Analysis Parameters

Instrument

Conditions

Gas flow (mL/min)	Sample Uptake (s)	Rinse (s)	Read delay (s)	Replicates (#)	Replicate time (s)	Pump speed (%)	Wavelength (nm)
100	40.00	90.00	53.00	4	1.50	50	253.65

Instrumental Zero

Zero before first sample: No

Zero periodically: Yes

Before each calibration.

Baseline Correction

#1 Start time (s)	#1 End time (s)	#2 Start time (s)	#2 End time (s)
25.00	29.00		

Standby Mode

Enabled: Yes

Standby Options: pump slow

Autodilution

Enabled: No

Condition:

Tube # range:

If no autodilution tubes remaining

Calibration

Settings

Algorithm	Through blank	Weighted fit	Cal. Type	Racalibration rate	Reslope rate	Reslope standard
Linear	No	No	Normal	0	0	N/A

Limits

Calibration slope		Reslope		Coeff. of Determination
Lower (%)	Upper (%)	Lower (%)	Upper (%)	
20	150	75	125	0.99500

Error action: Flag and continue

QC

GLP Override: Yes

QC Tests

1401

CCB

Concentration (ppb)
0.2000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

ICB

Concentration (ppb)
0.2000

Failure flag: Z

Error action for manually inserted QC: Stop analysis

CCV

Concentration (ppb)	Low Limit %	High Limit %
5.0000	80.0000	120.0000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

ICV

Concentration (ppb)	Low Limit %	High Limit %
7.0000	90.0000	110.0000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

CRDL

Concentration (ppb)	Low Limit %	High Limit %
0.2000	70.0000	130.0000

Failure flag: Y

Error action for manually inserted QC: Stop analysis

1402

Vista
Analytical Laboratory

December 19, 2008

Vista Project I.D.: 31269

Mr. Joseph Doak
Test America-Irvine, CA
17461 Derian Avenue
Suite 100
Irvine, CA 92614

Dear Mr. Doak,

Enclosed are the results for the one aqueous sample received at Vista Analytical Laboratory on December 17, 2008 under your Project Name "IRL1721". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Vista's current certifications, and copies of the raw data (if requested).

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com. Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha M. Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista Analytical Laboratory.

Section I: Sample Inventory Report

Date Received: **12/17/2008**

Vista Lab. ID	Client Sample ID
31269-001	IRL1721-01

SECTION II

Method Blank **EPA Method 1613**

Matrix: Aqueous | QC Batch No.: 1770 | Lab Sample: 0-MB001

Sample Size: 1.00 L | Date Extracted: 17-Dec-08 | Date Analyzed DB-5: 18-Dec-08 | Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.000000958		
1,2,3,7,8-PeCDD	ND	0.00000250		
1,2,3,4,7,8-HxCDD	ND	0.00000182		
1,2,3,6,7,8-HxCDD	ND	0.00000171		
1,2,3,7,8,9-HxCDD	ND	0.00000164		
1,2,3,4,6,7,8-HpCDD	ND	0.00000279		
OCDD	ND	0.00000430		
2,3,7,8-TCDF	ND	0.000000887		
1,2,3,7,8-PeCDF	ND	0.00000118		
2,3,4,7,8-PeCDF	ND	0.00000107		
1,2,3,4,7,8-HxCDF	ND	0.000000512		
1,2,3,6,7,8-HxCDF	ND	0.000000592		
2,3,4,6,7,8-HxCDF	ND	0.000000696		
1,2,3,7,8,9-HxCDF	ND	0.00000105		
1,2,3,4,6,7,8-HpCDF	ND	0.00000153		
1,2,3,4,7,8,9-HpCDF	ND	0.00000182		
OCDF	ND	0.00000159		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	94.0	25 - 164	
	13C-1,2,3,7,8-PeCDD	101	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	84.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	95.7	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	89.5	23 - 140	
	13C-OCDD	74.1	17 - 157	
	13C-2,3,7,8-TCDF	92.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	90.1	24 - 185	
	13C-2,3,4,7,8-PeCDF	97.0	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	91.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	85.9	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	86.9	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	89.9	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	80.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	83.2	26 - 138	
	13C-OCDF	78.0	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	95.0	35 - 197	

Totals

Total TCDD	ND	0.000000958
Total PeCDD	ND	0.00000250
Total HxCDD	ND	0.00000172
Total HpCDD	ND	0.00000279
Total TCDF	ND	0.000000887
Total PeCDF	ND	0.00000218
Total HxCDF	ND	0.000000692
Total HpCDF	ND	0.00000166

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

1406

Analyst: MAS

Approved By: William J. Luksemburg 19-Dec-2008 11:12

OPR Results **EPA Method 1613**

Matrix:	Aqueous	QC Batch No.:	1770	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	17-Dec-08	Date Analyzed DB-5:	18-Dec-08
				Date Analyzed DB-225:	NA

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	10.0	8.63	6.7 - 15.8	IS	13C-2,3,7,8-TCDD	89.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	47.8	35 - 71		13C-1,2,3,7,8-PeCDD	96.7	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	46.8	35 - 82		13C-1,2,3,4,7,8-HxCDD	77.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	46.3	38 - 67		13C-1,2,3,6,7,8-HxCDD	91.1	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	45.7	32 - 81		13C-1,2,3,4,6,7,8-HpCDD	84.0	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	46.3	35 - 70		13C-OCDD	67.9	17 - 157	
OCDD	100	95.6	78 - 144		13C-2,3,7,8-TCDF	88.6	24 - 169	
2,3,7,8-TCDF	10.0	8.58	7.5 - 15.8		13C-1,2,3,7,8-PeCDF	88.4	24 - 185	
1,2,3,7,8-PeCDF	50.0	46.7	40 - 67		13C-2,3,4,7,8-PeCDF	91.1	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.7	34 - 80		13C-1,2,3,4,7,8-HxCDF	88.6	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	45.2	36 - 67		13C-1,2,3,6,7,8-HxCDF	81.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	47.5	42 - 65		13C-2,3,4,6,7,8-HxCDF	81.0	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	45.7	35 - 78		13C-1,2,3,7,8,9-HxCDF	83.5	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	46.6	39 - 65		13C-1,2,3,4,6,7,8-HpCDF	74.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	45.0	41 - 61		13C-1,2,3,4,7,8,9-HpCDF	79.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	44.9	39 - 69		13C-OCDF	73.1	17 - 157	
OCDF	100	89.5	63 - 170	CRS	37Cl-2,3,7,8-TCDD	84.0	35 - 197	

