



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 006

Sampled: 03/21/06  
Received: 03/21/06  
Issued: 03/29/06 20:15

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

LABORATORY ID	CLIENT ID	MATRIX
IPC2200-01	Outfall 006	Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IPC2200

Sampled: 03/21/06

Received: 03/21/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC2200-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C22075	0.050	2.0	1.5	1	03/22/06	03/22/06	J
Cadmium	EPA 200.8	6C22075	0.025	1.0	ND	1	03/22/06	03/22/06	
Copper	EPA 200.8	6C22075	0.25	2.0	0.72	1	03/22/06	03/22/06	J
Lead	EPA 200.8	6C22075	0.040	1.0	0.30	1	03/22/06	03/22/06	J
Mercury	EPA 245.1	6C22059	0.050	0.20	ND	1	03/22/06	03/22/06	
Thallium	EPA 200.8	6C22075	0.15	1.0	ND	1	03/22/06	03/22/06	

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 Michele Chamberlin  
 Project Manager

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Sampled: 03/21/06  
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2200-01 (Outfall 006 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C21047	0.15	0.50	<b>8.5</b>	1	03/21/06	03/22/06	
Nitrate/Nitrite-N	EPA 300.0	6C21047	0.080	0.15	<b>0.89</b>	1	03/21/06	03/22/06	
Oil & Grease	EPA 413.1	6C24046	0.89	4.7	ND	1	03/24/06	03/24/06	
Sulfate	EPA 300.0	6C21047	0.45	0.50	<b>11</b>	1	03/21/06	03/22/06	
Total Dissolved Solids	SM2540C	6C22065	10	10	<b>100</b>	1	03/22/06	03/22/06	
Total Suspended Solids	EPA 160.2	6C23099	10	10	ND	1	03/23/06	03/23/06	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006  Report Number: IPC2200	Sampled: 03/21/06 Received: 03/21/06
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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 006 (IPC2200-01) - Water EPA 300.0	2	03/21/2006 08:50	03/21/2006 20:30	03/21/2006 23:30	03/22/2006 01:57

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Project Manager

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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
<b>Batch: 6C22059 Extracted: 03/22/06</b>											
<b>Blank Analyzed: 03/22/2006 (6C22059-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/22/2006 (6C22059-BS1)</b>											
Mercury	7.16	0.20	0.050	ug/l	8.00		90	85-115			
<b>Matrix Spike Analyzed: 03/22/2006 (6C22059-MS1)</b>											
						<b>Source: IPC2120-17</b>					
Mercury	7.15	0.20	0.050	ug/l	8.00	ND	89	70-130			
<b>Matrix Spike Dup Analyzed: 03/22/2006 (6C22059-MSD1)</b>											
						<b>Source: IPC2120-17</b>					
Mercury	7.18	0.20	0.050	ug/l	8.00	ND	90	70-130	0	20	
<b>Batch: 6C22075 Extracted: 03/22/06</b>											
<b>Blank Analyzed: 03/22/2006 (6C22075-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
Thallium	ND	1.0	0.15	ug/l							
<b>LCS Analyzed: 03/22/2006 (6C22075-BS1)</b>											
Antimony	80.2	2.0	0.050	ug/l	80.0		100	85-115			
Cadmium	80.4	1.0	0.025	ug/l	80.0		100	85-115			
Copper	80.7	2.0	0.25	ug/l	80.0		101	85-115			
Lead	80.5	1.0	0.040	ug/l	80.0		101	85-115			
Thallium	86.1	1.0	0.15	ug/l	80.0		108	85-115			

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## 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: 6C22075 Extracted: 03/22/06</b>											
<b>Matrix Spike Analyzed: 03/22/2006 (6C22075-MS1)</b>						<b>Source: IPC2111-01</b>					
Antimony	84.6	2.0	0.050	ug/l	80.0	0.086	106	70-130			
Cadmium	79.5	1.0	0.025	ug/l	80.0	ND	99	70-130			
Copper	88.7	2.0	0.25	ug/l	80.0	14	93	70-130			
Lead	77.1	1.0	0.040	ug/l	80.0	0.23	96	70-130			
Thallium	82.6	1.0	0.15	ug/l	80.0	ND	103	70-130			
<b>Matrix Spike Dup Analyzed: 03/22/2006 (6C22075-MSD1)</b>						<b>Source: IPC2111-01</b>					
Antimony	86.7	2.0	0.050	ug/l	80.0	0.086	108	70-130	2	20	
Cadmium	81.5	1.0	0.025	ug/l	80.0	ND	102	70-130	2	20	
Copper	90.3	2.0	0.25	ug/l	80.0	14	95	70-130	2	20	
Lead	78.9	1.0	0.040	ug/l	80.0	0.23	98	70-130	2	20	
Thallium	84.9	1.0	0.15	ug/l	80.0	ND	106	70-130	3	20	

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C21047 Extracted: 03/21/06</b>										
<b>Blank Analyzed: 03/21/2006 (6C21047-BLK1)</b>										
Chloride	ND	0.50	0.15	mg/l						
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l						
Sulfate	ND	0.50	0.45	mg/l						
<b>LCS Analyzed: 03/21/2006 (6C21047-BS1)</b>										
Chloride	5.19	0.50	0.15	mg/l	5.00		104	90-110		M-3
Sulfate	9.34	0.50	0.45	mg/l	10.0		93	90-110		M-3
<b>Batch: 6C22065 Extracted: 03/22/06</b>										
<b>Blank Analyzed: 03/22/2006 (6C22065-BLK1)</b>										
Total Dissolved Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 03/22/2006 (6C22065-BS1)</b>										
Total Dissolved Solids	984	10	10	mg/l	1000		98	90-110		
<b>Duplicate Analyzed: 03/22/2006 (6C22065-DUP1)</b>										
Total Dissolved Solids	1120	10	10	mg/l		Source: IPC2169-01 1100			2	10
<b>Batch: 6C23099 Extracted: 03/23/06</b>										
<b>Blank Analyzed: 03/23/2006 (6C23099-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 03/23/2006 (6C23099-BS1)</b>										
Total Suspended Solids	972	10	10	mg/l	1000		97	85-115		

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Report Number: IPC2200

Sampled: 03/21/06

Received: 03/21/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 6C23099 Extracted: 03/23/06</u></b>											
<b>Duplicate Analyzed: 03/23/2006 (6C23099-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b><u>Batch: 6C24046 Extracted: 03/24/06</u></b>											
<b>Blank Analyzed: 03/24/2006 (6C24046-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/24/2006 (6C24046-BS1)</b>											
Oil & Grease	18.0	5.0	0.94	mg/l	20.0		90	65-120			M-NRI
<b>LCS Dup Analyzed: 03/24/2006 (6C24046-BSD1)</b>											
Oil & Grease	19.0	5.0	0.94	mg/l	20.0		95	65-120	5	20	

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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
IPC2200-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.19	4.7	15
IPC2200-01	Antimony-200.8	Antimony	ug/l	1.50	2.0	6.00
IPC2200-01	Cadmium-200.8	Cadmium	ug/l	0.017	1.0	4.00
IPC2200-01	Chloride - 300.0	Chloride	mg/l	8.50	0.50	150
IPC2200-01	Copper-200.8	Copper	ug/l	0.72	2.0	14
IPC2200-01	Lead-200.8	Lead	ug/l	0.30	1.0	5.20
IPC2200-01	Mercury - 245.1	Mercury	ug/l	0	0.20	0.20
IPC2200-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.89	0.15	10.00
IPC2200-01	Sulfate-300.0	Sulfate	mg/l	11	0.50	250
IPC2200-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	100	10	850
IPC2200-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

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### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** 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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## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

**Alta 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: IPC2200-01

Analysis Performed: EDD + Level 4

Samples: IPC2200-01

**Del Mar Analytical - Irvine**  
Michele Chamberlin  
Project Manager

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IPC 2200

**Del Mar Analytical** Version 03/01/08 **CHAIN OF CUSTODY FORM**

Client Name/Address:				Project:				ANALYSIS REQUIRED							Field readings:				
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Bronwyn Kelly</i>				Boeing-SSFL NPDES Routine Outfall 006 Stormwater at FSDF-2 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, TI	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	CH <sub>2</sub> SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS						Temp = 50.7	Comments
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #													
Outfall 006	W	Poly-1L	1	3/21/06	HNO3	1A	X												
Outfall 006-Dup	W	Poly-1L	1		HNO3	1B	X												
Outfall 006	W	Glass- Amber	2		None	2A, 2B		X											
Outfall 006	W	Glass- Amber	2		HCl	3A, 3B			X										
Outfall 006	W	Poly-500 ml	2		None	4A, 4B			X										
Outfall 006	W	Poly-500 ml	2		None	5A, 5B				X									
Relinquished By <i>[Signature]</i> Date/Time: 3/21/06 1715 Received By <i>[Signature]</i> Date/Time: 3/21/06 1715 Relinquished By <i>[Signature]</i> Date/Time: 3/21/06 1715 Received By <i>[Signature]</i> Date/Time: 3/21/06 2030 Relinquished By <i>[Signature]</i> Date/Time: 3/21/06 2030 Received By <i>[Signature]</i> Date/Time:																			
Turn around Time: (check) 5 Days _____ 24 Hours _____ 48 Hours _____ 72 Hours _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____ Sample Integrity: (Check) On box: 50 Intact <input checked="" type="checkbox"/>																			



, 2006

Project ID.: 27456

Hele Chamberlin  
Analytical, Irvine  
Meridian Avenue, Suite 100  
CA 92614

Hi Chamberlin,

Here are the results for the one aqueous sample received at Alta Analytical Laboratory on March 15 under your Project Name "IPC2200". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was requested 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, Alta's current accreditation, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

