

# 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 009

Report Number: IRK2835

Sampled: 11/26/08  
Received: 11/26/08

## MCAWW 245.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.										
Reporting Units: ug/L										
Mercury	J/ <del>X</del> III, DNQ	MCAWW 245.1	8336128	0.027	0.2	0.055	1	12/01/08	12/01/08	J

# LEVEL IV

### TestAmerica Irvine

Joseph Doak  
Project Manager

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Arcadia, CA 91007  
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Project ID: Semi-Annual Outfall 009

Report Number: IRK2835

Sampled: 11/26/08

Received: 11/26/08

## MCAWW 245.1 Diss

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: ug/L									
Mercury-diss	UJ / <del>III</del>	MCAWW 245.1 Diss	8336136	0.027	0.2	ND	1	12/01/08	12/01/08

# LEVEL IV

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TestAmerica Irvine

Client Sample ID: IRK2835-01

Radiochemistry

outfall 009

Lab Sample ID: F8L030238-001  
 Work Order: K309L  
 Matrix: WATER

Date Collected: 11/26/08 1455  
 Date Received: 11/29/08 0915

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	mdc	Prep Date	Analysis Date
<b>Gamma Cs-137 &amp; Hits by EPA 901.1 MOD</b>							
Cesium 137	UJ/H 0.9	U	7.5	20.0	14	12/09/08	12/21/08
Potassium 40	↓ ↓ -40	U	210		230	12/09/08	12/21/08
<b>Gross Alpha/Beta EPA 900</b>							
Gross Alpha	J/H,C 1.22	J	0.76	3.00	0.98	12/04/08	12/07/08
Gross Beta	↓ ↓ 1.60	J	0.98	4.00	1.5	12/04/08	12/07/08
<b>Radium 226 by EPA 903.0 MOD</b>							
Radium (226)	UJ/H,C 0.057	U	0.074	1.00	0.12	12/03/08	12/26/08
<b>Radium 228 by GFPC EPA 904 MOD</b>							
Radium 228	UJ/H 0.51	U	0.51	1.00	0.82	12/03/08	12/24/08
<b>TRITIUM (Distill) by EPA 906.0 MOD</b>							
Tritium	U 100	U	180	500	290	12/17/08	12/19/08
<b>SR-90 BY GFPC EPA-905 MOD</b>							
Strontium 90	UJ/H 0.23	U	0.24	3.00	0.38	12/03/08	12/15/08
<b>Total Uranium by KPA ASTM 5174-91</b>							
Total Uranium	J/H 0.244	J	0.026	0.693	0.21	12/10/08	12/12/08

KK5 1/29/09

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.

## **APPENDIX G**

### **Section 11**

Outfall 009, November 26, 2008

Test America Analytical Laboratory Report

## LABORATORY REPORT

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

Project: Semi-Annual Outfall 009

Sampled: 11/26/08  
Received: 11/26/08  
Issued: 01/29/09 13:29

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

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

## 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**  
IRK2835-01

**CLIENT ID**  
Outfall 009

**MATRIX**  
Water

Reviewed By:



**TestAmerica Irvine**

Trupti Mistry For Joseph Doak  
Project Manager

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

Project ID: Semi-Annual Outfall 009

Report Number: IRK2835

Sampled: 11/26/08

Received: 11/26/08

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	8L03086	0.20	2.0	<b>0.59</b>	1	12/03/08	12/06/08	J
Cadmium	EPA 200.8	8L03086	0.11	1.0	<b>0.64</b>	1	12/03/08	12/06/08	J
Copper	EPA 200.8	8L03086	0.75	2.0	<b>6.7</b>	1	12/03/08	12/06/08	B
Lead	EPA 200.8	8L03086	0.30	1.0	<b>2.5</b>	1	12/03/08	12/06/08	
Thallium	EPA 200.8	8L03086	0.20	1.0	ND	1	12/03/08	12/06/08	

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Report Number: IRK2835

Sampled: 11/26/08  
 Received: 11/26/08

## DISSOLVED METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8-Diss	8L03087	0.20	2.0	<b>0.50</b>	1	12/03/08	12/07/08	J
Cadmium	EPA 200.8-Diss	8L03087	0.11	1.0	ND	1	12/03/08	12/07/08	
Copper	EPA 200.8-Diss	8L03087	0.75	2.0	<b>4.8</b>	1	12/03/08	12/07/08	
Lead	EPA 200.8-Diss	8L03087	0.30	1.0	<b>0.42</b>	1	12/03/08	12/07/08	J
Thallium	EPA 200.8-Diss	8L03087	0.20	1.0	ND	1	12/03/08	12/07/08	

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Report Number: IRK2835

Sampled: 11/26/08

Received: 11/26/08

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: mg/l									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	8L09056	1.4	4.8	<b>2.8</b>	1	12/09/08	12/09/08	J
Chloride	EPA 300.0	8K26165	0.25	0.50	<b>5.6</b>	1	11/26/08	11/27/08	
Nitrate/Nitrite-N	EPA 300.0	8K26165	0.15	0.26	<b>0.95</b>	1	11/26/08	11/27/08	
Sulfate	EPA 300.0	8K26165	0.20	0.50	<b>23</b>	1	11/26/08	11/27/08	
Total Dissolved Solids	SM2540C	8L01069	10	10	<b>110</b>	1	12/01/08	12/01/08	
<b>Sample ID: IRK2835-01 (Outfall 009 - Water)</b>									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	8L02046	0.90	4.0	ND	1	12/02/08	12/02/08	

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Sampled: 11/26/08  
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## DIOXIN (EPA 1613)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
<b>Reporting Units: ug/L</b>									
2,3,7,8-TCDD	1613-Dioxin-HR Alta	1751	0.000001050	0.00000494	ND	1	12/09/08	12/11/08	
1,2,3,7,8-PeCDD	1613-Dioxin-HR Alta	1751	0.000001730	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,4,7,8-HxCDD	1613-Dioxin-HR Alta	1751	0.000004710	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,6,7,8-HxCDD	1613-Dioxin-HR Alta	1751	0.000004480	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,7,8,9-HxCDD	1613-Dioxin-HR Alta	1751	0.000004270	0.0000247	ND	1	12/09/08	12/11/08	
<b>1,2,3,4,6,7,8-HpCDD</b>	1613-Dioxin-HR Alta	1751	0.000002010	0.0000247	<b>0.0000356</b>	1	12/09/08	12/11/08	
<b>OCDD</b>	1613-Dioxin-HR Alta	1751	0.000002450	0.0000494	<b>0.000428</b>	1	12/09/08	12/11/08	
2,3,7,8-TCDF	1613-Dioxin-HR Alta	1751	0.000001090	0.0000494	ND	1	12/09/08	12/11/08	
1,2,3,7,8-PeCDF	1613-Dioxin-HR Alta	1751	0.0000017	0.0000247	ND	1	12/09/08	12/11/08	
2,3,4,7,8-PeCDF	1613-Dioxin-HR Alta	1751	0.000001930	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,4,7,8-HxCDF	1613-Dioxin-HR Alta	1751	0.000001610	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,6,7,8-HxCDF	1613-Dioxin-HR Alta	1751	0.000001730	0.0000247	ND	1	12/09/08	12/11/08	
2,3,4,6,7,8-HxCDF	1613-Dioxin-HR Alta	1751	0.000001960	0.0000247	ND	1	12/09/08	12/11/08	
1,2,3,7,8,9-HxCDF	1613-Dioxin-HR Alta	1751	0.000002480	0.0000247	ND	1	12/09/08	12/11/08	
<b>1,2,3,4,6,7,8-HpCDF</b>	1613-Dioxin-HR Alta	1751	0.000001700	0.0000247	<b>0.00000639</b>	1	12/09/08	12/11/08	Jb
1,2,3,4,7,8,9-HpCDF	1613-Dioxin-HR Alta	1751	0.000002410	0.0000247	ND	1	12/09/08	12/11/08	
<b>OCDF</b>	1613-Dioxin-HR Alta	1751	0.000003660	0.0000494	<b>0.0000245</b>	1	12/09/08	12/11/08	Jb
Total TCDD	1613-Dioxin-HR Alta	1751	.000001050	0.0000494	ND	1	12/09/08	12/11/08	
Total PeCDD	1613-Dioxin-HR Alta	1751	.00000173	0.0000247	ND	1	12/09/08	12/11/08	
Total HxCDD	1613-Dioxin-HR Alta	1751	.00000427	0.0000247	ND	1	12/09/08	12/11/08	
<b>Total HpCDD</b>	1613-Dioxin-HR Alta	1751	.00000201	0.0000247	<b>0.0000747</b>	1	12/09/08	12/11/08	
Total TCDF	1613-Dioxin-HR Alta	1751	.000001090	0.0000494	ND	1	12/09/08	12/11/08	
Total PeCDF	1613-Dioxin-HR Alta	1751	.0000017	0.0000247	ND	1	12/09/08	12/11/08	
Total HxCDF	1613-Dioxin-HR Alta	1751	.00000161	0.0000247	ND	1	12/09/08	12/11/08	
<b>Total HpCDF</b>	1613-Dioxin-HR Alta	1751	.0000017	0.0000247	<b>0.0000151</b>	1	12/09/08	12/11/08	