Analyst: MAS

Approved By: William J. Luksemburg 19-Dec-2008 11:12

1407

Sample ID: **IRL1721-01** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Test America-Irvine, CA	Matrix:	Aqueous	Lab Sample:	31269-001	Date Received:	17-Dec-08
Project:	IRL1721	Sample Size:	1.04 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:	1058						

Analyte	Conc. (ug/L)	DL [a]	EMPC[b]	Qualifiers
2,3,7,8-TCDD	ND	0.000000837		
1,2,3,7,8-PeCDD	ND	0.00000249		
1,2,3,4,7,8-HxCDD	ND	0.00000404		
1,2,3,6,7,8-HxCDD	ND	0.00000391		
1,2,3,7,8,9-HxCDD	ND	0.00000370		
1,2,3,4,6,7,8-HpCDD	ND	0.00000706		
OCDD	0.0000314			J
2,3,7,8-TCDF	ND	0.000000735		
1,2,3,7,8-PeCDF	ND	0.00000204		
2,3,4,7,8-PeCDF	ND	0.00000223		
1,2,3,4,7,8-HxCDF	ND	0.00000138		
1,2,3,6,7,8-HxCDF	ND	0.00000142		
2,3,4,6,7,8-HxCDF	ND	0.00000174		
1,2,3,7,8,9-HxCDF	ND	0.00000269		
1,2,3,4,6,7,8-HpCDF	ND	0.00000204		
1,2,3,4,7,8,9-HpCDF	ND	0.00000283		
OCDF	ND	0.00000749		

	Labeled Standard	%R	LCL-UCL[d]	Qualifiers
IS	13C-2,3,7,8-TCDD	94.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	96.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	80.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	96.6	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	83.5	23 - 140	
	13C-OCDD	71.2	17 - 157	
	13C-2,3,7,8-TCDF	93.7	24 - 169	
	13C-1,2,3,7,8-PeCDF	92.4	24 - 185	
	13C-2,3,4,7,8-PeCDF	90.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	85.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	81.6	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	82.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	86.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	82.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	77.7	26 - 138	
	13C-OCDF	71.6	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	92.5	35 - 197	

Totals		
Total TCDD	ND	0.000000837
Total PeCDD	ND	0.00000406
Total HxCDD	ND	0.00000389
Total HpCDD	0.00000847	
Total TCDF	ND	0.00000111
Total PeCDF	ND	0.00000299
Total HxCDF	ND	0.00000176
Total HpCDF	ND	0.00000238

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

1408

Analyst: MAS

Approved By: William J. Luksemburg 19-Dec-2008 11:12

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The amount detected is above the High Calibration Limit.**
P	**The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.**
H	**The signal-to-noise ratio is greater than 10:1.**
I	**Chemical Interference**
J	**The amount detected is below the Low Calibration Limit.**
*****	**See Cover Letter**
Conc.	**Concentration**
DL	**Sample-specific estimated detection limit**
MDL	**The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.**
EMPC	**Estimated Maximum Possible Concentration**
NA	**Not applicable**
RL	**Reporting Limit – concentrations that correspond to low calibration point**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
State of Alaska, DEC	CA413-2008
State of Arizona	AZ0639
State of Arkansas, DEQ	08-043-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	N/A
State of Connecticut	PH-0182
State of Florida, DEP	E87777
State of Indiana Department of Health	C-CA-02
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA08000
State of Louisiana, DEQ	01977
State of Maine	2008024
State of Michigan	9932
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	NFESC413
State of Nevada	CA004132007A
State of New Jersey	CA003
State of New Mexico	Reciprocity through CA
State of New York, DOH	11411
State of North Carolina	06700
State of North Dakota, DOH	R-078
State of Oklahoma	D9919
State of Oregon	CA200001-006
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	TN02996
State of Texas	T104704189-08-TX
U.S. Army Corps of Engineers	N/A
State of Utah	CA16400
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q

SUBCONTRACT ORDER

TestAmerica Irvine

IRL1721

31269

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Vista Analytical Laboratory- SUB
1104 Windfield Way
El Dorado Hills, CA 95762
Phone :(916) 673-1520
Fax: (916) 673-0106
Project Location: CA - CALIFORNIA
Receipt Temperature: 1.4 °C Ice: (Y) N

Analysis	Units	Due	Expires	Comments
Sample ID: IRL1721-01	**Water**		Sampled: **12/15/08 10:58**	
1613-Dioxin-HR-Alta	ug/l	12/22/08	12/22/08 10:58	J flags,17 congeners,no TEQ,ug/L,sub=Vista
Level 4 + EDD-OUT	N/A	12/22/08	01/12/09 10:58	Excel EDD email to pm,Include Std logs for Lvl IV

Containers Supplied:

1 L Amber (AB) 1 L Amber (AC)

Released By	12/16/08 17:00 Date/Time	FedEx Received By	12/16/08 17:00 Date/Time
			12/17/08 0935 1412
Released By	Date/Time	Received By	Date/Time

SAMPLE LOG-IN CHECKLIST

Vista Analytical Laboratory

Vista Project #: 31269 **TAT** 5 days

Samples Arrival:	**Date/Time** 12/17/08 0918	**Initials:** CV	**Location:** LR2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 12/17/08 0935	**Initials:** CV	**Location:** LR2 **Shelf/Rack:** C-3