M. Maier  
Director of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Alta Analytical Laboratory Inc.**

1104 Windfield Way  
El Dorado Hills, CA 95762

FAX (916) 673-0106  
(916) 633-1640

Page 1 of 233

**NPDES - 4008**

**Section I: Sample Inventory Report**

**Date Received: 3/23/2006**

**Alta Lab. ID**

**Client Sample ID**

27456-001

IPC2200-01

**SECTION II**

Method Blank		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7893	Lab Sample:	0-MB001
Sample Size:	1.00 L	Date Extracted:	3-Apr-06	Date Analyzed DB-5:	4-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.000000744		77.8	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000247		46.4	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000119		80.7	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000116		77.6	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000113		82.4	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.00000126		65.0	17 - 157
OCDD	ND	0.00000292		78.3	24 - 169
2,3,7,8-TCDF	ND	0.00000786		57.4	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000186		46.8	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000205		80.8	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000547		74.4	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.00000523		80.3	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.00000572		82.0	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000731		79.6	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.00000476		84.6	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000528		68.7	17 - 157
OCDF	ND	0.00000148		95.1	35 - 197
<b>Totals</b>					
Total TCDD	ND	0.000000744			
Total PeCDD	ND	0.00000247			
Total HxCDD	ND	0.00000116			
Total HpCDD	ND	0.00000126			
Total TCDF	ND	0.00000786			
Total PeCDF	ND	0.00000195			
Total HxCDF	ND	0.00000588			
Total HpCDF	ND	0.00000500			

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: Martha M. Maier 05-Apr-2006 09:38



OPR Results		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7893	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	3-Apr-06	Date Analyzed DB-5:	4-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	72.5	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	42.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	69.3	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	62.9	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.5	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	52.7	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	74.0	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	47.8	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	40.2	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.7	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.1	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	68.8	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	68.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.9	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	70.8	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	56.1	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	97.9	35 - 197

Analyst: JMH

Approved By: Martha M. Maier 05-Apr-2006 09:38

Sample ID: <b>IPC2200-01</b>		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27456-001		
Project:	IPC2200	Sample Size:	1.01 L	QC Batch No.:	7893		
Date Collected:	21-Mar-06	DL <sup>a</sup>	EMPC <sup>b</sup>	Date Analyzed DB-5:	4-Apr-06		
Time Collected:	0850	Conc. (ug/L)	Qualifiers	Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.000000469		13C-2,3,7,8-TCDD	77.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000265		13C-1,2,3,7,8-PeCDD	40.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000951		13C-1,2,3,4,7,8-HxCDD	69.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000946		13C-1,2,3,6,7,8-HxCDD	68.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000915		13C-1,2,3,4,6,7,8-HpCDD	80.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000470		J	13C-OCDD	63.8	17 - 157	
OCDD	0.0000652			13C-2,3,7,8-TCDF	77.1	24 - 169	
2,3,7,8-TCDF	ND	0.000000861		13C-1,2,3,7,8-PeCDF	49.3	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000121		13C-2,3,4,7,8-PeCDF	41.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000133		13C-1,2,3,4,7,8-HxCDF	63.5	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000295		13C-1,2,3,6,7,8-HxCDF	54.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000303		13C-2,3,4,6,7,8-HxCDF	63.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000285		13C-1,2,3,7,8,9-HxCDF	75.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000330		13C-1,2,3,4,6,7,8-HpCDF	79.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000608		13C-1,2,3,4,7,8,9-HpCDF	84.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000619		13C-OCDF	69.6	17 - 157	
OCDF	ND	0.00000151		<b>CRS</b> 37Cl-2,3,7,8-TCDD	97.3	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.000000469					
Total PeCDD	ND	0.00000265					
Total HxCDD	ND	0.000000937					
Total HpCDD	0.0000112						
Total TCDF	ND	0.000000861					
Total PeCDF	ND	0.00000126					
Total HxCDF	ND	0.000000303					
Total HpCDF	ND	0.000000613					

**Footnotes**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: Martha M. Maier 05-Apr-2006 09:38

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 786-3620 Fax (702) 786-3621

## SUBCONTRACT ORDER - PROJECT # IPC2200

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical - Irvine 17461 Derian Avenue. Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 673-0106 <div style="text-align: right; font-size: 1.5em; font-family: cursive;">             27456              1.0°C           </div>

Standard TAT is requested unless specific due date is requested => Due Date: 2 weeks Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2200-01 Water	Sampled: 03/21/06 08:50	
1613-Dioxin-HR-Alta	03/28/06 08:50	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/18/06 08:50	Excel EDD email to pm, include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IPC2200-01C)		
1 L Amber (IPC2200-01D)		

SAMPLE INTEGRITY:									
All containers intact:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Sample labels/COC agree:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
Custody Seals Present:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Samples Preserved Properly:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
					Samples Received On Ice:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
					Samples Received at (temp):	_____			

Fed-Ex 3. 22 06

Released By	Date	Time	Received By	Date	Time
<i>[Signature]</i>			<i>Bottom G. Benedic</i>	3/23/06	0830
Released By	Date	Time	Received By	Date	Time

### SAMPLE LOG-IN CHECKLIST

Alta Project #: 27456

Samples Arrival:	Date/Time 3/23/06 0830	Initials: JBB	Location: WR-2
Logged In:	Date/Time 3/23/06 0943	Initials: JBB	Location: WR-2
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> Cal
	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C	1.0°C	Time: 0850	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill	✓		
Trk # 7926 9301 2660			
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?		COC	Sample Container
			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

**APPENDIX G**

**Section 100**

Outfall 006, March 21, 2006

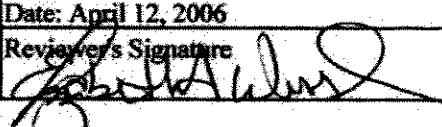
AMEC Data Validation Reports



**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF65  
 Task Order 1261.001D.01  
 SDG No. IPC2200

No. of Analyses 1  
 Date: April 12, 2006  
 Reviewer's Signature 

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/Furans by 1613

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# **DATA VALIDATION REPORT**

**NPDES Monitoring Program  
Annual Outfall 006**

**ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2200**

**Prepared by**

**MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014**

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2200  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 12, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 006	IPC2200-01	27456-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 1°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 03/22/2006 on instrument VG-5. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7893-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7893-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.



Client Data		Sample Data		Laboratory Data		EPA Method 1613	
Sample ID: IPC22100-01	Del Mar Analytical, Irvine IPC22100	Matrix: Aqueous	Volume: 1.01 L	Lab Sample: 27456-001	Date Received: 23-Mar-06	Labeled Standard	%R LCL-UCL <sup>d</sup> Qualifiers
Date Collected: 21-Mar-06	Date Collected: 21-Mar-06	Sample Size: 1.01 L		QC Batch No.: 7893	Date Extracted: 3-Apr-06		
Time Collected: 0850	Time Collected: 0850			Date Analyzed DB-5: 4-Apr-06	Date Analyzed DB-225: NA		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers			
2,3,7,8-TCDD	ND	0.00000469			IS	13C-2,3,7,8-TCDD	77.5 25 - 164
1,2,3,7,8-PeCDD	ND	0.00000265				13C-1,2,3,7,8-PeCDD	40.0 25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000951				13C-1,2,3,4,7,8-HxCDD	69.3 32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000946				13C-1,2,3,6,7,8-HxCDD	68.4 28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000915				13C-1,2,3,4,6,7,8-HpCDD	80.5 23 - 140
1,2,3,4,6,7,8-HpCDD	0.00000470			J		13C-OCDD	63.8 17 - 157
OCDD	0.0000652					13C-2,3,7,8-TCDF	77.1 24 - 169
2,3,7,8-TCDF	ND	0.00000861				13C-1,2,3,7,8-PeCDF	49.3 24 - 185
1,2,3,7,8-PeCDF	ND	0.0000121				13C-2,3,4,7,8-PeCDF	41.3 21 - 178
2,3,4,7,8-PeCDF	ND	0.0000133				13C-1,2,3,4,7,8-HxCDF	63.5 26 - 152
1,2,3,4,7,8-HxCDF	ND	0.00000295				13C-1,2,3,6,7,8-HxCDF	54.1 26 - 123
1,2,3,6,7,8-HxCDF	ND	0.00000303				13C-2,3,4,6,7,8-HxCDF	63.8 28 - 136
2,3,4,6,7,8-HxCDF	ND	0.00000285				13C-1,2,3,7,8,9-HxCDF	75.3 29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000330				13C-1,2,3,4,6,7,8-HpCDF	79.0 28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.00000608				13C-1,2,3,4,7,8,9-HpCDF	84.0 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000619				13C-OCDF	69.6 17 - 157
OCDF	ND	0.0000151				CBS 37CI-2,3,7,8-TCDD	97.3 35 - 197
<b>Totals</b>							
Total TCDD	ND	0.00000469				Footnotes	
Total PeCDD	ND	0.0000265				a. Sample specific estimated detection limit.	
Total HxCDD	ND	0.00000937				b. Estimated maximum possible concentration.	
Total HpCDD	0.0000112					c. Method detection limit.	
Total TCDF	ND	0.00000861				d. Lower control limit - upper control limit.	
Total PeCDF	ND	0.0000126					
Total HxCDF	ND	0.00000303					
Total HpCDF	ND	0.00000613					