Surrogate: 13C-2,3,7,8-TCDD (25-164%)	77.9 %
Surrogate: 13C-1,2,3,7,8-PeCDD (25-181%)	65.4 %
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-141%)	67 %
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-130%)	76.9 %
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23-140%)	78.4 %
Surrogate: 13C-OCDD (17-157%)	65.2 %
Surrogate: 13C-2,3,7,8-TCDF (24-169%)	76.8 %
Surrogate: 13C-1,2,3,7,8-PeCDF (24-185%)	60.8 %
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178%)	60.8 %
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-152%)	64 %
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-123%)	63 %
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-136%)	66.1 %
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-147%)	75.4 %
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28-143%)	69.9 %
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26-138%)	70.3 %
Surrogate: 13C-OCDF (17-157%)	66.8 %

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## DIOXIN (EPA 1613)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: ug/L									
Surrogate: 37Cl-2,3,7,8-TCDD (35-197%)					90 %				

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Sampled: 11/26/08

Received: 11/26/08

## MCAWW 245.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: ug/L									
Mercury	MCAWW 245.1	8336128	0.027	0.2	<b>0.055</b>	1	12/01/08	12/01/08	J

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Sampled: 11/26/08

Received: 11/26/08

## MCAWW 245.1 Diss

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IRK2835-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: ug/L									
Mercury-diss	MCAWW 245.1 Diss	8336136	0.027	0.2	ND	1	12/01/08	12/01/08	

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Report Number: IRK2835

Sampled: 11/26/08

Received: 11/26/08

## SHORT HOLD TIME DETAIL REPORT

	<b>Hold Time (in days)</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>	<b>Date/Time Extracted</b>	<b>Date/Time Analyzed</b>
<b>Sample ID: Outfall 009 (IRK2835-01) - Water</b> EPA 300.0	2	11/26/2008 14:55	11/26/2008 20:45	11/26/2008 22:00	11/27/2008 05:47

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Report Number: IRK2835

Sampled: 11/26/08  
 Received: 11/26/08

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 8L03086 Extracted: 12/03/08</b>											
<b>Blank Analyzed: 12/08/2008 (8L03086-BLK1)</b>											
Antimony	ND	2.0	0.20	ug/l							
Cadmium	ND	1.0	0.11	ug/l							
Copper	1.45	2.0	0.75	ug/l							J
Lead	ND	1.0	0.30	ug/l							
Thallium	ND	1.0	0.20	ug/l							
<b>LCS Analyzed: 12/06/2008-12/08/2008 (8L03086-BS1)</b>											
Antimony	79.9	2.0	0.20	ug/l	80.0		100	85-115			
Cadmium	78.8	1.0	0.11	ug/l	80.0		98	85-115			
Copper	75.8	2.0	0.75	ug/l	80.0		95	85-115			
Lead	78.9	1.0	0.30	ug/l	80.0		99	85-115			
Thallium	79.4	1.0	0.20	ug/l	80.0		99	85-115			
<b>Matrix Spike Analyzed: 12/06/2008 (8L03086-MS1) Source: IRK2649-01</b>											
Antimony	82.2	2.0	0.20	ug/l	80.0	0.520	102	70-130			
Cadmium	77.9	1.0	0.11	ug/l	80.0	ND	97	70-130			
Copper	81.1	2.0	0.75	ug/l	80.0	1.49	99	70-130			
Lead	76.8	1.0	0.30	ug/l	80.0	ND	96	70-130			
Thallium	78.4	1.0	0.20	ug/l	80.0	0.227	98	70-130			
<b>Matrix Spike Analyzed: 12/06/2008 (8L03086-MS2) Source: IRK2879-04</b>											
Antimony	83.8	2.0	0.20	ug/l	80.0	0.362	104	70-130			
Cadmium	76.6	1.0	0.11	ug/l	80.0	0.791	95	70-130			
Copper	91.4	2.0	0.75	ug/l	80.0	3.23	110	70-130			
Lead	76.4	1.0	0.30	ug/l	80.0	2.29	93	70-130			
Thallium	76.6	1.0	0.20	ug/l	80.0	0.232	95	70-130			
<b>Matrix Spike Dup Analyzed: 12/06/2008 (8L03086-MSD1) Source: IRK2649-01</b>											
Antimony	84.8	2.0	0.20	ug/l	80.0	0.520	105	70-130	3	20	
Cadmium	79.7	1.0	0.11	ug/l	80.0	ND	100	70-130	2	20	
Copper	81.0	2.0	0.75	ug/l	80.0	1.49	99	70-130	0	20	
Lead	77.2	1.0	0.30	ug/l	80.0	ND	97	70-130	1	20	
Thallium	78.8	1.0	0.20	ug/l	80.0	0.227	98	70-130	1	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
<b>Batch: 8L03087 Extracted: 12/03/08</b>											
<b>Blank Analyzed: 12/06/2008 (8L03087-BLK1)</b>											
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							
<b>LCS Analyzed: 12/06/2008 (8L03087-BS1)</b>											
Antimony	85.8	2.0	0.20	ug/l	80.0		107	85-115			
Cadmium	82.7	1.0	0.11	ug/l	80.0		103	85-115			
Copper	84.8	2.0	0.75	ug/l	80.0		106	85-115			
Lead	79.7	1.0	0.30	ug/l	80.0		100	85-115			
Thallium	82.4	1.0	0.20	ug/l	80.0		103	85-115			
<b>Matrix Spike Analyzed: 12/06/2008 (8L03087-MS1) Source: IRK2490-02</b>											
Antimony	84.7	2.0	0.20	ug/l	80.0	0.428	105	70-130			
Cadmium	79.2	1.0	0.11	ug/l	80.0	ND	99	70-130			
Copper	77.4	2.0	0.75	ug/l	80.0	1.01	95	70-130			
Lead	74.9	1.0	0.30	ug/l	80.0	ND	94	70-130			
Thallium	77.4	1.0	0.20	ug/l	80.0	0.201	96	70-130			
<b>Matrix Spike Analyzed: 12/07/2008 (8L03087-MS2) Source: IRK2847-01</b>											
Antimony	83.3	2.0	0.20	ug/l	80.0	0.347	104	70-130			
Cadmium	76.8	1.0	0.11	ug/l	80.0	ND	96	70-130			
Copper	76.9	2.0	0.75	ug/l	80.0	1.71	94	70-130			
Lead	71.2	1.0	0.30	ug/l	80.0	ND	89	70-130			
Thallium	73.9	1.0	0.20	ug/l	80.0	0.206	92	70-130			
<b>Matrix Spike Dup Analyzed: 12/06/2008 (8L03087-MSD1) Source: IRK2490-02</b>											
Antimony	96.7	2.0	0.20	ug/l	80.0	0.428	120	70-130	13	20	
Cadmium	89.9	1.0	0.11	ug/l	80.0	ND	112	70-130	13	20	
Copper	89.0	2.0	0.75	ug/l	80.0	1.01	110	70-130	14	20	
Lead	85.3	1.0	0.30	ug/l	80.0	ND	107	70-130	13	20	
Thallium	88.4	1.0	0.20	ug/l	80.0	0.201	110	70-130	13	20	

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Trupti Mistry For Joseph Doak  
 Project Manager

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

Project ID: Semi-Annual Outfall 009

Report Number: IRK2835

Sampled: 11/26/08  
 Received: 11/26/08

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8K26165 Extracted: 11/26/08</b>											
<b>Blank Analyzed: 11/27/2008 (8K26165-BLK1)</b>											
Chloride	ND	0.50	0.25	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.15	mg/l							
Sulfate	ND	0.50	0.20	mg/l							
<b>LCS Analyzed: 11/27/2008 (8K26165-BS1)</b>											
Chloride	4.60	0.50	0.25	mg/l	5.00		92	90-110			
Sulfate	9.39	0.50	0.20	mg/l	10.0		94	90-110			
<b>Matrix Spike Analyzed: 11/27/2008 (8K26165-MS1) Source: IRK2828-01</b>											
Chloride	89.3	10	5.0	mg/l	50.0	43.9	91	80-120			
Sulfate	135	10	4.0	mg/l	100	47.0	88	80-120			
<b>Matrix Spike Analyzed: 11/27/2008 (8K26165-MS2) Source: IRK2848-01</b>											
Chloride	60.1	10	5.0	mg/l	50.0	13.2	94	80-120			
Sulfate	105	10	4.0	mg/l	100	8.27	97	80-120			
<b>Matrix Spike Dup Analyzed: 11/27/2008 (8K26165-MSD1) Source: IRK2828-01</b>											
Chloride	88.7	10	5.0	mg/l	50.0	43.9	89	80-120	1	20	
Sulfate	139	10	4.0	mg/l	100	47.0	92	80-120	2	20	
<b>Batch: 8L01069 Extracted: 12/01/08</b>											
<b>Blank Analyzed: 12/01/2008 (8L01069-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 12/01/2008 (8L01069-BS1)</b>											
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	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8L01069 Extracted: 12/01/08</b>											
<b>Duplicate Analyzed: 12/01/2008 (8L01069-DUP1)</b>						<b>Source: IRK2818-01</b>					
Total Dissolved Solids	192	10	10	mg/l		195			2	10	
<b>Batch: 8L02046 Extracted: 12/02/08</b>											
<b>Blank Analyzed: 12/02/2008 (8L02046-BLK1)</b>											
Perchlorate	ND	4.0	0.90	ug/l							
<b>LCS Analyzed: 12/02/2008 (8L02046-BS1)</b>											
Perchlorate	26.8	4.0	0.90	ug/l	25.0		107	85-115			
<b>Matrix Spike Analyzed: 12/02/2008 (8L02046-MS1)</b>						<b>Source: IRK2692-04</b>					
Perchlorate	27.1	4.0	0.90	ug/l	25.0	ND	109	80-120			
<b>Matrix Spike Dup Analyzed: 12/02/2008 (8L02046-MSD1)</b>						<b>Source: IRK2692-04</b>					
Perchlorate	27.5	4.0	0.90	ug/l	25.0	ND	110	80-120	1	20	
<b>Batch: 8L09056 Extracted: 12/09/08</b>											
<b>Blank Analyzed: 12/09/2008 (8L09056-BLK1)</b>											
Hexane Extractable Material (Oil & Grease)	ND	5.0	1.4	mg/l							
<b>LCS Analyzed: 12/09/2008 (8L09056-BS1)</b>											
Hexane Extractable Material (Oil & Grease)	19.4	5.0	1.4	mg/l	20.2		96	78-114			MNR1
<b>LCS Dup Analyzed: 12/09/2008 (8L09056-BSD1)</b>											
Hexane Extractable Material (Oil & Grease)	19.4	5.0	1.4	mg/l	20.2		96	78-114	0	11	

