dup Analyzed: 12/19/2008 (8L19123-BSD1)											
Hexane Extractable Material (Oil & Grease)	21.9	5.0	1.4	mg/l	20.2		108	78-114	2	11	

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DIOXIN (EPA 1613)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 1770 Extracted: 12/17/08											
Blank Analyzed: 12/18/2008 (MB001)						**Source:**					
2,3,7,8-TCDD	ND	0.00000500	0.000000958	ug/L				50-150		25	
1,2,3,7,8-PeCDD	ND	0.0000250	0.0000025	ug/L				50-150		25	
1,2,3,4,7,8-HxCDD	ND	0.0000250	0.00000182	ug/L				50-150		25	
1,2,3,6,7,8-HxCDD	ND	0.0000250	0.00000171	ug/L				50-150		25	
1,2,3,7,8,9-HxCDD	ND	0.0000250	0.00000164	ug/L				50-150		25	
1,2,3,4,6,7,8-HpCDD	ND	0.0000250	0.00000279	ug/L				50-150		25	
OCDD	ND	0.0000500	0.0000043	ug/L				50-150		25	
2,3,7,8-TCDF	ND	0.00000500	0.000000887	ug/L				50-150		25	
1,2,3,7,8-PeCDF	ND	0.0000250	0.00000118	ug/L				50-150		25	
2,3,4,7,8-PeCDF	ND	0.0000250	0.00000107	ug/L				50-150		25	
1,2,3,4,7,8-HxCDF	ND	0.0000250	0.000000512	ug/L				50-150		25	
1,2,3,6,7,8-HxCDF	ND	0.0000250	0.000000592	ug/L				50-150		25	
2,3,4,6,7,8-HxCDF	ND	0.0000250	0.000000696	ug/L				50-150		25	
1,2,3,7,8,9-HxCDF	ND	0.0000250	0.00000105	ug/L				50-150		25	
1,2,3,4,6,7,8-HpCDF	ND	0.0000250	0.00000153	ug/L				50-150		25	
1,2,3,4,7,8,9-HpCDF	ND	0.0000250	0.00000182	ug/L				50-150		25	
OCDF	ND	0.0000500	0.00000159	ug/L				50-150		25	
Total TCDD	ND	0.00000500	.000000958	ug/L				50-150		25	
Total PeCDD	ND	0.0000250	.0000025	ug/L				50-150		25	
Total HxCDD	ND	0.0000250	.00000164	ug/L				50-150		25	
Total HpCDD	ND	0.0000250	.00000279	ug/L				50-150		25	
Total TCDF	ND	0.00000500	.000000887	ug/L				50-150		25	
Total PeCDF	ND	0.0000250	.00000107	ug/L				50-150		25	
Total HxCDF	ND	0.0000250	.000000512	ug/L				50-150		25	
Total HpCDF	ND	0.0000250	.00000153	ug/L				50-150		25	
Surrogate: 13C-2,3,7,8-TCDD	*0.00188*			*ug/L*	*2000*		*94*	*50-150*			
Surrogate: 13C-1,2,3,7,8-PeCDD	*0.00202*			*ug/L*	*2000*		*101*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	*0.00169*			*ug/L*	*2000*		*84*	*50-150*			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	*0.00191*			*ug/L*	*2000*		*96*	*50-150*			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	*0.00179*			*ug/L*	*2000*		*90*	*50-150*			
Surrogate: 13C-OCDD	*0.00297*			*ug/L*	*4000*		*74*	*50-150*			
Surrogate: 13C-2,3,7,8-TCDF	*0.00186*			*ug/L*	*2000*		*93*	*50-150*			
Surrogate: 13C-1,2,3,7,8-PeCDF	*0.00180*			*ug/L*	*2000*		*90*	*50-150*			
Surrogate: 13C-2,3,4,7,8-PeCDF	*0.00194*			*ug/L*	*2000*		*97*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	*0.00182*			*ug/L*	*2000*		*91*	*50-150*			