Delivered By:	(FedEx)	UPS	Cal	DHL	Hand Delivered	Other
Preservation:	(Ice)	Blue Ice	Dry Ice	None		
Temp °C	1.4°	**Time:** 0927	**Thermometer ID:** IR-2			

	YES	NO	NA
Adequate Sample Volume Received? (A+S bottles)	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill Trk # 7961 9099 8504	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

$Na_2S_2O_3$ Preservation Documented?	COC	Sample Container	(None)		
Shipping Container: Vista	(Client)	Retain	(Return)	Dispose	

Comments:

1413

APPENDIX G

Section 22

Outfall 014, November 4, 2008

MEC^X Data Validation Reports

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: IRK0247

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL NPDES
Contract Task Order:	1261.100D.00
Sample Delivery Group:	IRK0247
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 014	IRK0247-01	31128-001	Water	11/04/08 0925	180.1, 300.0, 245.1, 1613B, 8315M

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine, TestAmerica-Denver, Truesdail, and Vista within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the sample was received intact at all laboratories. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples were couriered to TestAmerica-Irvine, TestAmerica-Denver, and Truesdail, custody seals were not required. Custody seals were intact upon arrival at 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: K. Shadowlight
Date Reviewed: December 17, 2008

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: OCDD was reported in the method blank at 0.00000405 μg/L; however, the concentration of OCDD in the sample exceeded five times the amount in the method blank

and required no qualification. The method blank had no other 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. Any detects below the laboratory lower calibration level were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Any EMPC value was qualified as an estimated nondetect, "UJ." Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 8315M—Hydrazines

Reviewed By: P. Meeks
Date Reviewed: December 30, 2008

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Method 8315M*, and the *National Functional Guidelines for Organic Data Review* (10/99).

- Holding Times: Extraction and analytical holding times were met. The water sample was derivitized within three days of collection and analyzed within 3 days of derivitization.

- Calibration: Calibration criteria were met. The initial calibration r^2 values were $\geq$0.995 and the ICV and QCS recoveries were within 85-115%.

- Blanks: The method blank had no target compound detects above the MDL.

- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. All recoveries and RPDs were within laboratory-established QC limits.

- 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.

- Compound Identification: Compound identification was verified. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Any results reported between the MDL 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 reporting limit.

C. EPA METHOD 245.1—Mercury

Reviewed By: P. Meeks
Date Reviewed: December 30, 2008

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 245.1,* and the *National Functional Guidelines for Inorganic Data Review* (07/02).

- 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 recovery was 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: MS/MSD analyses were performed on the sample in this SDG. The total mercury MS recovery was below the control limit at 87%; therefore, nondetected total mercury was qualified as estimated, "UJ." Remaining recoveries and both RPDs were within the laboratory-established control limits.

- 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. Any 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.

D. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks
Date Reviewed: December 30, 2008

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Methods 180.1 and 300.0*, and the *National Functional Guidelines for Inorganic Data Review* (07/02).

- Holding Times: Analytical holding times, 48 hours from collection for nitrate and turbidity and 28 days for nitrate/nitrite, were met.

- Calibration: Calibration criteria were met. Initial calibration r^2 values were $\geq$0.995 and all initial and continuing calibration recoveries were within 90-110%.

- Blanks: Method blanks and CCBs had no detects.

- Blank Spikes and Laboratory Control Samples: Recoveries were within 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.

- 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. Both nitrate and nitrate/nitrite were analyzed at 20× dilutions in order to report the analytes within the linear range of the calibration. Any 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.

Sample ID: **IRK0247-01** Outfall 014 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Test America-Irvine, CA	Matrix:	Aqueous	Lab Sample:	31128-001	Date Received:	6-Nov-08
Project:	IRK0247	Sample Size:	1.03 L	QC Batch No.:	1678	Date Extracted:	12-Nov-08
Date Collected:	4-Nov-08			Date Analyzed DB-5:	14-Nov-08	Date Analyzed DB-225:	NA
Time Collected:	0925						

Analyte	Conc. (ug/L)		DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	U	0.000000157		
1,2,3,7,8-PeCDD	ND	U	0.000000172		
1,2,3,4,7,8-HxCDD	ND	U/FMC		0.000000688	
1,2,3,6,7,8-HxCDD	0.00000102	J/DNQ			J
1,2,3,7,8,9-HxCDD	ND	U/FMC		0.00000111	
1,2,3,4,6,7,8-HpCDD	0.0000233	J/DNQ			J
OCDD	0.000278				B
2,3,7,8-TCDF	ND	U	0.000000134		
1,2,3,7,8-PeCDF	ND		0.000000113		
2,3,4,7,8-PeCDF	ND		0.000000106		
1,2,3,4,7,8-HxCDF	ND		0.000000097		
1,2,3,6,7,8-HxCDF	ND		0.000000101		
2,3,4,6,7,8-HxCDF	ND		0.000000110		
1,2,3,7,8,9-HxCDF	ND		0.000000140		
1,2,3,4,6,7,8-HpCDF	0.00000169	J/EMPC DNQ			J
1,2,3,4,7,8,9-HpCDF	ND	U	0.000000202		
OCDF	ND	U/FMC		0.00000391	

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	79.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	73.2	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	72.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	64.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	70.1	23 - 140	
	13C-OCDD	60.6	17 - 157	
	13C-2,3,7,8-TCDF	81.0	24 - 169	
	13C-1,2,3,7,8-PeCDF	77.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	79.6	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	68.7	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	62.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	63.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	70.9	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	64.3	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	66.5	26 - 138	
	13C-OCDF	60.8	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	98.4	35 - 197	

Totals				
Total TCDD	ND	U	0.000000157	
Total PeCDD	ND	U	0.000000172	
Total HxCDD	0.00000528			0.00000708
Total HpCDD	0.0000569			
Total TCDF	ND	U	0.000000134	
Total PeCDF	ND	U	0.000000110	
Total HxCDF	0.000000672			
Total HpCDF	0.00000371			