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## METHOD BLANK/QC DATA

### DIOXIN (EPA 1613)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 1751 Extracted: 12/09/08</b>											
<b>Blank Analyzed: 12/11/2008 (MB001)</b>						<b>Source:</b>					
2,3,7,8-TCDD	ND	0.0000500	0.0000105	ug/L				50-150		25	
1,2,3,7,8-PeCDD	ND	0.0000250	0.0000167	ug/L				50-150		25	
1,2,3,4,7,8-HxCDD	ND	0.0000250	0.0000324	ug/L				50-150		25	
1,2,3,6,7,8-HxCDD	ND	0.0000250	0.0000316	ug/L				50-150		25	
1,2,3,7,8,9-HxCDD	ND	0.0000250	0.0000297	ug/L				50-150		25	
1,2,3,4,6,7,8-HpCDD	ND	0.0000250	0.0000531	ug/L				50-150		25	
OCDD	ND	0.0000500	0.0000127	ug/L				50-150		25	
2,3,7,8-TCDF	ND	0.0000500	0.0000080	ug/L				50-150		25	
1,2,3,7,8-PeCDF	ND	0.0000250	0.0000202	ug/L				50-150		25	
2,3,4,7,8-PeCDF	ND	0.0000250	0.0000222	ug/L				50-150		25	
1,2,3,4,7,8-HxCDF	ND	0.0000250	0.0000133	ug/L				50-150		25	
1,2,3,6,7,8-HxCDF	ND	0.0000250	0.0000143	ug/L				50-150		25	
2,3,4,6,7,8-HxCDF	ND	0.0000250	0.0000016	ug/L				50-150		25	
1,2,3,7,8,9-HxCDF	ND	0.0000250	0.0000216	ug/L				50-150		25	
1,2,3,4,6,7,8-HpCDF	ND	0.0000250	0.0000199	ug/L				50-150		25	
1,2,3,4,7,8,9-HpCDF	ND	0.0000250	0.0000024	ug/L				50-150		25	
OCDF	ND	0.0000500	0.0000046	ug/L				50-150		25	
Total TCDD	ND	0.0000500	0.0000105	ug/L				50-150		25	
Total PeCDD	ND	0.0000250	0.0000167	ug/L				50-150		25	
Total HxCDD	ND	0.0000250	0.0000297	ug/L				50-150		25	
Total HpCDD	ND	0.0000250	0.0000531	ug/L				50-150		25	
Total TCDF	ND	0.0000500	0.0000080	ug/L				50-150		25	
Total PeCDF	ND	0.0000250	0.0000202	ug/L				50-150		25	
Total HxCDF	ND	0.0000250	0.0000133	ug/L				50-150		25	
Total HpCDF	ND	0.0000250	0.0000199	ug/L				50-150		25	
Surrogate: 13C-2,3,7,8-TCDD	0.00163			ug/L	2000		82	50-150			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.00144			ug/L	2000		72	50-150			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.00146			ug/L	2000		73	50-150			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.00161			ug/L	2000		80	50-150			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.00154			ug/L	2000		77	50-150			
Surrogate: 13C-OCDD	0.00246			ug/L	4000		62	50-150			
Surrogate: 13C-2,3,7,8-TCDF	0.00170			ug/L	2000		85	50-150			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00141			ug/L	2000		71	50-150			
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00148			ug/L	2000		74	50-150			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.00136			ug/L	2000		68	50-150			

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Project ID: Semi-Annual Outfall 009

Report Number: IRK2835

Sampled: 11/26/08  
 Received: 11/26/08

## METHOD BLANK/QC DATA

### DIOXIN (EPA 1613)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1751 Extracted: 12/09/08</b>											
<b>Blank Analyzed: 12/11/2008 (MB001)</b>											
						<b>Source:</b>					
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00135			ug/L	2000		67	50-150			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.00146			ug/L	2000		73	50-150			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.00151			ug/L	2000		76	50-150			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.00135			ug/L	2000		67	50-150			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00147			ug/L	2000		74	50-150			
Surrogate: 13C-OCDF	0.00243			ug/L	4000		61	50-150			
Surrogate: 37Cl-2,3,7,8-TCDD	0.000803			ug/L	800		100	50-150			
<b>LCS Analyzed: 12/11/2008 (OPR001)</b>											
						<b>Source:</b>					
2,3,7,8-TCDD	9.24	5.00	0.840	ug/L	10		92	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	47.7	25.0	1.18	ug/L	50		95	50-150		25	
1,2,3,6,7,8-HxCDD	48.5	25.0	1.69	ug/L	50		97	50-150		25	
1,2,3,7,8,9-HxCDD	47.8	25.0	1.18	ug/L	50		96	50-150		25	
1,2,3,4,6,7,8-HpCDD	46.5	25.0	2.01	ug/L	50		93	50-150		25	
OCDD	94.5	50.0	2.45	ug/L	100		95	50-150		25	
2,3,7,8-TCDF	9.29	5.00	0.970	ug/L	10		93	50-150		25	
1,2,3,7,8-PeCDF	44.8	25.0	1.09	ug/L	50		90	50-150		25	
2,3,4,7,8-PeCDF	44.8	25.0	1.48	ug/L	50		90	50-150		25	
1,2,3,4,7,8-HxCDF	46.0	25.0	1.06	ug/L	50		92	50-150		25	
1,2,3,6,7,8-HxCDF	46.8	25.0	0.730	ug/L	50		94	50-150		25	
2,3,4,6,7,8-HxCDF	46.2	25.0	1.26	ug/L	50		92	50-150		25	
1,2,3,7,8,9-HxCDF	46.5	25.0	0.940	ug/L	50		93	50-150		25	
1,2,3,4,6,7,8-HpCDF	47.4	25.0	1.70	ug/L	50		95	50-150		25	
1,2,3,4,7,8,9-HpCDF	48.2	25.0	0.960	ug/L	50		96	50-150		25	
OCDF	84.1	50.0	3.66	ug/L	100		84	50-150		25	
Surrogate: 13C-2,3,7,8-TCDD	70.4			ug/L	100		70	50-150			
Surrogate: 13C-1,2,3,7,8-PeCDD	60.3			ug/L	100		60	50-150			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	66.5			ug/L	100		67	50-150			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	75.3			ug/L	100		75	50-150			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	65.4			ug/L	100		65	50-150			
Surrogate: 13C-OCDD	89.0			ug/L	200		45	50-150			
Surrogate: 13C-2,3,7,8-TCDF	74.5			ug/L	100		75	50-150			
Surrogate: 13C-1,2,3,7,8-PeCDF	57.2			ug/L	100		57	50-150			
Surrogate: 13C-2,3,4,7,8-PeCDF	61.8			ug/L	100		62	50-150			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	62.2			ug/L	100		62	50-150			

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## 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
<b>Batch: 1751 Extracted: 12/09/08</b>											
<b>LCS Analyzed: 12/11/2008 (OPR001)</b>											
Surrogate: 13C-1,2,3,6,7,8-HxCDF	63.7			ug/L	100		64	50-150			
Surrogate: 13C-2,3,4,6,7,8-HxCDF	65.7			ug/L	100		66	50-150			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	66.9			ug/L	100		67	50-150			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	59.7			ug/L	100		60	50-150			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	55.5			ug/L	100		56	50-150			
Surrogate: 13C-OCDF	83.9			ug/L	200		42	50-150			
Surrogate: 37Cl-2,3,7,8-TCDD	30.7			ug/L	40		77	50-150			

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## 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
<b>Batch: 8336128 Extracted: 12/01/08</b>											
<b>Matrix Spike Dup Analyzed: 12/01/2008 (D8K290110001D)</b>						<b>Source: D8K290110001</b>					
Mercury	5.41	0.2	0.027	ug/L	5	ND	108	90-110	0	10	
<b>Matrix Spike Analyzed: 12/01/2008 (D8K290110001S)</b>						<b>Source: D8K290110001</b>					
Mercury	5.41	0.2	0.027	ug/L	5	ND	108	90-110	0	10	
<b>Blank Analyzed: 12/01/2008 (D8L010000128B)</b>						<b>Source:</b>					
Mercury	ND	0.2	0.027	ug/L				-			
<b>LCS Analyzed: 12/01/2008 (D8L010000128C)</b>						<b>Source:</b>					
Mercury	5.27	0.2	0.027	ug/L	5		105	90-110			