TestAmerica Irvine

Trupti Mistry For Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

METHOD BLANK/QC DATA

DIOXIN (EPA 1613)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 1770 Extracted: 12/17/08											
Blank Analyzed: 12/18/2008 (MB001)						**Source:**					
Surrogate: 13C-1,2,3,6,7,8-HxCDF	*0.00172*			*ug/L*	*2000*		*86*	*50-150*			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	*0.00174*			*ug/L*	*2000*		*87*	*50-150*			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	*0.00180*			*ug/L*	*2000*		*90*	*50-150*			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	*0.00160*			*ug/L*	*2000*		*80*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	*0.00166*			*ug/L*	*2000*		*83*	*50-150*			
Surrogate: 13C-OCDF	*0.00312*			*ug/L*	*4000*		*78*	*50-150*			
Surrogate: 37Cl-2,3,7,8-TCDD	*0.000760*			*ug/L*	*800*		*95*	*50-150*			
LCS Analyzed: 12/18/2008 (OPR001)						**Source:**					
2,3,7,8-TCDD	8.63	5.00	0.840	ug/L	10		86	50-150		25	
1,2,3,7,8-PeCDD	47.8	25.0	1.59	ug/L	50		96	50-150		25	
1,2,3,4,7,8-HxCDD	46.8	25.0	1.18	ug/L	50		94	50-150		25	
1,2,3,6,7,8-HxCDD	46.3	25.0	1.69	ug/L	50		93	50-150		25	
1,2,3,7,8,9-HxCDD	45.7	25.0	1.18	ug/L	50		91	50-150		25	
1,2,3,4,6,7,8-HpCDD	46.3	25.0	2.01	ug/L	50		93	50-150		25	
OCDD	95.6	50.0	2.45	ug/L	100		96	50-150		25	
2,3,7,8-TCDF	8.58	5.00	0.970	ug/L	10		86	50-150		25	
1,2,3,7,8-PeCDF	46.7	25.0	1.09	ug/L	50		93	50-150		25	
2,3,4,7,8-PeCDF	48.7	25.0	1.48	ug/L	50		97	50-150		25	
1,2,3,4,7,8-HxCDF	45.2	25.0	1.06	ug/L	50		90	50-150		25	
1,2,3,6,7,8-HxCDF	47.5	25.0	0.730	ug/L	50		95	50-150		25	
2,3,4,6,7,8-HxCDF	45.7	25.0	1.26	ug/L	50		91	50-150		25	
1,2,3,7,8,9-HxCDF	46.6	25.0	0.940	ug/L	50		93	50-150		25	
1,2,3,4,6,7,8-HpCDF	45.0	25.0	1.70	ug/L	50		90	50-150		25	
1,2,3,4,7,8,9-HpCDF	44.9	25.0	0.960	ug/L	50		90	50-150		25	
OCDF	89.5	50.0	3.66	ug/L	100		90	50-150		25	
Surrogate: 13C-2,3,7,8-TCDD	*89.2*			*ug/L*	*100*		*89*	*50-150*			
Surrogate: 13C-1,2,3,7,8-PeCDD	*96.7*			*ug/L*	*100*		*97*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	*77.1*			*ug/L*	*100*		*77*	*50-150*			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	*91.1*			*ug/L*	*100*		*91*	*50-150*			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	*84.0*			*ug/L*	*100*		*84*	*50-150*			
Surrogate: 13C-OCDD	*136*			*ug/L*	*200*		*68*	*50-150*			
Surrogate: 13C-2,3,7,8-TCDF	*88.6*			*ug/L*	*100*		*89*	*50-150*			
Surrogate: 13C-1,2,3,7,8-PeCDF	*88.4*			*ug/L*	*100*		*88*	*50-150*			
Surrogate: 13C-2,3,4,7,8-PeCDF	*91.1*			*ug/L*	*100*		*91*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	*88.6*			*ug/L*	*100*		*89*	*50-150*			

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Trupti Mistry For Joseph Doak
Project Manager

TestAmerica
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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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

METHOD BLANK/QC DATA

DIOXIN (EPA 1613)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 1770 Extracted: 12/17/08											
LCS Analyzed: 12/18/2008 (OPR001)						**Source:**					
Surrogate: 13C-1,2,3,6,7,8-HxCDF	*81.1*			*ug/L*	*100*		*81*	*50-150*			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	*81.0*			*ug/L*	*100*		*81*	*50-150*			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	*83.5*			*ug/L*	*100*		*84*	*50-150*			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	*74.7*			*ug/L*	*100*		*75*	*50-150*			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	*79.5*			*ug/L*	*100*		*80*	*50-150*			
Surrogate: 13C-OCDF	*146*			*ug/L*	*200*		*73*	*50-150*			
Surrogate: 37Cl-2,3,7,8-TCDD	*33.6*			*ug/L*	*40*		*84*	*50-150*			