Analyst: JMH  
Approved By: Martha M. Maier 05-Apr-2006 09:38

Project: 27456



**APPENDIX G**

**Section 101**

**Outfall 006, March 29, 2006**

**Del Mar Analytical Laboratory Report**



Del Mar Analytical

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

### LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 006

Sampled: 03/29/06  
Received: 03/29/06  
Issued: 03/31/06 17:12

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

LABORATORY ID  
IPC2957-01

CLIENT ID  
Outfall 006

MATRIX  
Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IPC2957

Sampled: 03/29/06  
 Received: 03/29/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2957-01 (Outfall 006 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C30082	0.050	2.0	0.73	1	03/30/06	03/30/06	J
Cadmium	EPA 200.8	6C30082	0.025	1.0	ND	1	03/30/06	03/30/06	
Copper	EPA 200.8	6C30082	0.25	2.0	0.83	1	03/30/06	03/30/06	J
Lead	EPA 200.8	6C30082	0.040	1.0	0.38	1	03/30/06	03/30/06	J
Mercury	EPA 245.1	6C30065	0.050	0.20	ND	1	03/30/06	03/30/06	
Thallium	EPA 200.8	6C30082	0.15	1.0	ND	1	03/30/06	03/30/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006 Report Number: IPC2957	Sampled: 03/29/06 Received: 03/29/06
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2957-01 (Outfall 006 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C29054	0.15	0.50	6.7	1	03/29/06	03/29/06	
Nitrate/Nitrite-N	EPA 300.0	6C29054	0.080	0.15	0.75	1	03/29/06	03/29/06	
Oil & Grease	EPA 413.1	6C30048	0.90	4.8	1.3	1	03/30/06	03/30/06	J
Sulfate	EPA 300.0	6C29054	0.45	0.50	7.1	1	03/29/06	03/29/06	
Total Dissolved Solids	SM2540C	6C30063	10	10	85	1	03/30/06	03/30/06	
Total Suspended Solids	EPA 160.2	6C30086	10	10	ND	1	03/30/06	03/30/06	

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IPC2957

Sampled: 03/29/06  
Received: 03/29/06

**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 006 (IPC2957-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/29/2006 10:35	03/29/2006 18:45	03/29/2006 21:30	03/29/2006 21:48

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Michele Chamberlin  
Project Manager



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006 Report Number: IPC2957	Sampled: 03/29/06 Received: 03/29/06
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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
<b>Batch: 6C30065 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30065-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30065-BS1)</b>											
Mercury	7.87	0.20	0.050	ug/l	8.00		98	85-115			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30065-MS1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.16	0.20	0.050	ug/l	8.00	ND	102	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30065-MSD1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.19	0.20	0.050	ug/l	8.00	ND	102	70-130	0	20	
<b>Batch: 6C30082 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30082-BLK1)</b>											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
Thallium	ND	1.0	0.075	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30082-BS1)</b>											
Antimony	81.2	2.0	0.050	ug/l	80.0		102	85-115			
Cadmium	80.9	1.0	0.025	ug/l	80.0		101	85-115			
Copper	79.1	2.0	0.25	ug/l	80.0		99	85-115			
Lead	80.3	1.0	0.040	ug/l	80.0		100	85-115			
Thallium	81.1	1.0	0.15	ug/l	80.0		101	85-115			

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300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IPC2957

Sampled: 03/29/06  
Received: 03/29/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30082 Extracted: 03/30/06</b>											
<b>Matrix Spike Analyzed: 03/30/2006 (6C30082-MS1)</b>						<b>Source: IPC2715-01</b>					
Antimony	75.5	2.0	0.18	ug/l	80.0	ND	94	70-130			
Cadmium	73.5	1.0	0.015	ug/l	80.0	ND	92	70-130			
Copper	99.5	2.0	0.49	ug/l	80.0	18	102	70-130			
Lead	81.5	1.0	0.13	ug/l	80.0	2.0	99	70-130			
Thallium	79.4	1.0	0.075	ug/l	80.0	ND	99	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30082-MSD1)</b>						<b>Source: IPC2715-01</b>					
Antimony	73.3	2.0	0.18	ug/l	80.0	ND	92	70-130	3	20	
Cadmium	71.1	1.0	0.015	ug/l	80.0	ND	89	70-130	3	20	
Copper	95.3	2.0	0.49	ug/l	80.0	18	97	70-130	4	20	
Lead	77.9	1.0	0.13	ug/l	80.0	2.0	95	70-130	5	20	
Thallium	76.9	1.0	0.075	ug/l	80.0	ND	96	70-130	3	20	

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29054 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29054-BLK1)</b>											
Chloride	0.161	0.50	0.15	mg/l							J
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29054-BS1)</b>											
Chloride	4.63	0.50	0.15	mg/l	5.00		93	90-110			
Sulfate	9.51	0.50	0.45	mg/l	10.0		95	90-110			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29054-MS1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120			
Sulfate	10.3	0.50	0.45	mg/l	10.0	1.2	91	80-120			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29054-MSD1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120	0	20	
Sulfate	10.2	0.50	0.45	mg/l	10.0	1.2	90	80-120	1	20	
<b>Batch: 6C30048 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30048-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30048-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NR1
<b>LCS Dup Analyzed: 03/30/2006 (6C30048-BSD1)</b>											
Oil & Grease	19.4	5.0	0.94	mg/l	20.0		97	65-120	9	20	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IPC2957

Sampled: 03/29/06  
 Received: 03/29/06

## 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: 6C30063 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30063-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30063-BS1)</b>											
Total Dissolved Solids	990	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/30/2006 (6C30063-DUP1)</b>											
						<b>Source: IPC2961-01</b>					
Total Dissolved Solids	295	10	10	mg/l		300			2	10	
<b>Batch: 6C30086 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30086-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30086-BS1)</b>											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 03/30/2006 (6C30086-DUP1)</b>											
						<b>Source: IPC2670-01</b>					
Total Suspended Solids	216	10	10	mg/l		230			6	10	

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Attention: Bronwyn Kelly

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Report Number: IPC2957

Sampled: 03/29/06  
Received: 03/29/06

### 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
IPC2957-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.30	4.8	15
IPC2957-01	Antimony-200.8	Antimony	ug/l	0.73	2.0	6.00
IPC2957-01	Cadmium-200.8	Cadmium	ug/l	0	1.0	4.00
IPC2957-01	Chloride - 300.0	Chloride	mg/l	6.70	0.50	150
IPC2957-01	Copper-200.8	Copper	ug/l	0.83	2.0	14
IPC2957-01	Lead-200.8	Lead	ug/l	0.38	1.0	5.20
IPC2957-01	Mercury - 245.1	Mercury	ug/l	0.016	0.20	0.20
IPC2957-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.75	0.15	10.00
IPC2957-01	Sulfate-300.0	Sulfate	mg/l	7.10	0.50	250
IPC2957-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	85	10	850
IPC2957-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

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### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NRI** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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IPC2957 <Page ~~NPDES~~ - 4038



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Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

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Received: 03/29/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

**Alta 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: IPC2957-01

Analysis Performed: EDD + Level 4

Samples: IPC2957-01

**Del Mar Analytical - Irvine**

Michele Chamberlin

Project Manager

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IP(0957

# Del Mar Analytical Version 03/01/06 CHAIN OF CUSTODY FORM

<b>Client Name/Address:</b> MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 <b>Project Manager:</b> Bronwyn Kelly <b>Sampler:</b> <i>See 1234</i>				<b>Project:</b> Boeing-SSFL NPDES Routine Outfall 006 Stormwater at FSDIF-2 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				<b>ANALYSIS REQUIRED</b> Total Recoverable Metals: <input type="checkbox"/> Sb, Cd, Cu, Pb, Hg, Tl TCDD (and all congeners) <input type="checkbox"/> <input type="checkbox"/> Oil & Grease (EPA 413.1) <input type="checkbox"/> Cl <sub>2</sub> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N <input type="checkbox"/> TDS, TSS <input type="checkbox"/> Field readings: Temp = 55°C pH = 7.4 Comments					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl <sub>2</sub> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS	Field readings	Comments
Outfall 006	W	Poly-1L	1	3/29/06 10:35	HNO3	1A	X					Temp = 55°C	
Outfall 006-Dup	W	Poly-1L	1		HNO3	1B	X					pH = 7.4	
Outfall 006	W	Glass-Amber	2		None	2A, 2B		X					
Outfall 006	W	Glass-Amber	2		HCl	3A, 3B		X					
Outfall 006	W	Poly-500 ml	2		None	4A, 4B			X				
Outfall 006	W	Poly-500 ml	2	3/29/06 10:35	None	5A, 5B				X			
Relinquished By: <i>See 1234</i> Date/Time: 3/29/06 1600 Relinquished By: <i>See 1234</i> Date/Time: 3/29/06 1845 Relinquished By: <i>See 1234</i> Date/Time: 3/29/06 1845							Received By: <i>See 1234</i> Date/Time: 3/29/06 1600 Received By: <i>See 1234</i> Date/Time: 3/29/06 1845 Received By: <i>See 1234</i> Date/Time: 3/29/06 1845						
Turn around Time: (check) 24 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 48 Hours <input type="checkbox"/> 10 Days <input type="checkbox"/> 72 Hours <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Perchlorate Only 72 Hours <input type="checkbox"/> Metals Only 72 Hours <input type="checkbox"/> Sample Integrity: (Check) Intact <input checked="" type="checkbox"/> On Ice: <input type="checkbox"/>													

*See 1234*  
3/29/06



April 04, 2006

**Alta Project I.D.: 27512**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 31, 2006 under your Project Name "IPC2957". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier  
Director of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Section I: Sample Inventory Report**