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## 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
<b>Batch: 8336136 Extracted: 12/01/08</b>											
<b>Matrix Spike Dup Analyzed: 12/01/2008 (D8K290110001D)</b>						<b>Source: D8K290110001</b>					
Mercury-diss	5.33	0.2	0.027	ug/L	5	ND	107	90-110	2	10	
<b>Matrix Spike Analyzed: 12/01/2008 (D8K290110001S)</b>						<b>Source: D8K290110001</b>					
Mercury-diss	5.43	0.2	0.027	ug/L	5	ND	109	90-110	2	10	
<b>Blank Analyzed: 12/01/2008 (D8L010000136B)</b>						<b>Source:</b>					
Mercury-diss	ND	0.2	0.027	ug/L				-			
<b>LCS Analyzed: 12/01/2008 (D8L010000136C)</b>						<b>Source:</b>					
Mercury-diss	5.16	0.2	0.027	ug/L	5		103	90-110			

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## 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
IRK2835-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	2.80	4.8	15
IRK2835-01	Antimony-200.8	Antimony	ug/l	0.59	2.0	6
IRK2835-01	Cadmium-200.8	Cadmium	ug/l	0.64	1.0	4
IRK2835-01	Chloride - 300.0	Chloride	mg/l	5.58	0.50	150
IRK2835-01	Copper-200.8	Copper	ug/l	6.72	2.0	14
IRK2835-01	Lead-200.8	Lead	ug/l	2.51	1.0	5.2
IRK2835-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.95	0.26	10
IRK2835-01	Perchlorate 314.0-DEFAULT	Perchlorate	ug/l	0	4.0	6
IRK2835-01	Sulfate-300.0	Sulfate	mg/l	23	0.50	250
IRK2835-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	114	10	850
IRK2835-01	Thallium-200.8	Thallium	ug/l	0.062	1.0	2

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## 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.
- Jb** The amount detected is below the Lower Calibration Limit of the instrument
- MNR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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Sampled: 11/26/08  
Received: 11/26/08

## 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](http://www.testamericainc.com)*

### Subcontracted Laboratories

#### Alta Analytical Perspectives

2714 Exchange Drive - Wilmington, NC 28405

Method Performed: 1613-Dioxin-HR Alta  
Samples: IRK2835-01

#### Aquatic Testing Laboratories-SUB *California Cert #1775*

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chnric  
Samples: IRK2835-01

#### TestAmerica Denver

4955 Yarrow Street - Arvada, CO 80002

Method Performed: MCAWW 245.1  
Samples: IRK2835-01

Method Performed: MCAWW 245.1 Diss  
Samples: IRK2835-01

### TestAmerica Irvine

Trupti Mistry For Joseph Doak  
Project Manager

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

Project ID: Semi-Annual Outfall 009

Report Number: IRK2835

Sampled: 11/26/08  
Received: 11/26/08

## TestAmerica St. Louis

13715 Rider Trail North - Earth City, MO 63045

Analysis Performed: Gamma Spec  
Samples: IRK2835-01

Analysis Performed: Gross Alpha  
Samples: IRK2835-01

Analysis Performed: Gross Beta  
Samples: IRK2835-01

Analysis Performed: Radium, Combined  
Samples: IRK2835-01

Analysis Performed: Strontium 90  
Samples: IRK2835-01

Analysis Performed: Tritium  
Samples: IRK2835-01

Analysis Performed: Uranium, Combined  
Samples: IRK2835-01

## 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: IRK2835-01

## TestAmerica Irvine

Trupti Mistry For Joseph Doak  
Project Manager

003

IR 2835

# CHAIN OF CUSTODY FORM

TestAmerica Version 12/20/07

<b>Client Name/Address:</b> MWH-Arcadia 618 Michillinda Avenue, Suite 200 Arcadia, CA 91007 Test America Contact: Joseph Doak		<b>Project:</b> Boeing-SSFL NPDES Semi-Annual Outfall 009 Stormwater at WS-13		<b>Project Manager:</b> Bronwyn Kelly Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		<b>ANALYSIS REQUIRED</b> Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl TCDD (and all congeners) Oil & Grease (1664-HEM) Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , NO <sub>3</sub> <sup>-</sup> & NO <sub>2</sub> <sup>-</sup> , 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		Field readings: Temp = 55.0 pH = 7.2 Time of readings = 14:55 Comments							
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 <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , NO <sub>3</sub> <sup>-</sup> & NO <sub>2</sub> <sup>-</sup> , 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	Field readings: Temp = 55.0 pH = 7.2 Time of readings = 14:55 Comments
Outfall 009	W	1L Poly	1	11-26-08 14:55	HNO <sub>3</sub>	1A	X								
Outfall 009-Dup	W	1L Poly	1	11-26-08 14:55	HNO <sub>3</sub>	1B	X								
Outfall 009	W	1L Amber	2		None	2A, 2B		X							
Outfall 009	W	1L Amber	2		HCl	3A, 3B			X						
Outfall 009	W	500 ml Poly	2		None	4A, 4B				X					
Outfall 009	W	500 ml Poly	1		None	5					X				
Outfall 009	W	2.5 Gal Cube 500 ml Amber	1		None	6A						X			
Outfall 009	W	500 ml Amber	1		None	6B									
Outfall 009	W	1 Gal Poly	1	11-26-08 14:55	None	7							X		
Outfall 009	W	1L Poly	1		None	8								X	
Relinquished By	Date/Time: 11-26-08 15:25		Received By		Date/Time: 11-26-08 15:25		Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 72 Hours _____		Sample Integrity: (check) Intact _____ On Ice: _____		Data Requirements: (check) No Level IV _____ All Level IV _____		NPDES Level IV _____		
Relinquished By	Date/Time: 11-26-08 14:55		Received By		Date/Time: 11-26-08 20:45		Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 72 Hours _____		Sample Integrity: (check) Intact _____ On Ice: _____		Data Requirements: (check) No Level IV _____ All Level IV _____		NPDES Level IV _____		

\* DELIVERED 1 GAL. CONTAINER TO ATC-VENTURA CA

# CHAIN OF CUSTODY FORM

**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 009  
 Stormwater at WS-13

**Project Manager:** Bronwyn Kelly

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

**Sampler:** R. BARAGA

## ANALYSIS REQUIRED

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED							Field readings: Temp = 55.0 pH = 7.2 Time of readings = 14:55	Comments	
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, TI	TCDD (and all congeners)	Oil & Grease (1664-HEM)	Cr, SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -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), K-40, CS-137 (908.0), K-40, CS-137 (901.0 or 901.1)	Chronic Toxicity			Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, TI
Outfall 009	W	1L Poly	1	11-26-08 14:55	HNO <sub>3</sub>	1A	X									
Outfall 009	W	1L Poly	1	11-26-08 14:55	HNO <sub>3</sub>	1B	X									
Outfall 009	W	1L Amber	2		None	2A, 2B		X								
Outfall 009	W	1L Amber	2		HCl	3A, 3B		X								
Outfall 009	W	500 ml Poly	2		None	4A, 4B		X								
Outfall 009	W	500 ml Poly	1		None	5			X							
Outfall 009	W	250 ml Amber	1		None	6A				X						
Outfall 009	W	500 ml Amber	1		None	6B					X					
Outfall 009	W	1 Gal Poly	1	11-26-08 14:55	None	7										
Outfall 009	W	1L Poly	1	11-26-08 14:55	None	8										

**Relinquished By:** [Signature] Date/Time: 11-26-08 15:25  
**Received By:** [Signature] Date/Time: 11-26-08 17:30  
**Relinquished By:** [Signature] Date/Time: 11-26-08 17:30  
**Received By:** [Signature] Date/Time: 11-26-08 17:30

Turn around Time: (check)  
 24 Hours \_\_\_\_\_ 5 Days \_\_\_\_\_  
 48 Hours \_\_\_\_\_ 10 Days \_\_\_\_\_  
 72 Hours \_\_\_\_\_ Normal   
 Sample Integrity: (check)  
 Intact \_\_\_\_\_ On Ice: \_\_\_\_\_  
 Data Requirements: (check)  
 No Level IV \_\_\_\_\_ All Level IV \_\_\_\_\_  
 NPDES Level IV \_\_\_\_\_

TO ATC NEWPORT

# LABORATORY REPORT



**Aquatic  
Testing  
Laboratories**

*"dedicated to providing quality aquatic toxicity testing"*

**Date:** December 5, 2008

**Client:** TestAmerica – Irvine  
17461 Derian Ave., Suite 100  
Irvine, CA 92614  
Attn: Joseph Doak

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

**Laboratory No.:** A-08112607-001  
**Sample ID.:** IRK2835-01 (Outfall 009)

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

Date Sampled: 11/26/08  
Date Received: 11/26/08  
Temp. Received: 6°C  
Chlorine (TRC): 0.0 mg/l  
Date Tested: 11/27/08 to 12/04/08

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

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

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

## Result Summary:

<b>Chronic:</b>	<b>NOEC</b>	<b>TUc</b>
<i>Ceriodaphnia</i> Survival:	100 %	1.0
<i>Ceriodaphnia</i> Reproduction:	100 %	1.0

**Quality Control:** Reviewed and approved by:

  
Joseph A. LeMay  
Laboratory Director

**CERIODAPHNIA CHRONIC BIOASSAY  
EPA METHOD 1002.0**



Lab No.: A-08112607-001  
Client/ID: Test America – IRK2835-01 (Outfall 009)

Date Tested: 11/27/08 to 12/04/08

**TEST SUMMARY**

Test type: Daily static-renewal.  
Species: *Ceriodaphnia dubia*.  
Age: < 24 hrs; all released within 8 hrs.  
Test vessel size: 30 ml.  
Number of test organisms per vessel: 1.  
Temperature: 25 +/- 1°C.  
Dilution water: Mod. hard reconstituted (MHRW).  
QA/QC Batch No.: RT-081104.