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Received: 12/15/08

METHOD BLANK/QC DATA

MCAWW 245.1

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8353495 Extracted: 12/18/08											
Matrix Spike Dup Analyzed: 12/18/2008 (D8L170200001D)						**Source: D8L170200001**					
Mercury	4.64	0.2	0.027	ug/L	5	ND	93	90-110	9	10	
Matrix Spike Analyzed: 12/18/2008 (D8L170200001S)						**Source: D8L170200001**					
Mercury	4.24	0.2	0.027	ug/L	5	ND	85	90-110	9	10	*N*
Blank Analyzed: 12/18/2008 (D8L180000495B)						**Source:**					
Mercury	ND	0.2	0.027	ug/L				-			
LCS Analyzed: 12/18/2008 (D8L180000495C)						**Source:**					
Mercury	4.59	0.2	0.027	ug/L	5		92	90-110			

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

Project ID: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

METHOD BLANK/QC DATA

MCAWW 245.1-Diss

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8353517 Extracted: 12/18/08											
Matrix Spike Dup Analyzed: 12/18/2008 (D8L170200001D)						**Source: D8L170200001**					
Mercury-diss	4.37	0.2	0.027	ug/L	5	ND	87	90-110	9	10	*N*
Matrix Spike Analyzed: 12/18/2008 (D8L170200001S)						**Source: D8L170200001**					
Mercury-diss	4.8	0.2	0.027	ug/L	5	ND	96	90-110	9	10	
Blank Analyzed: 12/18/2008 (D8L180000517B)						**Source:**					
Mercury-diss	ND	0.2	0.027	ug/L				-			
LCS Analyzed: 12/18/2008 (D8L180000517C)						**Source:**					
Mercury-diss	4.63	0.2	0.027	ug/L	5		93	90-110			

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Project Manager

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MWH-Pasadena/Boeing
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Attention: Bronwyn Kelly

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Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

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
IRL1714-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	3.25	4.8	15
IRL1714-01	Antimony-200.8	Antimony	ug/l	0.40	2.0	6
IRL1714-01	Cadmium-200.8	Cadmium	ug/l	0.069	1.0	4
IRL1714-01	Chloride - 300.0	Chloride	mg/l	31	5.0	150
IRL1714-01	Copper-200.8	Copper	ug/l	2.72	2.0	14
IRL1714-01	Lead-200.8	Lead	ug/l	0.96	1.0	5.2
IRL1714-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.37	0.26	10
IRL1714-01	Perchlorate 314.0-DEFAULT	Perchlorate	ug/l	0	4.0	6
IRL1714-01	Sulfate-300.0	Sulfate	mg/l	11	0.50	250
IRL1714-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	140	10	850
IRL1714-01	Thallium-200.8	Thallium	ug/l	0.012	1.0	2

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

Project ID: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
J	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.
Ja	The amount detected is below the Lower CalibrationLimit of the instrument
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
N	Spike sample recovery is outside control limits.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

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MWH-Pasadena/Boeing
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Arcadia, CA 91007
Attention: Bronwyn Kelly

Project ID: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 1664A	Water	X	X
EPA 200.8-Diss	Water	X	X
EPA 200.8	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
SM2540C	Water	X	

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

Alta Analytical Perspectives
2714 Exchange Drive - Wilmington, NC 28405

Method Performed: 1613-Dioxin-HR Alta
Samples: IRL1714-01

Aquatic Testing Laboratories-SUB *California Cert #1775*
4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnic
Samples: IRL1714-01

TestAmerica Denver
4955 Yarrow Street - Arvada, CO 80002

Method Performed: MCAWW 245.1
Samples: IRL1714-01

Method Performed: MCAWW 245.1-Diss
Samples: IRL1714-01

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Trupti Mistry For Joseph Doak
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: Semi-Annual Outfall 004
Report Number: IRL1714

Sampled: 12/15/08
Received: 12/15/08

TestAmerica St. Louis

13715 Rider Trail North - Earth City, MO 63045

Analysis Performed: Gamma Spec
Samples: IRL1714-01

Analysis Performed: Gross Alpha
Samples: IRL1714-01

Analysis Performed: Gross Beta
Samples: IRL1714-01

Analysis Performed: Radium, Combined
Samples: IRL1714-01

Analysis Performed: Strontium 90
Samples: IRL1714-01

Analysis Performed: Tritium
Samples: IRL1714-01

Analysis Performed: Uranium, Combined
Samples: IRL1714-01

Vista Analytical *NELAC Cert #02102CA, California Cert #1640, Nevada Cert #CA-413*

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR-Alta
Samples: IRL1714-01

TestAmerica Irvine

Trupti Mistry For Joseph Doak
Project Manager

Test America Version 12/20/07

CHAIN OF CUSTODY FORM

IRL1714

Client Name/Address:
MWH-Arcadia
618 Michillinda Avenue, Suite 200
Arcadia, CA 91007
Test America Contact: Joseph Doak