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

1425

Analyst: JMH

LS 12-17-08

Approved By: William J. Luksemburg 20-Nov-2008 15:33

LEVEL IV

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: TestAmerica Analytical-Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614-5817

Attention: Joseph Doak
Sample: Water / 1 Sample
Project Name: IRK0247
P.O. Number: IRK0247
Method Number: 8315 (Modified)
Investigation: Hydrazines

REPORT

Laboratory No: 979607
Report Date: November 10, 2008
Sampling Date: November 4, 2008
Receiving Date: November 5, 2008
Extraction Date: November 5, 2008
Analysis Date: November 6, 2008
Units: µg/L
Reported By: JS

Analytical Results

Sample ID	Sample Descript	Sample Amount (mL)	Dilution Factor	Monomethyl Hydrazine	u-Dimethyl Hydrazine	Hydrazine	Qualifier Codes
707848-MB	Method Blank	100	1	ND	ND	ND	None
979607 Outfall 014	IRK0247-01	100	1	ND U	ND U	ND U	None
MDL				0.56	0.32	0.15	
PQL				5.0	5.0	1.00	
Sample Reporting Limits				5.0	5.0	1.00	

LEVEL IV

Note: Results based on detector #1 (UV=365nm) data.

*Analysis not validated

Mona Nassimi, Manager
Analytical Services, Truesdail Laboratories, Inc.

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Arcadia, CA 91007
Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

MCAWW 245.1

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: ug/L									
Mercury VJ/Q	MCAWW 245.1	8315137	0.027	0.2	ND	1	11/12/08	11/12/08	

LEVEL IV

TestAmerica Irvine

Joseph Doak
Project Manager

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Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

MCAWW 245.1 (Diss)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: ug/L									
Mercury-diss U	MCAWW 245.1 (Diss)	8315146	0.027	0.2	ND	1	11/12/08	11/12/08	

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: mg/l									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	8K13049	1.3	4.7	**1.4**	1	11/13/08	11/13/08	J
Ammonia-N (Distilled)	SM4500NH3-C	8K05114	0.50	0.50	ND	1	11/05/08	11/05/08	
Biochemical Oxygen Demand	SM5210B	8K05133	0.50	2.0	**1.8**	1	11/05/08	11/10/08	J
Chloride	EPA 300.0	8K04068	0.25	0.50	**26**	1	11/04/08	11/04/08	
Fluoride	SM 4500-F-C	8K05004	0.020	0.10	**0.38**	1	11/05/08	11/05/08	
Nitrate-N	EPA 300.0	8K04068	1.2	2.2	**9.3**	20	11/04/08	11/04/08	
Nitrite-N	EPA 300.0	8K04068	0.090	0.15	ND	1	11/04/08	11/04/08	
Nitrate/Nitrite-N	EPA 300.0	8K04068	3.0	5.2	**9.3**	20	11/04/08	11/04/08	
Sulfate	EPA 300.0	8K04068	0.20	0.50	**22**	1	11/04/08	11/04/08	
Total Dissolved Solids	SM2540C	8K06055	10	10	**210**	1	11/06/08	11/06/08	
Total Suspended Solids	SM 2540D	8K11075	10	10	ND	1	11/11/08	11/11/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ml/l									
Total Settleable Solids	SM2540F	8K05070	0.10	0.10	ND	1	11/05/08	11/05/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	8K05073	0.040	1.0	**10**	1	11/05/08	11/05/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	8K07091	0.90	4.0	ND	1	11/07/08	11/08/08	

LEVEL IV

*Analysis not validated

TestAmerica Irvine

Joseph Doak
Project Manager

APPENDIX G

Section 23

Outfall 014, November 4, 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: Routine Outfall 014
APTF Test Stand

Sampled: 11/04/08
Received: 11/04/08
Issued: 11/13/08 15:20

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

This entire report was reviewed and approved for release.

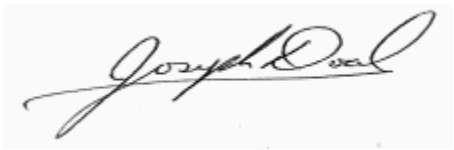
SAMPLE CROSS REFERENCE

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

ADDITIONAL INFORMATION: This is a Partial Report pending Dioxin, Hydrazine and Mercury data from the subcontract laboratories.

LABORATORY ID	CLIENT ID	MATRIX
IRK0247-01	Outfall 014	Water
IRK0247-02	Trip Blanks	Water

Reviewed By:



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

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

EXTRACTABLE FUEL HYDROCARBONS (EPA 8015 CADHS Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: mg/l									
DRO (C13 - C28)	EPA 8015B MOD.	8K06073	0.094	0.094	ND	0.943	11/06/08	11/11/08	
Surrogate: n-Octacosane (40-125%)					*78 %*				

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Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

VOLATILE FUEL HYDROCARBONS (EPA 5030/8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015B	8K10042	0.030	0.050	ND	1	11/10/08	11/10/08	
Surrogate: 4-BFB (FID) (65-140%)					*98 %*				