**Date Received: 3/31/2006**

Alta Lab. ID

Client Sample ID

27512-001

IPC2957-01

## SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-MB001			
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000128			IS 13C-2,3,7,8-TCDD	69.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000135			13C-1,2,3,7,8-PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000138			13C-1,2,3,4,7,8-HxCDD	74.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000142			13C-1,2,3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000135			13C-1,2,3,4,6,7,8-HpCDD	76.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000972			13C-OCDD	37.5	17 - 157	
OCDD	ND	0.00000275			13C-2,3,7,8-TCDF	70.7	24 - 169	
2,3,7,8-TCDF	ND	0.00000102			13C-1,2,3,7,8-PeCDF	75.7	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000106			13C-2,3,4,7,8-PeCDF	78.6	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000103			13C-1,2,3,4,7,8-HxCDF	74.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000440			13C-1,2,3,6,7,8-HxCDF	76.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000410			13C-2,3,4,6,7,8-HxCDF	76.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000469			13C-1,2,3,7,8,9-HxCDF	76.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000599			13C-1,2,3,4,6,7,8-HpCDF	65.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000672			13C-1,2,3,4,7,8,9-HpCDF	76.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000661			13C-OCDF	47.0	17 - 157	
OCDF	ND	0.00000405			CRS 37Cl-2,3,7,8-TCDD	83.8	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000128						
Total PeCDD	ND	0.00000135						
Total HxCDD	ND	0.00000138						
Total HpCDD	ND	0.00000972						
Total TCDF	ND	0.00000102						
Total PeCDF	ND	0.00000104						
Total HxCDF	ND	0.00000474						
Total HpCDF	ND	0.00000692						
<b>Footnotes</b>								
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:40

OPR Results		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	62.4	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	65.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	60.0	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.0	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	30.1	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	61.7	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	65.3	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	68.0	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	60.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.0	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	60.3	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	37.3	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.6	35 - 197

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:40

Sample ID: **IPC2957-01**

EPA Method 1613

**Client Data**

Name: Del Mar Analytical, Irvine  
 Project: IPC2957  
 Date Collected: 29-Mar-06  
 Time Collected: 1035

**Sample Data**

Matrix: Aqueous  
 Sample Size: 1.04 L

**Laboratory Data**

Lab Sample: 27512-001 Date Received: 31-Mar-06  
 QC Batch No.: 7889 Date Extracted: 1-Apr-06  
 Date Analyzed DB-5: 3-Apr-06 Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000116			IS 13C-2,3,7,8-TCDD	62.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000141			13C-1,2,3,7,8-PeCDD	65.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000140			13C-1,2,3,4,7,8-HxCDD	62.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000144			13C-1,2,3,6,7,8-HxCDD	63.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000138			13C-1,2,3,4,6,7,8-HpCDD	65.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000413			J	13C-OCDD	36.2	17 - 157	
OCDD	0.0000656				13C-2,3,7,8-TCDF	58.2	24 - 169	
2,3,7,8-TCDF	ND	0.00000125			13C-1,2,3,7,8-PeCDF	58.2	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000134			13C-2,3,4,7,8-PeCDF	62.7	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000112			13C-1,2,3,4,7,8-HxCDF	63.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000315			13C-1,2,3,6,7,8-HxCDF	62.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000292			13C-2,3,4,6,7,8-HxCDF	65.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000319			13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000421			13C-1,2,3,4,6,7,8-HpCDF	56.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000720			13C-1,2,3,4,7,8,9-HpCDF	67.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000625			13C-OCDF	43.4	17 - 157	
OCDF	ND	0.00000346			CRS 37Cl-2,3,7,8-TCDD	81.2	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000116						
Total PeCDD	ND	0.00000141						
Total HxCDD	ND	0.00000140						
Total HpCDD	0.00000938							
Total TCDF	ND	0.00000125						
Total PeCDF	ND	0.00000123						
Total HxCDF	ND	0.000000334						
Total HpCDF	ND	0.000000673						

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:40

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IPC2957

**SENDING LABORATORY:**  
 Del Mar Analytical - Irvine  
 17461 Derian Avenue. Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Alta Analytical - SUB  
 1104 Windfield Way  
 El Dorado Hills, CA 95762  
 Phone: (916) 933-1640  
 Fax: (916) 673-0106

27512  
1.3°C

Standard TAT is requested unless specific due date is requested => Due Date: 4/6/06 Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2957-01 Water	Sampled: 03/29/06 10:35	
1613-Dioxin-HR-Alta	04/05/06 10:35	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/26/06 10:35	Excel EDD email to pm, Include Std logs for Lvl IV

**Containers Supplied:**  
 1 L Amber (IPC2957-01C)  
 1 L Amber (IPC2957-01D)

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): \_\_\_\_\_

Released By: Hayden Date: 3/30/06 Time: \_\_\_\_\_ Received By: Bethena J. Benedict Date: 3/31/06 Time: 0905

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27512

Samples Arrival:	Date/Time 3/31/06 0905	Initials: BBB	Location: WR-2
Logged In:	Date/Time 3/31/06 1154	Initials: BBB	Location: WR-2
Delivered By:	<u>FedEx</u> UPS	Cal	DHL Hand Delivered Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice None
Temp °C	1.3°	Time: 1010	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill			
Trk #	7919 02179339		
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?			<u>None</u>
Shipping Container	Alta	<u>Client</u>	Retain <u>Return</u> Dispose

Comments:



# **APPENDIX G**

## **Section 102**

**Outfall 006, March 29, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF69  
 Task Order 1261.001D.01  
 SDG No. IPC2957  
 No. of Analyses 1

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/Furans by 1613

Date: April 13, 2006  
 Reviewer's Signature 

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

**NPDES Monitoring Program  
Annual Outfall 006**

**ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2957**

Prepared by

**MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014**

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2957  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 13, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 006	IPC2957-01	27512-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 1.3°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7889-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7889-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.





Client Data		Sample Data			Laboratory Data			EPA Method 1613			
Sample ID: IPC2957-01	Del Mar Analytical, Irvine	Name: IPC2957	Matrix: Aqueous	Lab Sample: 27512-001	Date Received: 31-Mar-06	QC Batch No.: 7889	Date Extracted: 1-Apr-06	Date Analyzed DB-S: 3-Apr-06	Date Analyzed DB-225: N/A		
	29-Mar-06	1035	Sample Size: 1.04 L								
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL	UCL <sup>d</sup>	Qualifiers		
2,3,7,8-TCDD	ND	0.00000116			13C-2,3,7,8-TCDD	62.0	25	164			
1,2,3,7,8-PeCDD	ND	0.00000141			13C-1,2,3,7,8-PeCDD	65.8	25	181			
1,2,3,4,7,8-HxCDD	ND	0.00000140			13C-1,2,3,4,7,8-HxCDD	62.3	32	141			
1,2,3,6,7,8-HxCDD	ND	0.00000144			13C-1,2,3,6,7,8-HxCDD	63.7	28	130			
1,2,3,7,8,9-HxCDD	ND	0.00000138			13C-1,2,3,4,6,7,8-HpCDD	65.6	23	140			
1,2,3,4,6,7,8-HpCDD	0.00000413				13C-OCDD	36.2	17	157			
OCDD	0.0000656				13C-2,3,7,8-TCDF	58.2	24	169			
2,3,7,8-TCDF	ND	0.00000125			13C-1,2,3,7,8-PeCDF	58.2	24	185			
1,2,3,7,8-PeCDF	ND	0.00000134			13C-2,3,4,7,8-PeCDF	62.7	21	178			
2,3,4,7,8-PeCDF	ND	0.00000112			13C-1,2,3,4,7,8-HxCDF	63.8	26	152			
1,2,3,4,7,8-HxCDF	ND	0.000000315			13C-1,2,3,6,7,8-HxCDF	62.8	26	123			
1,2,3,6,7,8-HxCDF	ND	0.000000292			13C-2,3,4,6,7,8-HxCDF	65.1	28	136			
2,3,4,6,7,8-HxCDF	ND	0.000000319			13C-1,2,3,7,8,9-HxCDF	65.7	29	147			
1,2,3,7,8,9-HxCDF	ND	0.000000421			13C-1,2,3,4,6,7,8-HpCDF	56.8	28	143			
1,2,3,4,6,7,8-HpCDF	ND	0.000000720			13C-1,2,3,4,7,8,9-HpCDF	67.1	26	138			
1,2,3,4,7,8,9-HpCDF	ND	0.000000625			13C-OCDF	43.4	17	157			
OCDF	ND	0.00000346			CRS 37C1,2,3,7,8-TCDD	81.2	35	197			
Totals											
Total TCDD	ND	0.00000116									
Total PeCDD	ND	0.00000141									
Total HxCDD	ND	0.00000140									
Total HpCDD	0.00000938										
Total TCDF	ND	0.00000125									
Total PeCDF	ND	0.00000123									
Total HxCDF	ND	0.000000334									
Total HpCDF	ND	0.000000673									

*Outflow*

*QC*

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Approved By: Martha M. Maier 04-Apr-2006 14:40

Analyst: DMS

# LEVEL IV

# **APPENDIX G**

## **Section 103**

**Outfall 007, March 29, 2006**

**Del Mar Analytical Laboratory Report**



Del Mar Analytical

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

### LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 007

Sampled: 03/29/06  
Received: 03/29/06  
Issued: 03/31/06 17:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

LABORATORY ID  
IPC2954-01

CLIENT ID  
Outfall 007

MATRIX  
Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007  Report Number: IPC2954	Sampled: 03/29/06 Received: 03/29/06
--	---	---