Project:
Boeing-SSFL NPDES
Semi-Annual Outfall 004
Stormwater at SRE-1

Project Manager: Bronwyn Kelly
Sampler: R BAÑAGA

Phone Number:
(626) 568-6691
Fax Number:
(626) 568-6515

ANALYSIS REQUIRED

Field readings:
Temp = 48 °
pH = 9.09
Time of readings = 11:30

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl	TCDD (and all congeners)	Oil & Grease (1664-HEM)	Cl^-, SO_4, NO_3+NO_2-N, Perchlorate	TDS	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)	**Chronic Toxicity**	Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl	**Comments**
Outfall 004	W	1L Poly	1	12-15-08 11:30	HNO_3	1A	X								
Outfall 004-Dup	W	1L Poly	1		HNO_3	1B	X								
Outfall 004	W	1L Amber	2		None	2A, 2B		X							
Outfall 004	W	1L Amber	2		HCl	3A, 3B			X						
Outfall 004	W	500 ml Poly	2		None	4A, 4B				X					
Outfall 004	W	500 ml Poly	1		None	5					X				
Outfall 004	W	2.5 Gal Cube 500 ml Amber	1 1		None None	6A 6B						X			Unfiltered and unpreserved analysis
Outfall 004	W	1 Gal Poly	1		None	7							X		**Test first and second rain event of the year**
Outfall 004	W	1L Poly	1	12-15-08 11:30	None	8								X	Filter w/in 24hrs of receipt at lab

RS 2230 12/15/08

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	12-15-08	[signature]	121508 1530
[signature]	121508 1815	[signature]	12/15/08 1815

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

Sample Integrity: (check)
Intact ✓ On Ice: 3°C

Data Requirements: (check)
No Level IV ✓ All Level IV ____
NPDES Level IV X

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

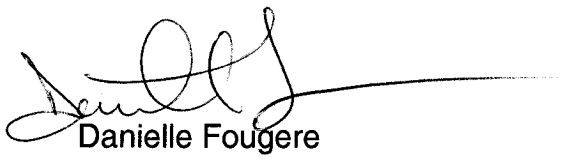
MWH-Pasadena / Boeing

Lot D8L170253

Project IRL1714

Joseph Doak
17461 Derian Avenue
Suite 100
Irvine, CA 92614

TestAmerica Laboratories, Inc.



Danielle Fougere
Project Manager

December 22, 2008

4955 Yarrow Street Arvada, CO 80002 **tel** 303.736.0100 **fax** 303.431.7171 **www.testamericainc.com**

Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on December 17, 2008. The results included in this report relate only to the samples in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

This report may include reporting limits (RLs) less than the Denver laboratory's standard reporting limits. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Dilution factors and footnotes have been provided to assist in the interpretation of the results. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Laboratories, Inc. utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

Quality Control Summary for Lot D8L170253

Sample Receiving

The cooler temperature for the sample received on December 17, 2008 at the Denver laboratory was 2.6°C. All sample containers were received in acceptable condition.

Total Mercury –Method 245.1

Matrix spike analyses for QC batch 8353495 were performed on a sample from another client and/or lot, and were outside control limits.

No other anomalies were observed.

Dissolved Mercury –Method 245.1

Matrix spike analyses for QC batch 8353517 were performed on a sample from another client and/or lot, and were outside control limits.

No other anomalies were observed.

Quality Control Definitions of Qualifiers

Qualifier	Definition
U	Result is less than the method detection limit (MDL).
B	Organics: Method blank contamination. The associated method blank contains the target analyte at a reportable level. Inorganics: Estimated result. Result is less than the RL
J	Organics: Estimated result. Result is less than RL Inorganics: Method blank contamination. The associated method blank contains the target analyte at a reportable level.
E	Estimated result. Result concentrations exceed the calibration range.
p	Relative Percent Difference (RPD) is outside control limits.
*	Surrogate or Relative Percent Difference (RPD) is outside control limits.
DIL	The concentration is estimated or not reported due to dilution.
COL	More than 40% difference between the primary and confirmation detector results. The lower of the two results is reported.
CHI	More than 40% difference between the primary and confirmation detector results. The higher of the two results is reported.
L	Serial dilution of a digestate in the analytical batch indicates that physical and chemical interferences are present.
a	Spiked analyte recovery is outside stated control limits.
N	Spiked analyte recovery is outside stated control limits.
NC	The recovery and/or RPD were not calculated.
MSB	The recovery and/or RPD were not calculated because the sample amount was greater than four times the spike amount.