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	8K09012	0.40	0.50	ND	1	11/09/08	11/09/08	
1,2,3-Trichloropropane	EPA 624	8K09012	0.40	1.0	ND	1	11/09/08	11/09/08	
Di-isopropyl Ether (DIPE)	EPA 624	8K09012	0.25	0.50	ND	1	11/09/08	11/09/08	
Methyl-tert-butyl Ether (MTBE)	EPA 624	8K09012	0.32	0.50	ND	1	11/09/08	11/09/08	
tert-Butanol (TBA)	EPA 624	8K09012	6.5	10	ND	1	11/09/08	11/09/08	
Surrogate: 4-Bromofluorobenzene (80-120%)					*94 %*				
Surrogate: Dibromofluoromethane (80-120%)					*99 %*				
Surrogate: Toluene-d8 (80-120%)					*91 %*				
Sample ID: IRK0247-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	8K09012	0.40	0.50	ND	1	11/09/08	11/09/08	
1,2,3-Trichloropropane	EPA 624	8K09012	0.40	1.0	ND	1	11/09/08	11/09/08	
Di-isopropyl Ether (DIPE)	EPA 624	8K09012	0.25	0.50	ND	1	11/09/08	11/09/08	
Methyl-tert-butyl Ether (MTBE)	EPA 624	8K09012	0.32	0.50	ND	1	11/09/08	11/09/08	
tert-Butanol (TBA)	EPA 624	8K09012	6.5	10	ND	1	11/09/08	11/09/08	
Surrogate: 4-Bromofluorobenzene (80-120%)					*93 %*				
Surrogate: Dibromofluoromethane (80-120%)					*92 %*				
Surrogate: Toluene-d8 (80-120%)					*91 %*				

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

1,4-DIOXANE BY DIRECT INJECTION GCMS - SINGLE ION MONITORING (SIM)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B-SIM	8K12018	1.0	2.0	ND	1	11/12/08	11/12/08	
Surrogate: Dibromofluoromethane (80-120%)					*106 %*				

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: ug/l									
Naphthalene	EPA 625	8K09025	2.8	9.4	ND	0.943	11/09/08	11/11/08	
N-Nitrosodimethylamine	EPA 625	8K09025	2.4	19	ND	0.943	11/09/08	11/11/08	
Surrogate: 2,4,6-Tribromophenol (40-120%)					*97 %*				
Surrogate: 2-Fluorobiphenyl (50-120%)					*78 %*				
Surrogate: 2-Fluorophenol (30-120%)					*74 %*				
Surrogate: Nitrobenzene-d5 (45-120%)					*81 %*				
Surrogate: Phenol-d6 (35-120%)					*79 %*				
Surrogate: Terphenyl-d14 (50-125%)					*104 %*				

TestAmerica Irvine

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	8K05118	0.020	0.050	**0.14**	1	11/05/08	11/06/08	B
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ug/l									
Cadmium	EPA 200.8	8K05119	0.11	1.0	**0.56**	1	11/05/08	11/05/08	J
Copper	EPA 200.8	8K05119	0.75	2.0	**2.0**	1	11/05/08	11/05/08	
Lead	EPA 200.8	8K05119	0.30	1.0	**0.84**	1	11/05/08	11/07/08	J
Selenium	EPA 200.8	8K05119	0.30	2.0	**0.32**	1	11/05/08	11/05/08	J
Zinc	EPA 200.8	8K05119	2.5	20	**19**	1	11/05/08	11/05/08	B, J

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Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

DISSOLVED METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7-Diss	8K05122	0.020	0.050	**0.14**	1	11/05/08	11/07/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ug/l									
Cadmium	EPA 200.8-Diss	8K05121	0.11	1.0	**0.56**	1	11/05/08	11/05/08	J
Copper	EPA 200.8-Diss	8K05121	0.75	2.0	**1.3**	1	11/05/08	11/05/08	J
Lead	EPA 200.8-Diss	8K05121	0.30	1.0	ND	1	11/05/08	11/05/08	
Selenium	EPA 200.8-Diss	8K05121	0.30	2.0	ND	1	11/05/08	11/05/08	
Zinc	EPA 200.8-Diss	8K05121	2.5	20	**24**	1	11/05/08	11/05/08	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IRK0247-01 (Outfall 014 - Water) - cont.									
Reporting Units: mg/l									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	8K13049	1.3	4.7	**1.4**	1	11/13/08	11/13/08	J
Ammonia-N (Distilled)	SM4500NH3-C	8K05114	0.50	0.50	ND	1	11/05/08	11/05/08	
Biochemical Oxygen Demand	SM5210B	8K05133	0.50	2.0	**1.8**	1	11/05/08	11/10/08	J
Chloride	EPA 300.0	8K04068	0.25	0.50	**26**	1	11/04/08	11/04/08	
Fluoride	SM 4500-F-C	8K05004	0.020	0.10	**0.38**	1	11/05/08	11/05/08	
Nitrate-N	EPA 300.0	8K04068	1.2	2.2	**9.3**	20	11/04/08	11/04/08	
Nitrite-N	EPA 300.0	8K04068	0.090	0.15	ND	1	11/04/08	11/04/08	
Nitrate/Nitrite-N	EPA 300.0	8K04068	3.0	5.2	**9.3**	20	11/04/08	11/04/08	
Sulfate	EPA 300.0	8K04068	0.20	0.50	**22**	1	11/04/08	11/04/08	
Total Dissolved Solids	SM2540C	8K06055	10	10	**210**	1	11/06/08	11/06/08	
Total Suspended Solids	SM 2540D	8K11075	10	10	ND	1	11/11/08	11/11/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ml/l									
Total Settleable Solids	SM2540F	8K05070	0.10	0.10	ND	1	11/05/08	11/05/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	8K05073	0.040	1.0	**10**	1	11/05/08	11/05/08	
Sample ID: IRK0247-01 (Outfall 014 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	8K07091	0.90	4.0	ND	1	11/07/08	11/08/08	

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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 014 (IRK0247-01) - Water					
EPA 180.1	2	11/04/2008 09:25	11/04/2008 17:10	11/05/2008 08:05	11/05/2008 09:25
EPA 300.0	2	11/04/2008 09:25	11/04/2008 17:10	11/04/2008 20:00	11/04/2008 23:15
Nitrite-N				11/04/2008 20:00	11/04/2008 23:02
Filtration	1	11/04/2008 09:25	11/04/2008 17:10	11/04/2008 20:52	11/04/2008 20:55
SM2540F	2	11/04/2008 09:25	11/04/2008 17:10	11/05/2008 08:35	11/05/2008 08:35
SM5210B	2	11/04/2008 09:25	11/04/2008 17:10	11/05/2008 16:00	11/10/2008 11:30