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2954-01 (Outfall 007 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C29141	0.050	2.0	2.3	1	03/29/06	03/30/06	
Cadmium	EPA 200.8	6C29141	0.025	1.0	ND	1	03/29/06	03/30/06	
Copper	EPA 200.8	6C29141	0.25	2.0	4.2	1	03/29/06	03/30/06	
Lead	EPA 200.8	6C29141	0.040	1.0	2.6	1	03/29/06	03/30/06	
Mercury	EPA 245.1	6C30065	0.050	0.20	ND	1	03/30/06	03/30/06	
Thallium	EPA 200.8	6C29141	0.15	1.0	ND	1	03/29/06	03/30/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06

Received: 03/29/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2954-01 (Outfall 007 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C29054	0.15	0.50	3.5	1	03/29/06	03/29/06	
Nitrate/Nitrite-N	EPA 300.0	6C29054	0.080	0.15	0.42	1	03/29/06	03/29/06	
Oil & Grease	EPA 413.1	6C30048	0.90	4.8	ND	1	03/30/06	03/30/06	
Sulfate	EPA 300.0	6C29054	0.45	0.50	5.5	1	03/29/06	03/29/06	
Total Dissolved Solids	SM2540C	6C30063	10	10	140	1	03/30/06	03/30/06	
Total Suspended Solids	EPA 160.2	6C30086	10	10	ND	1	03/30/06	03/30/06	

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06  
Received: 03/29/06

**SHORT HOLD TIME DETAIL REPORT**

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 007 (IPC2954-01) - Water EPA 300.0	2	03/29/2006 11:15	03/29/2006 18:45	03/29/2006 20:30	03/29/2006 21:17

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06  
 Received: 03/29/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD Limit	Data Qualifiers
<b>Batch: 6C29141 Extracted: 03/29/06</b>										
<b>Blank Analyzed: 03/30/2006 (6C29141-BLK1)</b>										
Antimony	ND	2.0	0.050	ug/l						
Cadmium	ND	1.0	0.025	ug/l						
Copper	ND	2.0	0.25	ug/l						
Lead	ND	1.0	0.040	ug/l						
Thallium	ND	1.0	0.15	ug/l						
<b>LCS Analyzed: 03/30/2006 (6C29141-BS1)</b>										
Antimony	76.0	2.0	0.050	ug/l	80.0		95	85-115		
Cadmium	76.9	1.0	0.025	ug/l	80.0		96	85-115		
Copper	75.5	2.0	0.25	ug/l	80.0		94	85-115		
Lead	78.2	1.0	0.040	ug/l	80.0		98	85-115		
Thallium	77.6	1.0	0.15	ug/l	80.0		97	85-115		
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS1) Source: IPC2844-01</b>										
Antimony	78.8	2.0	0.050	ug/l	80.0	0.68	98	70-130		
Cadmium	75.4	1.0	0.025	ug/l	80.0	ND	94	70-130		
Copper	384	2.0	0.25	ug/l	80.0	320	80	70-130		
Lead	76.3	1.0	0.040	ug/l	80.0	1.1	94	70-130		
Thallium	75.5	1.0	0.15	ug/l	80.0	ND	94	70-130		
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS2) Source: IPC2911-01</b>										
Antimony	84.6	2.0	0.050	ug/l	80.0	ND	106	70-130		
Cadmium	81.9	1.0	0.025	ug/l	80.0	ND	102	70-130		
Copper	87.2	2.0	0.25	ug/l	80.0	8.8	98	70-130		
Lead	83.4	1.0	0.040	ug/l	80.0	0.35	104	70-130		
Thallium	82.8	1.0	0.15	ug/l	80.0	ND	104	70-130		
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C29141-MSD1) Source: IPC2844-01</b>										
Antimony	82.4	2.0	0.050	ug/l	80.0	0.68	102	70-130	4	20
Cadmium	78.8	1.0	0.025	ug/l	80.0	ND	98	70-130	4	20
Copper	403	2.0	0.25	ug/l	80.0	320	104	70-130	5	20
Lead	82.3	1.0	0.040	ug/l	80.0	1.1	102	70-130	8	20
Thallium	80.9	1.0	0.15	ug/l	80.0	ND	101	70-130	7	20

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007  Report Number: IPC2954	Sampled: 03/29/06 Received: 03/29/06
--	---	---

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30065 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30065-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30065-BS1)</b>											
Mercury	7.87	0.20	0.050	ug/l	8.00		98	85-115			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30065-MS1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.16	0.20	0.050	ug/l	8.00	ND	102	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30065-MSD1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.19	0.20	0.050	ug/l	8.00	ND	102	70-130	0	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IPC2954	Sampled: 03/29/06 Received: 03/29/06
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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29054 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29054-BLK1)</b>											
Chloride	0.161	0.50	0.15	mg/l							J
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29054-BS1)</b>											
Chloride	4.63	0.50	0.15	mg/l	5.00		93	90-110			
Sulfate	9.51	0.50	0.45	mg/l	10.0		95	90-110			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29054-MS1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120			
Sulfate	10.3	0.50	0.45	mg/l	10.0	1.2	91	80-120			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29054-MSD1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120	0	20	
Sulfate	10.2	0.50	0.45	mg/l	10.0	1.2	90	80-120	1	20	
<b>Batch: 6C30048 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30048-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30048-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NR1
<b>LCS Dup Analyzed: 03/30/2006 (6C30048-BSD1)</b>											
Oil & Grease	19.4	5.0	0.94	mg/l	20.0		97	65-120	9	20	

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06

Received: 03/29/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30063 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30063-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30063-BS1)</b>											
Total Dissolved Solids	990	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/30/2006 (6C30063-DUP1)</b>											
Total Dissolved Solids	295	10	10	mg/l		300			2	10	
<b>Batch: 6C30086 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30086-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30086-BS1)</b>											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 03/30/2006 (6C30086-DUP1)</b>											
Total Suspended Solids	216	10	10	mg/l		230			6	10	

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# Del Mar Analytical

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06  
 Received: 03/29/06

## 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
IPC2954-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.19	4.8	15
IPC2954-01	Antimony-200.8	Antimony	ug/l	2.30	2.0	6.00
IPC2954-01	Cadmium-200.8	Cadmium	ug/l	0.0062	1.0	4.00
IPC2954-01	Chloride - 300.0	Chloride	mg/l	3.50	0.50	150
IPC2954-01	Copper-200.8	Copper	ug/l	4.20	2.0	14
IPC2954-01	Lead-200.8	Lead	ug/l	2.60	1.0	5.20
IPC2954-01	Mercury - 245.1	Mercury	ug/l	0.025	0.20	0.20
IPC2954-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.42	0.15	10.00
IPC2954-01	Sulfate-300.0	Sulfate	mg/l	5.50	0.50	250
IPC2954-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	140	10	850
IPC2954-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

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 Michele Chamberlin  
 Project Manager



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06

Received: 03/29/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NR1** 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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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IPC2954

Sampled: 03/29/06  
Received: 03/29/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

**Alta 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: IPC2954-01

Analysis Performed: EDD + Level 4

Samples: IPC2954-01

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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IP 02954

Client Name/Address:				Project:				ANALYSIS REQUIRED						Field readings:	
MVH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Bronwyn Kelly</i>				Boeing-SSFL NPDES Routine Outfall 007 Stormwater at Building 100 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl, SO4, NO3+NO2-N	TDS, TSS			Temp = 53°C pH = 7.0
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #									
Outfall 007	W	Poly-1L	1	3/24/06 11:15	HNO3	1A	X								
Outfall 007-Dup	W	Poly-1L	1		HNO3	1B	X								
Outfall 007	W	Glass-Amber	2		None	2A, 2B		X							
Outfall 007	W	Glass-Amber	2		HCl	3A, 3B		X							
Outfall 007	W	Poly-500 ml	2		None	4A, 4B			X						
Outfall 007	W	Poly-500 ml	2	3/24/06 11:15	None	5A, 5B				X					
Relinquished By <i>Bronwyn Kelly</i> 3/29/06 16:00 Date/Time: 3/29/06 16:00 Received By <i>Bronwyn Kelly</i> 3/29/06 16:00 Date/Time: 3/29/06 16:00													Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____		
Relinquished By <i>Bronwyn Kelly</i> 3/29/06 18:45 Date/Time: 3/29/06 18:45 Received By <i>Bronwyn Kelly</i> 3/29/06 18:45 Date/Time: 3/29/06 18:45													Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____ Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>		

*IP*  
*3/29/06*  
*2025*



April 04, 2006

**Alta Project I.D.: 27511**

**Ms. Michele Chamberlin**  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 31, 2006 under your Project Name "IPC2954". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier  
Director of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Section I: Sample Inventory Report**

**Date Received: 3/31/2006**

Alta Lab. ID

Client Sample ID

27511-001

IPC2954-01



**SECTION II**

Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-MB001		
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000128		IS 13C-2,3,7,8-TCDD	69.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000135		13C-1,2,3,7,8-PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000138		13C-1,2,3,4,7,8-HxCDD	74.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000142		13C-1,2,3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000135		13C-1,2,3,4,6,7,8-HpCDD	76.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.000000972		13C-OCDD	37.5	17 - 157	
OCDD	ND	0.00000275		13C-2,3,7,8-TCDF	70.7	24 - 169	
2,3,7,8-TCDF	ND	0.00000102		13C-1,2,3,7,8-PeCDF	75.7	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000106		13C-2,3,4,7,8-PeCDF	78.6	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000103		13C-1,2,3,4,7,8-HxCDF	74.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000440		13C-1,2,3,6,7,8-HxCDF	76.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000410		13C-2,3,4,6,7,8-HxCDF	76.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000469		13C-1,2,3,7,8,9-HxCDF	76.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000599		13C-1,2,3,4,6,7,8-HpCDF	65.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000722		13C-1,2,3,4,7,8,9-HpCDF	76.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000661		13C-OCDF	47.0	17 - 157	
OCDF	ND	0.00000405		CRS 37CL2,3,7,8-TCDD	83.8	35 - 197	
<b>Totals</b>				<b>Footnotes</b>			
Total TCDD	ND	0.00000128		a. Sample specific estimated detection limit.			
Total PeCDD	ND	0.00000135		b. Estimated maximum possible concentration.			
Total HxCDD	ND	0.00000138		c. Method detection limit.			
Total HpCDD	ND	0.000000972		d. Lower control limit - upper control limit.			
Total TCDF	ND	0.00000102					
Total PeCDF	ND	0.00000104					
Total HxCDF	ND	0.000000474					
Total HpCDF	ND	0.000000692					