AC
FRI
2.6
12/17/8

SUBCONTRACT ORDER

TestAmerica Irvine

IRL1714

SENDING LABORATORY:

TestAmerica Irvine
17461 Derian Avenue. Suite 100
Irvine, CA 92614
Phone: (949) 261-1022
Fax: (949) 260-3297
Project Manager: Joseph Doak
Client: MWH-Pasadena/Boeing

RECEIVING LABORATORY:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone :(303) 736-0100
Fax: (303) 431-7171
Project Location: CA - CALIFORNIA
Receipt Temperature:_____°C Ice: Y / N

Analysis	Units	Due	Expires	Interlab Price	Surch	Comments
Sample ID: IRL1714-01	**Water**		Sampled: **12/15/08 11:30**			
Level 4 Data Package - Out	N/A	12/22/08	01/12/09 11:30	$0.00	25%	Denver
Mercury - 245.1, Diss -OUT	ug/l	12/22/08	01/12/09 11:30	$36.00	25%	Boeing, J flags/ Out to Denver
Mercury - 245.1-OUT	ug/l	12/22/08	01/12/09 11:30	$36.00	25%	Boeing, permit, J flags/ Out to Denver

Containers Supplied:
1 L Poly w/HNO3 (B) 125 mL Poly (N)

Released By	12/16/08 17:00 Date/Time	Received By	12/16/08 17:00 Date/Time
Released By	Date/Time	Received By	12/17/08 0945 Date/Time

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TestAmerica Denver

Sample Receiving Checklist

Lot #: D820170253 Date/Time Received: 12/17/08 09 45

Company Name & Sampling Site: TA Irvine

PM to Complete This Section:	*Yes*	*No*		*Yes*	*No*
Residual chlorine check required:	☐	☐	Quarantined :	☐	☐

Quote #: 72743

Special Instructions:

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures (°C): 2.6

N/A	*Yes*	*No*		*Initials*
☐	☑	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	AC
	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ No:____	
	☑	☐	3. Chain of custody present? If no, document on CUR.	
	☐	☑	4. Bottles broken and/or are leaking? If yes, document on CUR.	
	☐	☑	5. Multiphasic samples obvious? If yes, document on CUR.	
	☑	☐	6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.	
☐	☑	☐	7. pH of all samples checked and meet requirements? If no, document on CUR.	
	☑	☐	8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.	
	☑	☐	9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.	
☑	☐	☐	10. Were VOA samples without headspace? If no, document on CUR.	
☑	☐	☐	11. Were VOA vials preserved? Preservative ☐HCl ☐4±2°C ☐Sodium Thiosulfate ☐ Ascorbic Acid	
	☐	☑	12. Did samples require preservation with sodium thiosulfate?	
☑	☐	☐	13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.	
☑	☐	☐	14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.	
☑	☐	☐	15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.	
	☑	☐	16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
	☐	☑	17. Are analyses with short holding times requested?	
	☑	☐	18. Was a quick Turn Around (TAT) requested?	

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TestAmerica Denver

Sample Receiving Checklist

Lot # DB170253

Login Checks:

N/A	Yes	No		Initials
	☑	☐	19. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.	AW
☑	☐	☐	20. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.	
	☑	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☑	☐	22. Were special log in instructions read and followed?	
☑	☐	☐	23. Were AFCEE metals logged for refrigerated storage?	
	☑	☐	24. Were tests logged checked against the COC? Which samples were confirmed? 1	
☐	☑	☐	25. Was a Rush form completed for quick TAT?	
☑	☐	☐	26. Was a Short Hold form completed for any short holds?	
	☐	☑	27. Were special archiving instructions indicated in the General Comments? If so, what were they?	

Labeling and Storage Checks:

				Initials
☑	☐	☐	28. Was the subcontract COC signed and sent with samples to bottle prep?	SL
	☑	☐	29. Were sample labels double-checked by a second person?	
☑	☐	☐	30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
	☑	☐	31. Did the sample ID, Date, and Time from label match what was logged?	
☑	☐	☐	32. Were stickers for special archiving instructions affixed to each box? See #27	
☑	☐	☐	33. Were AFCEE metals stored refrigerated?	

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

EXECUTIVE SUMMARY - Detection Highlights

D8L170253

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
NO DETECTABLE PARAMETERS				

METHODS SUMMARY

D8L170253

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Dissolved Mercury (CVAA)	MCAWW 245.1	MCAWW 245.1
Mercury (Manual Cold Vapor Technique)	MCAWW 245.1	MCAWW 245.1

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

METHOD / ANALYST SUMMARY

D8L170253

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 245.1	Christopher Grisdale	9582

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

D8L170253

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K4V7T	001	IRL1714-01	12/15/08	11:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.