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METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (EPA 8015 CADHS Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K06073 Extracted: 11/06/08											
Blank Analyzed: 11/11/2008 (8K06073-BLK1)											
DRO (C13 - C28)	ND	0.10	0.10	mg/l							
EFH (C13 - C40)	ND	0.10	0.10	mg/l							
Surrogate: n-Octacosane	*0.184*			*mg/l*	*0.200*		*92*	*40-125*			
LCS Analyzed: 11/11/2008 (8K06073-BS1)											**MNR1**
EFH (C13 - C40)	0.566	0.10	0.10	mg/l	0.750		75	40-115			
Surrogate: n-Octacosane	*0.174*			*mg/l*	*0.200*		*87*	*40-125*			
LCS Dup Analyzed: 11/11/2008 (8K06073-BSD1)											
EFH (C13 - C40)	0.486	0.10	0.10	mg/l	0.750		65	40-115	15	25	
Surrogate: n-Octacosane	*0.164*			*mg/l*	*0.200*		*82*	*40-125*			

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METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K10042 Extracted: 11/10/08											
Blank Analyzed: 11/10/2008 (8K10042-BLK1)											
GRO (C4 - C12)	ND	0.050	0.030	mg/l							
Surrogate: 4-BFB (FID)	*0.00731*			*mg/l*	*0.0100*		*73*	*65-140*			
LCS Analyzed: 11/10/2008 (8K10042-BS1)											
GRO (C4 - C12)	0.706	0.050	0.030	mg/l	0.800		88	80-120			
Surrogate: 4-BFB (FID)	*0.0132*			*mg/l*	*0.0100*		*132*	*65-140*			
Matrix Spike Analyzed: 11/10/2008 (8K10042-MS1)						**Source: IRK0413-07**					
GRO (C4 - C12)	0.228	0.050	0.030	mg/l	0.220	ND	103	65-140			
Surrogate: 4-BFB (FID)	*0.0130*			*mg/l*	*0.0100*		*130*	*65-140*			
Matrix Spike Dup Analyzed: 11/10/2008 (8K10042-MSD1)						**Source: IRK0413-07**					
GRO (C4 - C12)	0.219	0.050	0.030	mg/l	0.220	ND	100	65-140	4	20	
Surrogate: 4-BFB (FID)	*0.0123*			*mg/l*	*0.0100*		*123*	*65-140*			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K09012 Extracted: 11/09/08											
Blank Analyzed: 11/09/2008 (8K09012-BLK1)											
1,2-Dibromoethane (EDB)	ND	0.50	0.40	ug/l							
1,2,3-Trichloropropane	ND	1.0	0.40	ug/l							
Di-isopropyl Ether (DIPE)	ND	0.50	0.25	ug/l							
Methyl-tert-butyl Ether (MTBE)	ND	0.50	0.32	ug/l							
tert-Butanol (TBA)	ND	10	6.5	ug/l							
Surrogate: 4-Bromofluorobenzene	*23.2*			*ug/l*	*25.0*		*93*	*80-120*			
Surrogate: Dibromofluoromethane	*23.1*			*ug/l*	*25.0*		*93*	*80-120*			
Surrogate: Toluene-d8	*22.8*			*ug/l*	*25.0*		*91*	*80-120*			
LCS Analyzed: 11/09/2008 (8K09012-BS1)											
1,2-Dibromoethane (EDB)	25.6	0.50	0.40	ug/l	25.0		102	75-125			
1,2,3-Trichloropropane	30.9	1.0	0.40	ug/l	25.0		124	60-130			
Di-isopropyl Ether (DIPE)	18.0	0.50	0.25	ug/l	25.0		72	60-135			
Methyl-tert-butyl Ether (MTBE)	24.8	0.50	0.32	ug/l	25.0		99	60-135			
tert-Butanol (TBA)	160	10	6.5	ug/l	125		128	70-135			
Surrogate: 4-Bromofluorobenzene	*24.4*			*ug/l*	*25.0*		*98*	*80-120*			
Surrogate: Dibromofluoromethane	*23.8*			*ug/l*	*25.0*		*95*	*80-120*			
Surrogate: Toluene-d8	*23.4*			*ug/l*	*25.0*		*94*	*80-120*			
Matrix Spike Analyzed: 11/09/2008 (8K09012-MS1)						**Source: IRK0241-02**					
1,2-Dibromoethane (EDB)	23.8	0.50	0.40	ug/l	25.0	ND	95	70-130			
1,2,3-Trichloropropane	20.2	1.0	0.40	ug/l	25.0	ND	81	55-135			
Di-isopropyl Ether (DIPE)	17.3	0.50	0.25	ug/l	25.0	ND	69	60-140			
Methyl-tert-butyl Ether (MTBE)	22.8	0.50	0.32	ug/l	25.0	ND	91	55-145			
tert-Butanol (TBA)	410	10	6.5	ug/l	125	ND	328	65-140			*M1*
Surrogate: 4-Bromofluorobenzene	*25.0*			*ug/l*	*25.0*		*100*	*80-120*			
Surrogate: Dibromofluoromethane	*25.2*			*ug/l*	*25.0*		*101*	*80-120*			
Surrogate: Toluene-d8	*23.4*			*ug/l*	*25.0*		*93*	*80-120*			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K09012 Extracted: 11/09/08											
Matrix Spike Dup Analyzed: 11/09/2008 (8K09012-MSD1)						**Source: IRK0241-02**					
1,2-Dibromoethane (EDB)	24.3	0.50	0.40	ug/l	25.0	ND	97	70-130	2	25	
1,2,3-Trichloropropane	20.4	1.0	0.40	ug/l	25.0	ND	82	55-135	1	30	
Di-isopropyl Ether (DIPE)	17.7	0.50	0.25	ug/l	25.0	ND	71	60-140	2	25	
Methyl-tert-butyl Ether (MTBE)	23.4	0.50	0.32	ug/l	25.0	ND	93	55-145	3	25	
tert-Butanol (TBA)	324	10	6.5	ug/l	125	ND	259	65-140	24	25	*M1*
Surrogate: 4-Bromofluorobenzene	*25.2*			*ug/l*	*25.0*		*101*	*80-120*			
Surrogate: Dibromofluoromethane	*24.7*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: Toluene-d8	*23.4*			*ug/l*	*25.0*		*94*	*80-120*			