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:34

OPR Results		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	62.4	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	65.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	60.0	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.0	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	30.1	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	61.7	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	65.3	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	68.0	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	60.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.0	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	60.3	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	37.3	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.6	35 - 197

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:34

**Sample ID:** IPC2954-01 **EPA Method 1613**

**Client Data**  
 Name: Del Mar Analytical, Irvine  
 Project: IPC2954  
 Date Collected: 29-Mar-06  
 Time Collected: 1115

**Sample Data**  
 Matrix: Aqueous  
 Sample Size: 1.03 L

**Laboratory Data**  
 Lab Sample: 27511-001 Date Received: 31-Mar-06  
 QC Batch No.: 7889 Date Extracted: 1-Apr-06  
 Date Analyzed DB-5: 3-Apr-06 Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000132			IS 13C-2,3,7,8-TCDD	62.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000107			13C-1,2,3,7,8-PeCDD	67.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000111			13C-1,2,3,4,7,8-HxCDD	60.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000116			13C-1,2,3,6,7,8-HxCDD	64.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000110			13C-1,2,3,4,6,7,8-HpCDD	67.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000156			J	13C-OCDD	39.4	17 - 157	
OCDD	0.000112				13C-2,3,7,8-TCDF	54.2	24 - 169	
2,3,7,8-TCDF	ND	0.00000121			13C-1,2,3,7,8-PeCDF	56.8	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000130			13C-2,3,4,7,8-PeCDF	60.1	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000116			13C-1,2,3,4,7,8-HxCDF	63.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000271			13C-1,2,3,6,7,8-HxCDF	64.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000260			13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000272			13C-1,2,3,7,8,9-HxCDF	65.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000370			13C-1,2,3,4,6,7,8-HpCDF	59.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000114			J	13C-1,2,3,4,7,8,9-HpCDF	70.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000441			13C-OCDF	47.0	17 - 157	
OCDF	0.00000479			J	CRS 37Cl-2,3,7,8-TCDD	80.4	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000132						
Total PeCDD	ND	0.00000107						
Total HxCDD	0.00000361							
Total HpCDD	0.0000290							
Total TCDF	ND	0.00000121						
Total PeCDF	ND	0.00000123						
Total HxCDF	ND	0.00000290						
Total HpCDF	0.00000134							

**Footnotes**  
 a. Sample specific estimated detection limit.  
 b. Estimated maximum possible concentration.  
 c. Method detection limit.  
 d. Lower control limit - upper control limit.

Analyst: DMS  
 Approved By: Martha M. Maier 04-Apr-2006 14:34

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9696 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IPC2954**

**SENDING LABORATORY:**  
 Del Mar Analytical - Irvine  
 17461 Derian Avenue. Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Alta Analytical - SUB  
 1104 Windfield Way  
 El Dorado Hills, CA 95762  
 Phone: (916) 933-1640  
 Fax: (916) 673-0106  
 27511  
 1.3°C

Standard TAT is requested unless specific due date is requested => Due Date: 4/6/06 Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2954-01 Water	Sampled: 03/29/06 11:15	Instant Notification
1613-Dioxin-HR-Alta	04/05/06 11:15	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/26/06 11:15	Excel EDD email to pm, Include Std logs for Lvl IV

**Containers Supplied:**  
 1 L Amber (IPC2954-01C)  
 1 L Amber (IPC2954-01D)

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): \_\_\_\_\_

Released By: [Signature] Date: 3/30/06 Time: \_\_\_\_\_ Received By: [Signature] Date: 3/31/06 Time: 0905

Released By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



### SAMPLE LOG-IN CHECKLIST

Alta Project #: 27511

Samples Arrival:	Date/Time <u>3/31/06 0905</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>			
Logged In:	Date/Time <u>3/31/06 1157</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>			
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> Cal	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered	<input type="radio"/> Other
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice	<input type="radio"/> None		
Temp °C	<u>1.3°</u>	Time:	<u>1010</u>	Thermometer ID: DT-20		

	YES	NO	NA		
Adequate Sample Volume Received?	✓				
Holding Time Acceptable?	✓				
Shipping Container(s) Intact?	✓				
Shipping Custody Seals Intact?	✓				
Shipping Documentation Present?	✓				
Airbill	✓				
Trk # <u>7919 02179339</u>	✓				
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?			<input checked="" type="radio"/> None		
Shipping Container	Alta	<input checked="" type="radio"/> Client	Retain	<input checked="" type="radio"/> Return	Dispose

Comments:

# **APPENDIX G**

## **Section 104**


**Outfall 007, March 29, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF67  
 Task Order 1261.001D.01  
 SDG No. IPC2954

No. of Analyses 1  
 Date: April 13, 2006  
 Reviewer's Signature 

Laboratory Alta Analytical

Reviewer E. Wessling

Analysis/Method Dioxins/Furans by 1613

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 007

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2954

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2954  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 13, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 007	IPC2954-01	27511-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 1.3°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7889-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7889-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.



## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.



Client Data		Sample Data		Laboratory Data		EPA Method 1613	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27511-001	Date Received:	31-Mar-06
Project:	IPC2954	Sample Size:	1.03 L	QC Batch No.:	7889	Date Extracted:	1-Apr-06
Date Collected:	29-Mar-06			Date Analyzed DB-5:	3-Apr-06	Date Analyzed DB-225:	NA
Time Collected:	1115						
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.0000132			IS 13C-2,3,7,8-TCDD	62.6	25 - 164
1,2,3,7,8-PeCDD	ND	0.0000107			13C-1,2,3,7,8-PeCDD	67.6	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.0000111			13C-1,2,3,4,7,8-HxCDD	60.5	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.0000116			13C-1,2,3,6,7,8-HxCDD	64.2	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.0000110		J	13C-1,2,3,4,6,7,8-HpCDD	67.5	23 - 140
1,2,3,4,6,7,8-HpCDD	0.0000156				13C-OCDD	39.4	17 - 157
OCDD	0.000112				13C-2,3,7,8-TCDF	54.2	24 - 169
2,3,7,8-TCDF	ND	0.0000121			13C-1,2,3,7,8-PeCDF	56.8	24 - 185
1,2,3,7,8-PeCDF	ND	0.0000130			13C-2,3,4,7,8-PeCDF	60.1	21 - 178
2,3,4,7,8-PeCDF	ND	0.0000116			13C-1,2,3,4,7,8-HxCDF	63.8	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.00000271			13C-1,2,3,6,7,8-HxCDF	64.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.00000260			13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.00000272			13C-1,2,3,7,8,9-HxCDF	65.6	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000370			13C-1,2,3,4,6,7,8-HpCDF	59.6	28 - 143
1,2,3,4,6,7,8-HpCDF	0.0000114			J	13C-1,2,3,4,7,8,9-HpCDF	70.0	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000441		J	13C-OCDF	47.0	17 - 157
OCDF	0.00000479				CBS 37Cl-2,3,7,8-TCDD	80.4	35 - 197
<b>Totals</b>							
Total TCDD	ND	0.0000132					
Total PeCDD	ND	0.0000107					
Total HxCDD	0.0000361						
Total HpCDD	0.0000290						
Total TCDF	ND	0.0000121					
Total PeCDF	ND	0.0000123					
Total HxCDF	ND	0.00000290					
Total HpCDF	0.0000114						

Outfall 007

APC  
CDD  
CDF

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Project 27511

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 14:34

LEVEL IV

**APPENDIX G**

**Section 105**

**Outfall 008, March 29, 2006**

**Del Mar Analytical Laboratory Report**



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 008

Sampled: 03/29/06  
Received: 03/29/06  
Issued: 03/31/06 18:34

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

**LABORATORY ID**  
IPC2952-01

**CLIENT ID**  
Outfall 008

**MATRIX**  
Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06

Received: 03/29/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC2952-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C29141	0.050	2.0	0.46	1	03/29/06	03/30/06	J
Cadmium	EPA 200.8	6C29141	0.025	1.0	0.030	1	03/29/06	03/30/06	J
Copper	EPA 200.8	6C29141	0.25	2.0	4.1	1	03/29/06	03/30/06	
Lead	EPA 200.8	6C29141	0.040	1.0	1.0	1	03/29/06	03/30/06	
Mercury	EPA 245.1	6C30065	0.050	0.20	ND	1	03/30/06	03/30/06	
Thallium	EPA 200.8	6C29141	0.15	1.0	ND	1	03/29/06	03/30/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008  Report Number: IPC2952	Sampled: 03/29/06 Received: 03/29/06
--	---	---

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2952-01 (Outfall 008 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C29054	0.15	0.50	16	1	03/29/06	03/29/06	
Nitrate/Nitrite-N	EPA 300.0	6C29054	0.16	0.30	7.7	2	03/29/06	03/29/06	
Oil & Grease	EPA 413.1	6C30048	0.89	4.7	ND	1	03/30/06	03/30/06	
Sulfate	EPA 300.0	6C29054	0.45	0.50	21	1	03/29/06	03/29/06	
Total Dissolved Solids	SM2540C	6C30063	10	10	260	1	03/30/06	03/30/06	
Total Suspended Solids	EPA 160.2	6C30086	10	10	10	1	03/30/06	03/30/06	
<b>Sample ID: IPC2952-01 (Outfall 008 - Water)</b>									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	6C30069	0.80	4.0	0.97	1	03/30/06	03/31/06	J