Endpoints: Survival and Reproduction.  
Source: In-laboratory culture.  
Food: .1 ml YTC, algae per day.  
Test solution volume: 15 ml.  
Number of replicates: 10.  
Photoperiod: 16/8 hrs. light/dark cycle.  
Test duration: 7 days.  
Statistics: ToxCalc computer program.

**RESULTS SUMMARY**

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	22.5
100% Sample	100%	28.1
Sample not statistically significantly less than Control for either endpoint.		

**CHRONIC TOXICITY**

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

**QA/QC TEST ACCEPTABILITY**

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥15 young per surviving control female	Pass (22.5 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 13.0%)
Statistically significantly different concentrations relative difference >13%	Pass (no concentration significantly different)
Concentration response relationship acceptable	Pass (no significant response at concentration tested)

**Ceriodaphnia Survival and Reproduction Test-7 Day Survival**

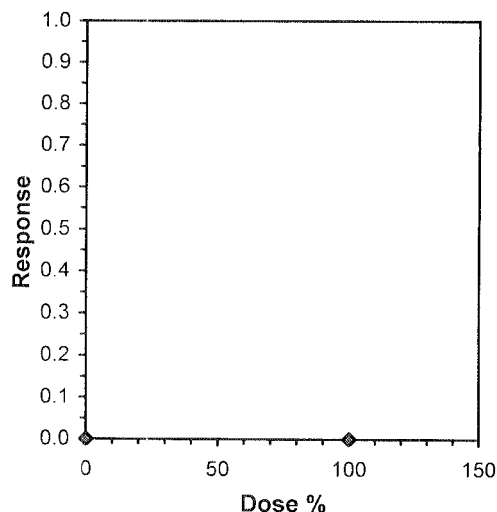
Start Date: 11/27/2008 15:00 Test ID: 8112607 Sample ID: Outfall 009  
 End Date: 12/4/2008 16:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: EFF2-Industrial  
 Sample Date: 11/26/2008 14:55 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia  
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	100	>100		1
Treatments vs D-Control				

Linear Interpolation (200 Resamples)				
Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



**Ceriodaphnia Survival and Reproduction Test-Reproduction**

Start Date: 11/27/2008 15:00 Test ID: 8112607 Sample ID: Outfall 009  
 End Date: 12/4/2008 16:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: EFF2-Industrial  
 Sample Date: 11/26/2008 14:55 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia  
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	24.000	20.000	23.000	25.000	20.000	25.000	22.000	21.000	23.000	22.000
100	30.000	32.000	30.000	39.000	27.000	22.000	23.000	24.000	27.000	27.000

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD	Isotonic	
			Mean	Min	Max	CV%					Mean	N-Mean
D-Control	22.500	1.0000	22.500	20.000	25.000	8.182	10				25.300	1.0000
100	28.100	1.2489	28.100	22.000	39.000	17.790	10	-3.324	1.796	3.025	25.300	1.0000

**Auxiliary Tests**

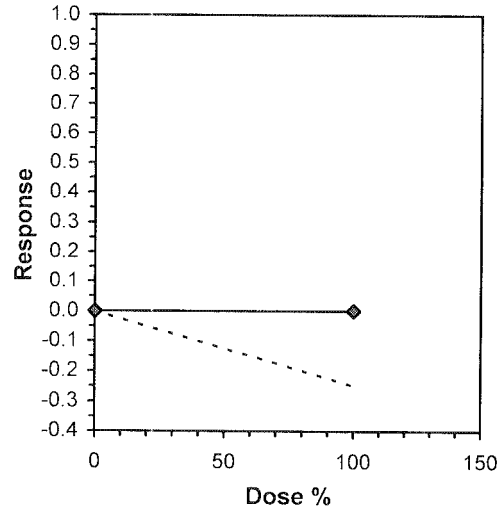
	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ( $p > 0.05$ )	0.91814	0.905	1.11008	3.21253
F-Test indicates unequal variances ( $p = 6.51E-03$ )	7.37377	6.54109		

**Hypothesis Test (1-tail, 0.05)**

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences Treatments vs D-Control	3.02529	0.13446	156.8	14.1889	0.00377	1, 18

**Linear Interpolation (200 Resamples)**

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			





**CERIODAPHNIA DUBIA CHRONIC BIOASSAY**  
**EPA METHOD 1002.0 Raw Data Sheet**



Lab No.: A-08112607-001

Client ID: TestAmerica - IRK2835-01 Outfall 009

Start Date: 11/27/2008

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr
Analyst Initials:		<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>	<i>Rm</i>
Time of Readings:		1500	1400	1400	1200	1200	1445	1500	1500	1500	1500	1500	1400	1400	1400
Control	DO	8.4	8.3	8.8	8.6	8.8	8.7	8.8	8.6	8.9	9.0	9.0	9.2	8.8	8.6
	pH	7.7	7.5	7.5	7.7	7.6	7.6	7.6	7.4	7.4	7.5	7.5	7.6	7.2	7.6
	Temp	24.2	24.0	24.7	24.2	24.8	24.5	24.2	24.3	24.3	24.0	25.3	24.1	24.5	24.2
100%	DO	8.2	8.6	8.5	8.8	9.0	8.2	9.4	8.1	9.6	9.2	8.9	9.1	10.8	8.6
	pH	6.5	6.9	6.2	7.1	6.1	7.2	6.2	7.2	6.2	7.0	6.4	7.2	6.1	7.4
	Temp	24.2	24.1	24.2	24.1	25.0	24.6	24.7	24.3	24.6	24.3	25.2	24.1	24.7	24.1

Additional Parameters	Control	100% Sample
Conductivity (umohms)	300	139
Alkalinity (mg/l CaCO <sub>3</sub> )	65	25
Hardness (mg/l CaCO <sub>3</sub> )	96	51
Ammonia (mg/l NH <sub>3</sub> -N)	<0.1	0.4

Source of Neonates											
Replicate:	A	B	C	D	E	F	G	H	I	J	
Brood ID:	6B	4A	6F	6E	5J	3B	2B	3C	2G	1J	

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	<i>Rm</i>
	2	0	0	0	0	0	0	0	0	0	0	0	10	<i>Rm</i>
	3	0	3	3	0	0	3	0	0	0	0	9	10	<i>Rm</i>
	4	4	0	0	3	4	0	5	4	3	4	27	10	<i>Rm</i>
	5	8		7	7	6	7	6	7	7		61	10	<i>Rm</i>
	6	0	7	0	0	0	15	0	0	0	0	22	10	<i>Rm</i>
	7	<del>0</del>	10	13	15	10	0	11	10	13	12	106	10	<i>Rm</i>
	Total	24	20	23	25	20	25	22	21	23	22	225	10	<i>Rm</i>
100%	1	0	0	0	0	0	0	0	0	0	0	0	10	<i>Rm</i>
	2	0	0	0	0	0	0	0	0	0	0	0	10	<i>Rm</i>
	3	0	0	0	0	0	0	0	0	0	3	3	10	<i>Rm</i>
	4	4	5	4	5	4	5	4	5	4	0	40	10	<i>Rm</i>
	5	8	7	9	7	5	7	6	6	7	6	68	10	<i>Rm</i>
	6	0	20	17	0	18	0	13	13	0	0	81	10	<i>Rm</i>
	7	18	0	0	27	0	10	0	0	16	18	89	10	<i>Rm</i>
	Total	30	32	30	31	27	22	23	24	27	27	281	10	<i>Rm</i>

Circled fourth brood not used in statistical analysis.

7<sup>th</sup> day only used if <60% of the surviving control females have produced their third brood.

TestAmerica Irvine

IRK2835


**SENDING LABORATORY:**

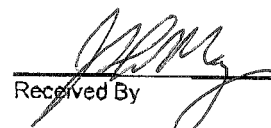
TestAmerica Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
Phone: (949) 261-1022  
Fax: (949) 260-3297  
Project Manager: Joseph Doak

**RECEIVING LABORATORY:**

Aquatic Testing Laboratories-SUB  
4350 Transport Street, Unit 107  
Ventura, CA 93003  
Phone : (805) 650-0546  
Fax: (805) 650-0756  
Project Location: CA - CALIFORNIA  
Receipt Temperature: 6 °C Ice:  Y /  N

Analysis	Units	Due	Expires	Comments
<b>Sample ID: IRK2835-01</b>	<b>Water</b>			<b>Instant Notification</b>
Bioassay-7 dy Chmic	N/A	12/09/08	11/28/08 02:55	Cerio, EPA/821-R02-013, Sub to Aquatic testing
<i>Containers Supplied:</i> 1 gal Poly (L)				

  
\_\_\_\_\_  
Released By  
11/26/08  
\_\_\_\_\_  
Date/Time

  
\_\_\_\_\_  
Received By  
11-26-08 17:30  
\_\_\_\_\_  
Date/Time

\_\_\_\_\_  
Released By  
\_\_\_\_\_  
Date/Time

\_\_\_\_\_  
Received By  
\_\_\_\_\_  
Date/Time





***REFERENCE  
TOXICANT  
DATA***

**CERIODAPHNIA CHRONIC BIOASSAY**  
**EPA METHOD 1002.0**  
**REFERENCE TOXICANT - NaCl**



QA/QC Batch No.: RT-081104

Date Tested: 11/04/08 to 11/11/08

**TEST SUMMARY**

Test type: Daily static-renewal.  
 Species: *Ceriodaphnia dubia*.  
 Age: <24 hrs; all released within 8 hrs.  
 Test vessel size: 30 ml.  
 Number of test organisms per vessel: 1.  
 Temperature: 25 +/- 1°C.  
 Dilution water: Mod. hard reconstituted (MHRW).  
 Reference Toxicant: Sodium chloride (NaCl).