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METHOD BLANK/QC DATA

1,4-DIOXANE BY DIRECT INJECTION GCMS - SINGLE ION MONITORING (SIM)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K12018 Extracted: 11/12/08											
Blank Analyzed: 11/12/2008 (8K12018-BLK1)											
1,4-Dioxane	ND	2.0	1.0	ug/l							
Surrogate: Dibromofluoromethane	*1.03*			*ug/l*	*1.00*		*103*	*80-120*			
LCS Analyzed: 11/12/2008 (8K12018-BS1)											
1,4-Dioxane	8.38	2.0	1.0	ug/l	10.0		84	70-125			
Surrogate: Dibromofluoromethane	*1.05*			*ug/l*	*1.00*		*105*	*80-120*			
Matrix Spike Analyzed: 11/12/2008 (8K12018-MS1)						**Source: IRK0247-01**					
1,4-Dioxane	8.68	2.0	1.0	ug/l	10.0	ND	87	70-130			
Surrogate: Dibromofluoromethane	*1.09*			*ug/l*	*1.00*		*109*	*80-120*			
Matrix Spike Dup Analyzed: 11/12/2008 (8K12018-MSD1)						**Source: IRK0247-01**					
1,4-Dioxane	8.90	2.0	1.0	ug/l	10.0	ND	89	70-130	3	30	
Surrogate: Dibromofluoromethane	*1.10*			*ug/l*	*1.00*		*110*	*80-120*			

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METHOD BLANK/QC DATA

ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K09025 Extracted: 11/09/08											
Blank Analyzed: 11/11/2008 (8K09025-BLK1)											
Naphthalene	ND	10	3.0	ug/l							
N-Nitrosodimethylamine	ND	20	2.5	ug/l							
Surrogate: 2,4,6-Tribromophenol	*187*			*ug/l*	*200*		*94*	*40-120*			
Surrogate: 2-Fluorobiphenyl	*76.8*			*ug/l*	*100*		*77*	*50-120*			
Surrogate: 2-Fluorophenol	*134*			*ug/l*	*200*		*67*	*30-120*			
Surrogate: Nitrobenzene-d5	*78.5*			*ug/l*	*100*		*79*	*45-120*			
Surrogate: Phenol-d6	*145*			*ug/l*	*200*		*73*	*35-120*			
Surrogate: Terphenyl-d14	*103*			*ug/l*	*100*		*103*	*50-125*			
LCS Analyzed: 11/11/2008 (8K09025-BS1)											**MNR1**
Naphthalene	66.4	10	3.0	ug/l	100		66	55-120			
N-Nitrosodimethylamine	66.4	20	2.5	ug/l	100		66	45-120			
Surrogate: 2,4,6-Tribromophenol	*169*			*ug/l*	*200*		*85*	*40-120*			
Surrogate: 2-Fluorobiphenyl	*74.2*			*ug/l*	*100*		*74*	*50-120*			
Surrogate: 2-Fluorophenol	*108*			*ug/l*	*200*		*54*	*30-120*			
Surrogate: Nitrobenzene-d5	*75.9*			*ug/l*	*100*		*76*	*45-120*			
Surrogate: Phenol-d6	*123*			*ug/l*	*200*		*62*	*35-120*			
Surrogate: Terphenyl-d14	*92.0*			*ug/l*	*100*		*92*	*50-125*			
LCS Dup Analyzed: 11/11/2008 (8K09025-BSD1)											
Naphthalene	68.3	10	3.0	ug/l	100		68	55-120	3	20	
N-Nitrosodimethylamine	65.4	20	2.5	ug/l	100		65	45-120	2	20	
Surrogate: 2,4,6-Tribromophenol	*176*			*ug/l*	*200*		*88*	*40-120*			
Surrogate: 2-Fluorobiphenyl	*76.2*			*ug/l*	*100*		*76*	*50-120*			
Surrogate: 2-Fluorophenol	*112*			*ug/l*	*200*		*56*	*30-120*			
Surrogate: Nitrobenzene-d5	*77.1*			*ug/l*	*100*		*77*	*45-120*			
Surrogate: Phenol-d6	*133*			*ug/l*	*200*		*66*	*35-120*			
Surrogate: Terphenyl-d14	*98.7*			*ug/l*	*100*		*99*	*50-125*			

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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: 8K05118 Extracted: 11/05/08											
Blank Analyzed: 11/06/2008 (8K05118-BLK1)											
Boron	0.0217	0.050	0.020	mg/l							*J*
LCS Analyzed: 11/06/2008 (8K05118-BS1)											
Boron	0.480	0.050	0.020	mg/l	0.500		96	85-115			
Matrix Spike Analyzed: 11/06/2008 (8K05118-MS1)						**Source: IRK0247-01**					
Boron	0.604	0.050	0.020	mg/l	0.500	0.135	94	70-130			
Matrix Spike Analyzed: 11/06/2008 (8K05118-MS2)						**Source: IRK0115-01**					
Boron	0.763	0.050	0.020	mg/l	0.500	0.305	92	70-130			
Matrix Spike Dup Analyzed: 11/06/2008 (8K05118-MSD1)						**Source: IRK0247-01**					
Boron	0.583	0.050	0.020	mg/l	0.500	0.135	90	70-130	3	20	
Batch: 8K05119 Extracted: 11/05/08											
Blank Analyzed: 11/05/2008 (8K05119-BLK1)											
Cadmium	ND	1.0	0.11	ug/l							
Copper	ND	2.0	0.75	ug/l							
Lead	ND	1.0	0.30	ug/l							
Selenium	ND	2.0	0.30	ug/l							
Zinc	2.72	20	2.5	ug/l							*J*
LCS Analyzed: 11/05/2008 (8K05119-BS1)											
Cadmium	80.2	1.0	0.11	ug/l	80.0		100	85-115			
Copper	83.5	2.0	0.75	ug/l	80.0		104	85-115			
Lead	79.9	1.0	0.30	ug/l	80.0		100	85-115			
Selenium	82.9	2.0	0.30	ug/l	80.0		104	85-115			
Zinc	85.8	20	2.5	ug/l	80.0		107	85-115			