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 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008  Report Number: IPC2952	Sampled: 03/29/06 Received: 03/29/06
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## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 008 (IPC2952-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/29/2006 10:35	03/29/2006 18:45	03/29/2006 20:30	03/29/2006 22:51

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 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06  
 Received: 03/29/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29141 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C29141-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
Thallium	ND	1.0	0.15	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C29141-BS1)</b>											
Antimony	76.0	2.0	0.050	ug/l	80.0		95	85-115			
Cadmium	76.9	1.0	0.025	ug/l	80.0		96	85-115			
Copper	75.5	2.0	0.25	ug/l	80.0		94	85-115			
Lead	78.2	1.0	0.040	ug/l	80.0		98	85-115			
Thallium	77.6	1.0	0.15	ug/l	80.0		97	85-115			
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS1) Source: IPC2844-01</b>											
Antimony	78.8	2.0	0.050	ug/l	80.0	0.68	98	70-130			
Cadmium	75.4	1.0	0.025	ug/l	80.0	ND	94	70-130			
Copper	384	2.0	0.25	ug/l	80.0	320	80	70-130			
Lead	76.3	1.0	0.040	ug/l	80.0	1.1	94	70-130			
Thallium	75.5	1.0	0.15	ug/l	80.0	ND	94	70-130			
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS2) Source: IPC2911-01</b>											
Antimony	84.6	2.0	0.050	ug/l	80.0	ND	106	70-130			
Cadmium	81.9	1.0	0.025	ug/l	80.0	ND	102	70-130			
Copper	87.2	2.0	0.25	ug/l	80.0	8.8	98	70-130			
Lead	83.4	1.0	0.040	ug/l	80.0	0.35	104	70-130			
Thallium	82.8	1.0	0.15	ug/l	80.0	ND	104	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C29141-MSD1) Source: IPC2844-01</b>											
Antimony	82.4	2.0	0.050	ug/l	80.0	0.68	102	70-130	4	20	
Cadmium	78.8	1.0	0.025	ug/l	80.0	ND	98	70-130	4	20	
Copper	403	2.0	0.25	ug/l	80.0	320	104	70-130	5	20	
Lead	82.3	1.0	0.040	ug/l	80.0	1.1	102	70-130	8	20	
Thallium	80.9	1.0	0.15	ug/l	80.0	ND	101	70-130	7	20	

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 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06

Received: 03/29/06

## 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: 6C30065 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30065-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30065-BS1)</b>											
Mercury	7.87	0.20	0.050	ug/l	8.00		98	85-115			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30065-MS1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.16	0.20	0.050	ug/l	8.00	ND	102	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30065-MSD1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.19	0.20	0.050	ug/l	8.00	ND	102	70-130	0	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008  Report Number: IPC2952	Sampled: 03/29/06 Received: 03/29/06
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**METHOD BLANK/QC DATA**

**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29054 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29054-BLK1)</b>											
Chloride	0.161	0.50	0.15	mg/l							J
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29054-BS1)</b>											
Chloride	4.63	0.50	0.15	mg/l	5.00		93	90-110			
Sulfate	9.51	0.50	0.45	mg/l	10.0		95	90-110			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29054-MS1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120			
Sulfate	10.3	0.50	0.45	mg/l	10.0	1.2	91	80-120			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29054-MSD1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120	0	20	
Sulfate	10.2	0.50	0.45	mg/l	10.0	1.2	90	80-120	1	20	
<b>Batch: 6C30048 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30048-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30048-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NRI
<b>LCS Dup Analyzed: 03/30/2006 (6C30048-BSD1)</b>											
Oil & Grease	19.4	5.0	0.94	mg/l	20.0		97	65-120	9	20	

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06

Received: 03/29/06

## 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: 6C30063 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30063-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30063-BS1)</b>											
Total Dissolved Solids	990	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/30/2006 (6C30063-DUP1)</b>											
						<b>Source: IPC2961-01</b>					
Total Dissolved Solids	295	10	10	mg/l		300			2	10	
<b>Batch: 6C30069 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30069-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30069-BS1)</b>											
Perchlorate	50.4	4.0	0.80	ug/l	50.0		101	85-115			M-3
<b>Batch: 6C30086 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30086-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30086-BS1)</b>											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 03/30/2006 (6C30086-DUP1)</b>											
						<b>Source: IPC2670-01</b>					
Total Suspended Solids	216	10	10	mg/l		230			6	10	

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 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06

Received: 03/29/06

## 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
IPC2952-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.66	4.7	15
IPC2952-01	Antimony-200.8	Antimony	ug/l	0.46	2.0	6.00
IPC2952-01	Cadmium-200.8	Cadmium	ug/l	0.030	1.0	4.00
IPC2952-01	Chloride - 300.0	Chloride	mg/l	16	0.50	150
IPC2952-01	Copper-200.8	Copper	ug/l	4.10	2.0	14
IPC2952-01	Lead-200.8	Lead	ug/l	1.00	1.0	5.20
IPC2952-01	Mercury - 245.1	Mercury	ug/l	0.017	0.20	0.20
IPC2952-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	7.70	0.30	8.00
IPC2952-01	Perchlorate 314.0	Perchlorate	ug/l	0.97	4.0	6.00
IPC2952-01	Sulfate-300.0	Sulfate	mg/l	21	0.50	300
IPC2952-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	260	10	950
IPC2952-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.*



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06

Received: 03/29/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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# Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IPC2952

Sampled: 03/29/06  
Received: 03/29/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	N/A	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

**Alta 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: IPC2952-01

Analysis Performed: EDD + Level 4

Samples: IPC2952-01

**Del Mar Analytical - Irvine**  
Michele Chamberlin  
Project Manager

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# Del Mar Analytical

Version 03/01/06

# CHAIN OF CUSTODY FORM

*IPC 295c*

<b>Client Name/Address:</b> MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		<b>Project:</b> Boeing-SSFL NPDES Routine Outfall 008 Stormwater at Happy Valley		<b>ANALYSIS REQUIRED</b>		Field readings: Temp = 59 °F pH = 7.08		
<b>Project Manager:</b> Bronwyn Kelly		<b>Phone Number:</b> (626) 568-8691 <b>Fax Number:</b> (626) 568-6515		Oil & Grease (EPA 413.1)	Ch, SO4, NO3+NO2-N	TDS, TSS	TCDD (and all congeners)	Comments:  (57) <i>3/29/06</i> <i>SS</i>
<b>Sampler:</b>		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl		Perchlorate				
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #		
Outfall 008	W	Poly-1L	1	3-29-06 10:35	HNO3	1A	X	
Outfall 008-Dup	W	Poly-1L	1		HNO3	1B	X	
Outfall 008	W	Glass-Amber	2		HCl	3A, 3B	X	
Outfall 008	W	Poly-500 ml	2		None	4A, 4B		
Outfall 008	W	Poly-500 ml	2		None	5A, 5B	X	
Outfall 008	W	Glass-Amber	2	3-29-06 10:35	None	6A, 6B		
Relinquished By: <i>Kim Bay</i>		Date/Time: 3-29-06		Received By: <i>Michelle Long</i>		Date/Time: 3/29/06		Turn around Time: (check) 24 Hours _____ 5 Days _____
Relinquished By: <i>Michelle Long</i>		Date/Time: 3/29/06		Received By: <i>Michelle Long</i>		Date/Time: 3/29/06		48 Hours _____ 10 Days _____
Relinquished By: <i>Michelle Long</i>		Date/Time: 3/29/06		Received By: <i>Michelle Long</i>		Date/Time: 3/29/06		72 Hours _____ Normal <input checked="" type="checkbox"/>
								Perchlorate Only 72 Hours _____
								Metals Only 72 Hours _____
								Sample Integrity: (Check) Intact <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>



, 2006

Project I.D.: 27507

Shele Chamberlin  
Alta Analytical, Irvine  
Meridian Avenue, Suite 100  
CA 92614

S. Chamberlin,

The following are the results for the one aqueous sample received at Alta Analytical Laboratory on March 15 under your Project Name "IPC2952". 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, Alta's current test methods, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

M. Maier  
Manager of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Alta Analytical Laboratory Inc.**

1104 Windfield Way  
El Dorado Hills, CA 95762

FAX (916) 673-0106  
(916) 933-1640

Page 1 of 226

NPDES - 4106



**Section I: Sample Inventory Report**

**Date Received: 3/31/2006**

**Alta Lab. ID**

**Client Sample ID**

27507-001

IPC2952-01

**SECTION II**

Method Blank		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-MB001
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.00000128		69.5	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000135		75.3	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000138		74.1	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000142		76.8	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000135		76.9	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.000000972		37.5	17 - 157
OCDD	ND	0.00000275		70.7	24 - 169
2,3,7,8-TCDF	ND	0.00000102		75.7	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000106		78.6	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000103		74.4	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000440		76.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000410		76.4	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000469		76.1	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.000000599		65.9	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.000000722		76.7	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.000000661		47.0	17 - 157
OCDF	ND	0.000000405		83.8	35 - 197
<b>Totals</b>					
Total TCDD	ND	0.00000128			
Total PeCDD	ND	0.00000135			
Total HxCDD	ND	0.00000138			
Total HpCDD	ND	0.000000972			
Total TCDF	ND	0.00000102			
Total PeCDF	ND	0.00000104			
Total HxCDF	ND	0.000000474			
Total HpCDF	ND	0.000000692			