Endpoints: Survival and Reproduction.  
 Source: In-laboratory culture.  
 Food: .1 ml YTC, algae per day.  
 Test solution volume: 20 ml.  
 Number of replicates: 10.  
 Photoperiod: 16/8 hrs. light/dark cycle.  
 Test duration: 7 days.  
 Statistics: ToxCalc computer program.

**RESULTS SUMMARY**

Sample Concentration	Percent Survival		Mean Number of Young Per Female	
Control	100%		22.5	
0.25 g/l	100%		23.0	
0.5 g/l	100%		21.9	
1.0 g/l	100%		15.8	*
2.0 g/l	100%		4.4	*
4.0 g/l	0%	*	0	**

\* Statistically significantly less than control at P = 0.05 level  
 \*\* Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

**CHRONIC TOXICITY**

Survival LC50	2.8 g/l
Reproduction IC25	0.90 g/l

**QA/QC TEST ACCEPTABILITY**

Parameter	Result
Control survival ≥80%	Pass (100% Survival)
≥15 young per surviving control female	Pass (22.5 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction	Pass (PMSD = 9.8%)
Stat. sig. diff. conc. relative difference >13%	Pass (Stat. sig. diff. conc. relative difference = 29.8%)
Concentration response relationship acceptable	Pass (Response curve normal)

**Ceriodaphnia Survival and Reproduction Test-7 Day Survival**

Start Date: 11/4/2008 15:00 Test ID: RT-081104 Sample ID: REF-Ref Toxicant  
 End Date: 11/11/2008 15:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NACL-Sodium chloride  
 Sample Date: 11/4/2008 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia  
 Comments:

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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

**Hypothesis Test (1-tail, 0.05)**      NOEC      LOEC      ChV      TU

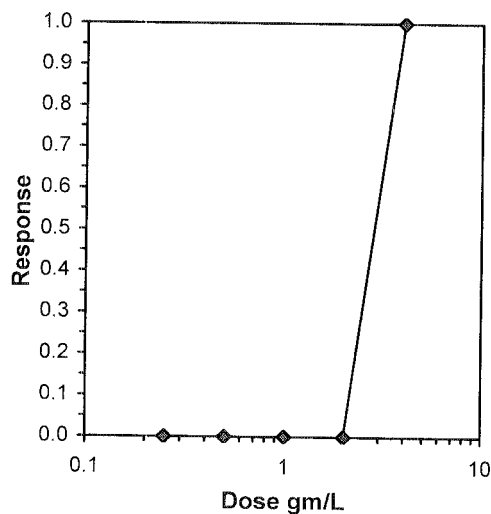
Fisher's Exact Test                      2              4              2.82843

Treatments vs D-Control

**Graphical Method**

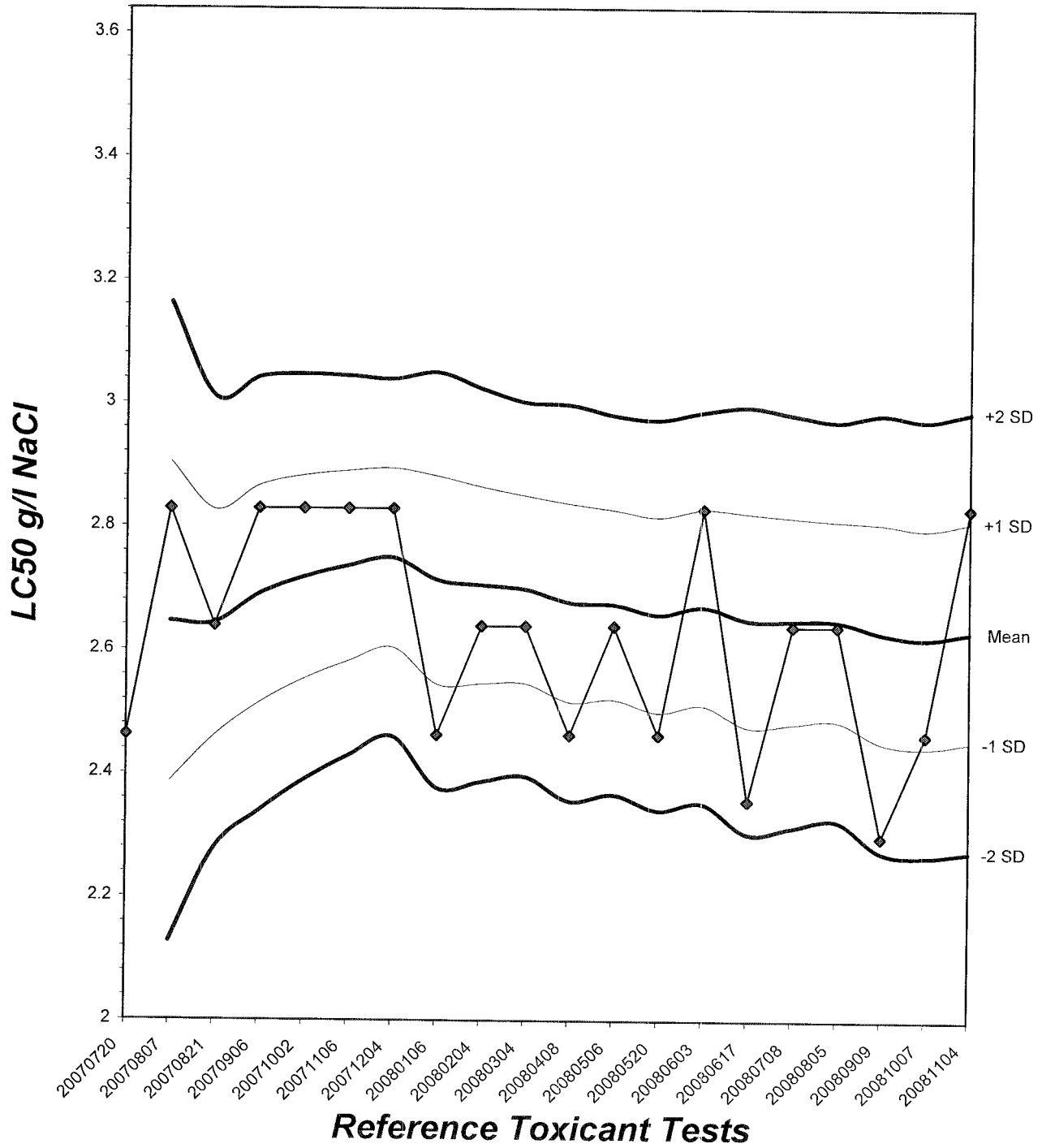
Trim Level      EC50  
 0.0%      2.8284

2.8284



# Ceriodaphnia Chronic Survival Laboratory Control Chart

CV% = 6.77



**Ceriodaphnia Survival and Reproduction Test-Reproduction**

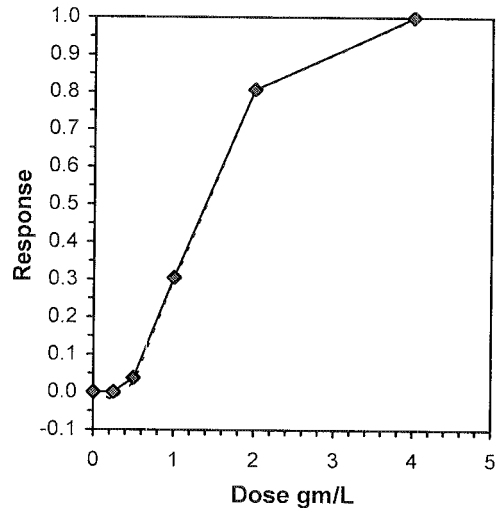
Start Date: 11/4/2008 15:00 Test ID: RT-081104 Sample ID: REF-Ref Toxicant  
 End Date: 11/11/2008 15:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NACL-Sodium chloride  
 Sample Date: 11/4/2008 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia  
 Comments:

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	23.000	20.000	23.000	22.000	23.000	22.000	26.000	21.000	22.000	23.000
0.25	19.000	23.000	22.000	25.000	25.000	22.000	25.000	23.000	24.000	22.000
0.5	21.000	24.000	20.000	25.000	18.000	23.000	22.000	20.000	22.000	24.000
1	9.000	15.000	18.000	10.000	18.000	17.000	16.000	19.000	19.000	17.000
2	2.000	4.000	6.000	5.000	6.000	4.000	5.000	4.000	4.000	4.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Conc-gm/L	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical	Isotonic	
			Mean	Min	Max	CV%	N			Mean	N-Mean
D-Control	22.500	1.0000	22.500	20.000	26.000	7.027	10			22.750	1.0000
0.25	23.000	1.0222	23.000	19.000	25.000	8.198	10	115.50	76.00	22.750	1.0000
0.5	21.900	0.9733	21.900	18.000	25.000	9.969	10	98.50	76.00	21.900	0.9626
*1	15.800	0.7022	15.800	9.000	19.000	22.486	10	55.00	76.00	15.800	0.6945
*2	4.400	0.1956	4.400	2.000	6.000	26.677	10	55.00	76.00	4.400	0.1934
4	0.000	0.0000	0.000	0.000	0.000	0.000	10			0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.93086	0.947	-1.0207	1.76892
Bartlett's Test indicates equal variances (p = 0.02)	12.1425	13.2767		
<b>Hypothesis Test (1-tail, 0.05)</b>	<b>NOEC</b>	<b>LOEC</b>	<b>ChV</b>	<b>TU</b>
Steel's Many-One Rank Test	0.5	1	0.70711	
Treatments vs D-Control				