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THE LEADER IN ENVIRONMENTAL TESTING

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

Project ID: Routine Outfall 014
APTF Test Stand
Report Number: IRK0247

Sampled: 11/04/08
Received: 11/04/08

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K05119 Extracted: 11/05/08											
Matrix Spike Analyzed: 11/05/2008 (8K05119-MS1)						**Source: IRJ3004-01**					
Cadmium	74.0	1.0	0.11	ug/l	80.0	ND	93	70-130			
Copper	78.2	2.0	0.75	ug/l	80.0	1.62	96	70-130			
Lead	68.9	1.0	0.30	ug/l	80.0	ND	86	70-130			
Selenium	75.9	2.0	0.30	ug/l	80.0	1.01	94	70-130			
Zinc	99.4	20	2.5	ug/l	80.0	29.1	88	70-130			
Matrix Spike Analyzed: 11/05/2008 (8K05119-MS2)						**Source: IRJ3009-04**					
Cadmium	75.7	1.0	0.11	ug/l	80.0	0.756	94	70-130			
Copper	85.2	2.0	0.75	ug/l	80.0	7.96	97	70-130			
Lead	67.2	1.0	0.30	ug/l	80.0	0.378	84	70-130			
Selenium	77.9	2.0	0.30	ug/l	80.0	1.82	95	70-130			
Zinc	96.8	20	2.5	ug/l	80.0	29.7	84	70-130			
Matrix Spike Dup Analyzed: 11/05/2008 (8K05119-MSD1)						**Source: IRJ3004-01**					
Cadmium	77.4	1.0	0.11	ug/l	80.0	ND	97	70-130	4	20	
Copper	82.1	2.0	0.75	ug/l	80.0	1.62	101	70-130	5	20	
Lead	72.1	1.0	0.30	ug/l	80.0	ND	90	70-130	4	20	
Selenium	79.0	2.0	0.30	ug/l	80.0	1.01	97	70-130	4	20	
Zinc	103	20	2.5	ug/l	80.0	29.1	93	70-130	4	20	

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DISSOLVED METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 8K05121 Extracted: 11/05/08											
Blank Analyzed: 11/05/2008 (8K05121-BLK1)											
Cadmium	ND	1.0	0.11	ug/l							
Copper	ND	2.0	0.75	ug/l							
Lead	ND	1.0	0.30	ug/l							
Selenium	ND	2.0	0.30	ug/l							
Zinc	ND	20	2.5	ug/l							
LCS Analyzed: 11/05/2008 (8K05121-BS1)											
Cadmium	76.3	1.0	0.11	ug/l	80.0		95	85-115			
Copper	75.4	2.0	0.75	ug/l	80.0		94	85-115			
Lead	78.3	1.0	0.30	ug/l	80.0		98	85-115			
Selenium	77.7	2.0	0.30	ug/l	80.0		97	85-115			
Zinc	75.9	20	2.5	ug/l	80.0		95	85-115			
Matrix Spike Analyzed: 11/05/2008 (8K05121-MS1)						**Source: IRJ3018-01**					
Cadmium	74.4	1.0	0.11	ug/l	80.0	ND	93	70-130			
Copper	76.0	2.0	0.75	ug/l	80.0	1.53	93	70-130			
Lead	70.7	1.0	0.30	ug/l	80.0	ND	88	70-130			
Selenium	75.7	2.0	0.30	ug/l	80.0	0.547	94	70-130			
Zinc	72.5	20	2.5	ug/l	80.0	ND	91	70-130			
Matrix Spike Dup Analyzed: 11/05/2008 (8K05121-MSD1)						**Source: IRJ3018-01**					
Cadmium	80.2	1.0	0.11	ug/l	80.0	ND	100	70-130	7	20	
Copper	82.2	2.0	0.75	ug/l	80.0	1.53	101	70-130	8	20	
Lead	78.1	1.0	0.30	ug/l	80.0	ND	98	70-130	10	20	
Selenium	80.2	2.0	0.30	ug/l	80.0	0.547	100	70-130	6	20	
Zinc	78.8	20	2.5	ug/l	80.0	ND	99	70-130	8	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: 8K05122 Extracted: 11/05/08											
Blank Analyzed: 11/07/2008 (8K05122-BLK1)											
Boron	ND	0.050	0.020	mg/l							
LCS Analyzed: 11/07/2008 (8K05122-BS1)											
Boron	0.461	0.050	0.020	mg/l	0.500		92	85-115			
Matrix Spike Analyzed: 11/07/2008 (8K05122-MS1)						**Source: IRK0170-15**					
Boron	14.0	0.25	0.10	mg/l	0.500	13.8	42	70-130			*MHA*
Matrix Spike Analyzed: 11/07/2008 (8K05122-MS2)						**Source: IRK0170-02**					
Boron	1.41	0.050	0.020	mg/l	0.500	0.904	102	70-130			
Matrix Spike Dup Analyzed: 11/07/2008 (8K05122-MSD1)						**Source: IRK0170-15**					
Boron	14.5	0.25	0.10	mg/l	0.500	13.8	137	70-130	3	20	*MHA*

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