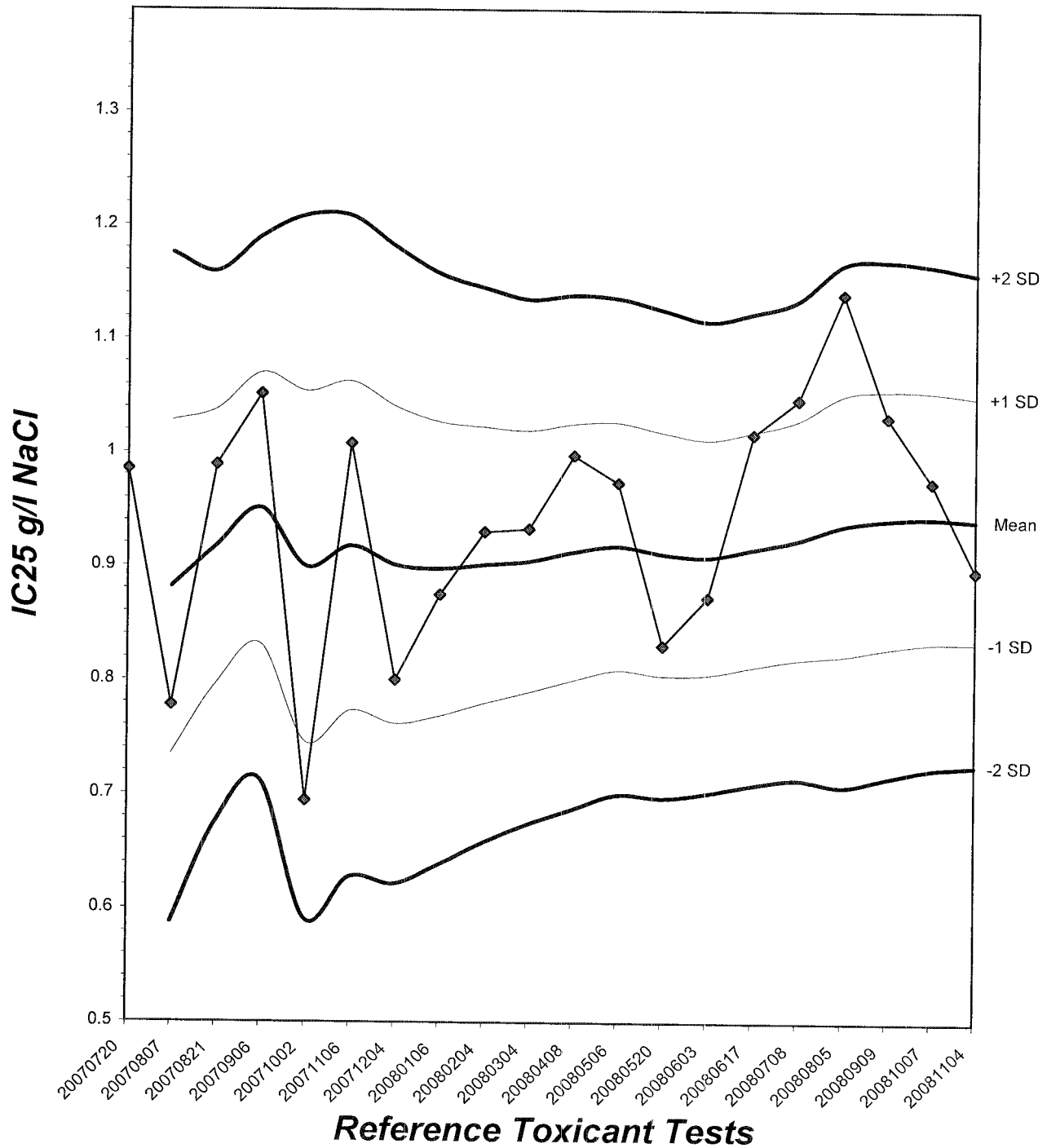
Point	gm/L	SD	Linear Interpolation (200 Resamples)		
			95% CL	Skew	
IC05	0.5236	0.0738	0.3349	0.6024	-1.1597
IC10	0.6168	0.0540	0.4824	0.7162	-0.7556
IC15	0.7100	0.0536	0.6133	0.8309	-0.1240
IC20	0.8033	0.0606	0.7087	0.9480	0.2967
IC25	0.8965	0.0688	0.7913	1.0519	0.2677
IC40	1.1886	0.0706	1.0517	1.3109	-0.5676
IC50	1.3882	0.0549	1.2688	1.4826	-0.6239





# Ceriodaphnia Chronic Reproduction Laboratory Control Chart

CV% = 11.5



# CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl

## Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-081104

Start Date: 11/04/2008

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	RL
	2	0	0	0	0	0	0	0	0	0	0	0	10	
	3	0	0	0	0	0	4	4	0	0	0	8	10	
	4	4	2	3	2	3	0	0	4	2	3	23	10	
	5	0	0	8	7	0	6	8	7	0	0	36	10	
	6	7	8	12	0	8	12	14	0	6	8	75	10	
	7	12	10	②	13	12	⑩	0	10	14	12	83	10	
	Total	23	20	23	22	23	22	26	21	22	23	225	10	
0.25 g/l	1	0	0	0	0	0	0	0	0	0	0	10	RL	
	2	0	0	0	0	0	0	0	0	0	0	10		
	3	0	3	0	0	0	0	0	4	0	0	7		10
	4	2	0	4	3	4	4	3	0	3	2	25		10
	5	7	8	6	8	7	0	0	7	0	6	49		10
	6	0	12	0	0	0	6	8	12	7	14	59		10
	7	10	⑧	12	14	14	12	14	⑫	14	⑩	90		10
	Total	19	23	22	25	25	22	25	23	24	22	230		10
0.5 g/l	1	0	0	0	0	0	0	0	0	0	0	10	RL	
	2	0	0	0	0	0	0	0	0	0	0	10		
	3	0	3	0	0	0	0	0	0	0	4	7		10
	4	3	0	4	4	2	3	2	2	4	0	24		10
	5	6	7	0	0	6	0	7	8	6	6	46		10
	6	0	0	6	7	10	6	0	0	12	14	55		10
	7	12	14	10	14	⑩	14	13	10	0	⑫	87		10
	Total	21	24	20	25	18	23	22	20	22	24	219		10

Circled fourth brood not used in statistical analysis.

7<sup>th</sup> day only used if <60% of the surviving control females have produced their third brood.

# CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl

## Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-081104

Start Date: 11/04/2008

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
1.0 g/l	1	0	0	0	0	0	0	0	0	0	0	0	10	R
	2	0	0	0	0	0	0	0	0	0	0	0	10	
	3	0	0	0	0	0	0	0	0	0	4	4	10	
	4	3	2	2	4	3	4	3	4	2	0	27	10	
	5	0	0	6	0	0	0	6	0	0	6	18	10	
	6	6	7	10	6	5	5	7	6	7	7	66	10	
	7	0	6	0	0	10	8	0	9	10	0	43	10	
	Total	9	15	18	10	18	17	16	19	19	17	158	10	
2.0 g/l	1	0	0	0	0	0	0	0	0	0	0	10	R	
	2	0	0	0	0	0	0	0	0	0	0	10		
	3	0	0	0	0	0	0	2	0	0	0	2		10
	4	0	2	0	0	0	0	0	2	0	0	4		10
	5	2	0	3	3	4	2	3	0	2	2	21		10
	6	0	2	0	0	0	2	0	2	0	0	6		10
	7	0	0	3	2	2	0	0	0	2	2	11		10
	Total	2	4	6	5	6	4	5	4	4	4	44		10
4.0 g/l	1	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	0	0	R	
	2	0	0	0	0	0	0	0	0	0	0	0		
	3	-	-	-	-	-	-	-	-	-	-	-		-
	4	-	-	-	-	-	-	-	-	-	-	-		-
	5	-	-	-	-	-	-	-	-	-	-	-		-
	6	-	-	-	-	-	-	-	-	-	-	-		-
	7	-	-	-	-	-	-	-	-	-	-	-		-
	Total	0	0	0	0	0	0	0	0	0	0	0		0

Circled fourth brood not used in statistical analysis.

7<sup>th</sup> day only used if <60% of the surviving control females have produced their third brood.

# CERIODAPHNIA DUBIA CHRONIC BIOASSAY

## Reference Toxicant - NaCl Water Chemistries Raw Data Sheet



QA/QC No.: RT-081104

Start Date: 11/04/2008

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Analyst Initials:		Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm
Time of Readings:		1500	1600	1600	1600	1600	1300	1300	1400	1400	1400	1400	1500	1500	1500
Control	DO	8.0	8.5	7.3	8.7	8.6	8.6	8.9	8.5	9.1	8.3	8.8	8.1	8.7	8.6
	pH	7.6	8.0	7.5	8.0	7.8	8.0	7.7	8.0	7.7	8.0	7.7	8.0	7.9	8.0
	Temp	24.5	24.3	24.2	24.5	24.2	24.6	24.9	24.8	24.6	24.6	24.2	24.3	24.5	24.2
0.25 g/l	DO	8.0	8.5	7.3	8.6	8.6	8.5	8.9	8.4	9.1	8.2	8.9	8.0	8.6	8.5
	pH	7.6	8.0	7.5	7.9	7.8	8.0	7.7	8.0	7.7	8.0	7.7	8.0	7.9	8.1
	Temp	24.5	24.2	24.2	24.6	24.2	24.6	24.9	24.7	24.5	24.7	24.2	24.2	24.4	24.2
0.5 g/l	DO	8.0	8.6	7.4	8.8	8.6	8.5	8.9	8.6	9.1	8.4	8.8	8.2	8.6	8.4
	pH	7.6	8.0	7.5	7.9	7.8	8.0	7.8	8.0	7.8	8.0	7.7	8.0	7.9	8.1
	Temp	24.5	24.2	24.1	24.8	24.2	24.7	24.9	24.5	24.4	24.6	24.3	24.1	24.3	24.3
1.0 g/l	DO	8.0	8.5	7.5	8.8	8.5	8.6	8.9	8.5	9.0	8.4	8.9	8.1	8.5	8.1
	pH	7.7	8.0	7.5	7.9	7.9	8.0	7.8	8.0	7.8	8.1	7.8	8.0	7.9	8.1
	Temp	24.5	24.1	24.1	24.5	24.3	24.6	25.0	24.8	24.3	24.7	24.3	24.2	24.4	24.2
2.0 g/l	DO	8.0	8.6	7.6	8.7	8.5	8.7	8.9	8.8	8.9	8.3	8.9	8.1	8.4	8.6
	pH	7.7	8.1	7.5	7.9	8.0	8.0	7.9	8.0	7.9	8.1	7.8	8.1	7.9	8.1
	Temp	24.5	24.1	24.0	24.8	24.5	24.7	25.0	24.4	24.0	24.6	24.2	24.3	24.3	24.4
4.0 g/l	DO	8.0	8.6	-	-	-	-	-	-	-	-	-	-	-	-
	pH	7.7	8.1	-	-	-	-	-	-	-	-	-	-	-	-
	Temp	24.4	24.1	-	-	-	-	-	-	-	-	-	-	-	-

Dissolved Oxygen (DO) readings are in mg/l O<sub>2</sub>; Temperature (Temp) readings are in °C.

Additional Parameters	Control			High Concentration		
	Day 1	Day 3	Day 5	Day 1	Day 3	Day 5
	Conductivity (µS)	335	340	345	6470	3270
Alkalinity (mg/l CaCO <sub>3</sub> )	70	70	69	70	70	69
Hardness (mg/l CaCO <sub>3</sub> )	97	99	102	96	98	99

**Source of Neonates**

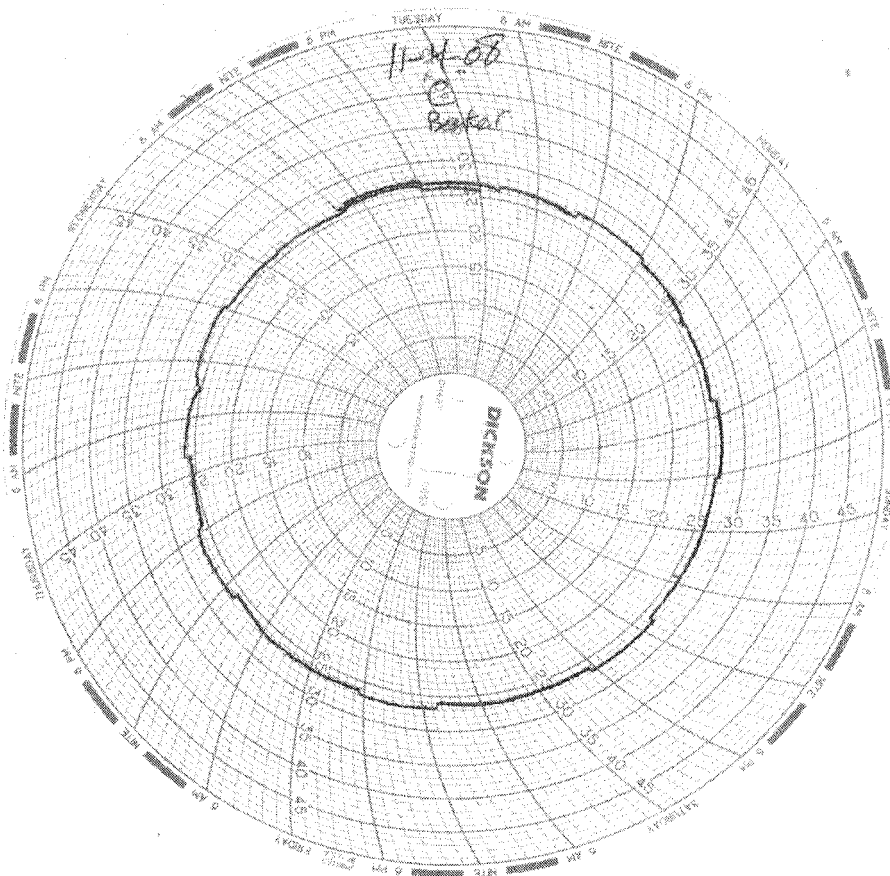
Replicate:	A	B	C	D	E	F	G	H	I	J
Brood ID:	A3	B2	C1	D3	E3	F2	G1	H2	F3	J1

# *Test Temperature Chart*

*Test No: RT-081104*

*Date Tested: 11/04/08 to 11/11/08*

*Acceptable Range: 25 $\pm$ 1 $^{\circ}$ C*





TestAmerica Laboratories, Inc.

## ANALYTICAL REPORT

REVISED

PROJECT NO. BOEING NPDES

SSFL MWH-Pasadena/Boeing

Lot #: F8L030238

Joseph Doak

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

TESTAMERICA LABORATORIES, INC.

A handwritten signature in cursive script that reads "Sherryl A. Adam".

Sherryl Adam  
Project Manager

January 28, 2009

**Case Narrative**  
**LOT NUMBER: F8L030238**  
**REVISED**

**This report has been revised to include Uranium results to be reported in pCi/L per client request.**

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on November 29, 2008. This sample is associated with your SSFL MWH-Pasadena/Boeing project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

**Observations/Nonconformances**

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

**Total Uranium by Laser Phosphorimetry**

The sample results were converted from ug/L to pCi/L per client request. The conversion assumes that all of the uranium is naturally occurring.

**Affected Samples:**

F8L030238 (1): IRK2835-01

**METHODS SUMMARY**

F8L030238

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Gross Alpha/Beta EPA 900	EPA 900.0 MOD	EPA 900.0
H-3 by Distillation & LSC	EPA 906.0 MOD	
Radium-226 by GFPC	EPA 903.0 MOD	EPA 903.0
Radium-228 by GFPC	EPA 904 MOD	EPA 904
Strontium 90 by GFPC	EPA 905 MOD	
Total Uranium By Laser Ph osphorimetry	ASTM 5174-91	

**References:**

ASTM Annual Book Of ASTM Standards.

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY  
PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984



**SAMPLE SUMMARY**

F8L030238

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
K309L	001	IRK2835-01	11/26/08	14:55

**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.

## TestAmerica Irvine

Client Sample ID: IRK2835-01

## Radiochemistry

Lab Sample ID: F8L030238-001  
 Work Order: K309L  
 Matrix: WATER

Date Collected: 11/26/08 1455  
 Date Received: 11/29/08 0915

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	RL	mdc	Prep Date	Analysis Date
<b>Gamma Cs-137 &amp; Hits by EPA 901.1 MOD</b>				pCi/L		Batch # 8344329	Yld %
Cesium 137	0.9	U	7.5	20.0	14	12/09/08	12/21/08
Potassium 40	-40	U	210		230	12/09/08	12/21/08
<b>Gross Alpha/Beta EPA 900</b>				pCi/L		Batch # 8339115	Yld %
Gross Alpha	1.22	J	0.76	3.00	0.98	12/04/08	12/07/08
Gross Beta	1.60	J	0.98	4.00	1.5	12/04/08	12/07/08
<b>Radium 226 by EPA 903.0 MOD</b>				pCi/L		Batch # 8338402	Yld % 90
Radium (226)	0.057	U	0.074	1.00	0.12	12/03/08	12/26/08
<b>Radium 228 by GFPC EPA 904 MOD</b>				pCi/L		Batch # 8338404	Yld % 69
Radium 228	0.51	U	0.51	1.00	0.82	12/03/08	12/24/08
<b>TRITIUM (Distill) by EPA 906.0 MOD</b>				pCi/L		Batch # 8352094	Yld %
Tritium	100	U	180	500	290	12/17/08	12/19/08
<b>SR-90 BY GFPC EPA-905 MOD</b>				pCi/L		Batch # 8338424	Yld % 59
Strontium 90	0.23	U	0.24	3.00	0.38	12/03/08	12/15/08
<b>Total Uranium by KPA ASTM 5174-91</b>				pCi/L		Batch # 8345026	Yld %
Total Uranium	0.244	J	0.026	0.693	0.21	12/10/08	12/12/08

## 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.

600