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:33

OPR Results		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-OPR001	
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.4	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	62.4	25 - 164
1,2,3,7,8-PeCDD	50.0	50.4	35 - 71	13C-1,2,3,7,8-PeCDD	65.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	50.5	35 - 82	13C-1,2,3,4,7,8-HxCDD	60.0	32 - 141
1,2,3,6,7,8-HxCDD	50.0	51.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130
1,2,3,7,8,9-HxCDD	50.0	52.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.0	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	53.4	35 - 70	13C-OCDD	30.1	17 - 157
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	61.7	24 - 169
2,3,7,8-TCDF	10.0	10.3	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	65.3	24 - 185
1,2,3,7,8-PeCDF	50.0	49.9	40 - 67	13C-2,3,4,7,8-PeCDF	68.0	21 - 178
2,3,4,7,8-PeCDF	50.0	50.1	34 - 80	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	51.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	53.9	42 - 65	13C-2,3,4,6,7,8-HxCDF	60.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	51.6	35 - 78	13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	52.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.0	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	49.9	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	60.3	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	50.7	39 - 69	13C-OCDF	37.3	17 - 157
OCDF	100	98.2	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.6	35 - 197

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:33

Sample ID: <b>IPC2952-01</b>		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 27507-001	Date Received: 31-Mar-06				
Project: IPC2952	Sample Size: 1.03 L	QC Batch No.: 7889	Date Extracted: 1-Apr-06				
Date Collected: 29-Mar-06		Date Analyzed DB-5: 3-Apr-06	Date Analyzed DB-225: NA				
Time Collected: 1035							
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000149		IS 13C-2,3,7,8-TCDD	54.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000121		13C-1,2,3,7,8-PeCDD	58.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000143		13C-1,2,3,4,7,8-HxCDD	55.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000147		13C-1,2,3,6,7,8-HxCDD	54.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000141		13C-1,2,3,4,6,7,8-HpCDD	54.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000384		J	13C-OCDD	31.7	17 - 157	
OCDD	0.00000437		J	13C-2,3,7,8-TCDF	53.0	24 - 169	
2,3,7,8-TCDF	ND	0.00000127		13C-1,2,3,7,8-PeCDF	57.8	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000180		13C-2,3,4,7,8-PeCDF	57.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000181		13C-1,2,3,4,7,8-HxCDF	52.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000522		13C-1,2,3,6,7,8-HxCDF	53.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000476		13C-2,3,4,6,7,8-HxCDF	54.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000521		13C-1,2,3,7,8,9-HxCDF	54.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000695		13C-1,2,3,4,6,7,8-HpCDF	49.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000723		13C-1,2,3,4,7,8,9-HpCDF	56.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000638		13C-OCDF	36.4	17 - 157	
OCDF	ND	0.000000396		CRS 37Cl-2,3,7,8-TCDD	80.3	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.00000149					
Total PeCDD	ND	0.00000121					
Total HxCDD	ND	0.00000143					
Total HpCDD	0.000000924						
Total TCDF	ND	0.00000127					
Total PeCDF	ND	0.00000181					
Total HxCDF	ND	0.000000547					
Total HpCDF	ND	0.000000681					

**Footnotes**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:33

## APPENDIX

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q





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 9484 Chesapeake Drive, Suite 806, San Diego, CA 92123 Ph (619) 505-9598 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IPC2952

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical - Irvine 17461 Derian Avenue. Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 673-0106 <div style="text-align: right; font-size: 1.5em; margin-top: 10px;">             27507              2.0°C           </div>

Standard TAT is requested unless specific due date is requested => Due Date: 4/6/06 Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2952-01 Water	Sampled: 03/29/06 10:35	Instant Notification
1613-Dioxin-HR-Alta	04/05/06 10:35	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/26/06 10:35	Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IPC2952-01C)		
1 L Amber (IPC2952-01D)		

**SAMPLE INTEGRITY:**

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

<i>Dmy Arman</i>	<i>3/30/06</i>		<i>Bettina J. Benedict</i>	<i>3/31/06</i>	<i>0905</i>
Released By	Date	Time	Received By	Date	Time

Released By	Date	Time	Received By	Date	Time

### SAMPLE LOG-IN CHECKLIST

Alta Project #: 27507

Samples Arrival:	Date/Time 3/31/06 0905	Initials: BBB	Location: WR-2
Logged In:	Date/Time 3/31/06 1101	Initials: BBB	Location: WR-2
Delivered By:	<u>FedEx</u> UPS	Cal	DHL Hand Delivered Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice None
Temp °C	2.0°C	Time: 0935	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill	Trk # 7903 76134744	✓	
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?	COC	Sample Container	<u>None</u>
Shipping Container	Alta <u>Client</u>	Retain	<u>Return</u> Dispose

Comments:

# **APPENDIX G**

## **Section 106**

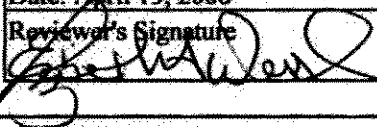
**Outfall 008, March 29, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF66  
 Task Order 1261.001D.01  
 SDG No: IPC2952

No. of Analyses 1  
 Date: April 13, 2006  
 Reviewer's Signature 

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/Furans by 1613

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<p><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.  <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 008

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2952

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2952  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 13, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 008	IPC2952-01	27507-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received within the temperature limits at 2°C. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.



## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7889-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7889-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.



Client Data		Sample Data		Laboratory Data		EPA Method 1613		
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27507-001	Date Received:	31-Mar-06	
Project:	IPC2952	Sample Size:	1.03 L	QC Batch No.:	7889	Date Extracted:	1-Apr-06	
Date Collected:	29-Mar-06			Date Analyzed DB-S:	3-Apr-06	Date Analyzed DB-225:	N/A	
Time Collected:	1035							
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000149			13C-2,3,7,8-TCDD	54.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000121			13C-1,2,3,7,8-PeCDD	58.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000143			13C-1,2,3,4,7,8-HxCDD	55.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000147			13C-1,2,3,6,7,8-HxCDD	54.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000141			13C-1,2,3,4,6,7,8-HpCDD	54.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000384			J	13C-OCDD	31.7	17 - 157	
OCDD	0.0000437			J	13C-2,3,7,8-TCDF	53.0	24 - 169	
2,3,7,8-TCDF	ND	0.00000127			13C-1,2,3,7,8-PeCDF	57.8	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000180			13C-2,3,4,7,8-PeCDF	57.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000181			13C-1,2,3,4,7,8-HxCDF	52.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000522			13C-1,2,3,6,7,8-HxCDF	53.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000476			13C-2,3,4,6,7,8-HxCDF	54.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000521			13C-1,2,3,7,8,9-HxCDF	54.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000695			13C-1,2,3,4,6,7,8-HpCDF	49.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000723			13C-1,2,3,4,7,8,9-HpCDF	56.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000638			13C-OCDF	36.4	17 - 157	
OCDF	ND	0.00000396			CRS 37Cl-2,3,7,8-TCDD	80.3	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000149						
Total PeCDD	ND	0.00000121						
Total HxCDD	ND	0.00000143						
Total HpCDD	0.00000924							
Total TCDF	ND	0.00000127						
Total PeCDF	ND	0.00000181						
Total HxCDF	ND	0.00000547						
Total HpCDF	ND	0.00000681						

Footnotes:  
 a. Sample specific estimated detection limit.  
 b. Estimated maximum possible concentration.  
 c. Method detection limit.  
 d. Lower control limit - upper control limit.

Approved By: Martha M. Maier 04-Apr-2006 15:33

**LEVEL IV**

**APPENDIX G**

**Section 107**

Outfall 009, March 1, 2006

Del Mar Analytical Laboratory Report



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 009

Sampled: 03/01/06  
Received: 03/01/06  
Revised: 03/20/06 17:10

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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: Report reissued with the Project Number only.

LABORATORY ID	CLIENT ID	MATRIX
IPC0167-01	Outfall 009	Water

Reviewed By:

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
 Received: 03/01/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0167-01 (Outfall 009 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C04030	0.050	2.0	1.1	1	03/04/06	03/07/06	J
Cadmium	EPA 200.8	6C04030	0.025	1.0	0.026	1	03/04/06	03/07/06	J
Copper	EPA 200.8	6C04030	0.25	2.0	3.2	1	03/04/06	03/07/06	
Lead	EPA 200.8	6C04030	0.040	1.0	0.26	1	03/04/06	03/07/06	J
Mercury	EPA 245.1	6C02097	0.050	0.20	ND	1	03/02/06	03/02/06	

Del Mar Analytical - Irvine  
 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0167	Sampled: 03/01/06 Received: 03/01/06
--	---	---

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0167-01 (Outfall 009 - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
Chloride	EPA 300.0	6C02051	0.15	0.50	13	1	03/02/06	03/02/06	
Nitrate/Nitrite-N	EPA 300.0	6C02051	0.080	0.15	3.6	1	03/02/06	03/02/06	
Oil & Grease	EPA 413.1	6C09045	0.90	4.8	ND	1	03/09/06	03/09/06	
Sulfate	EPA 300.0	6C02051	0.45	0.50	38	1	03/02/06	03/02/06	
Total Dissolved Solids	SM2540C	6C06069	10	10	120	1	03/06/06	03/06/06	
Total Suspended Solids	EPA 160.2	6C07078	10	10	ND	1	03/07/06	03/07/06	

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 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
Received: 03/01/06

**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 009 (IPC0167-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/01/2006 10:10	03/01/2006 19:00	03/02/2006 08:00	03/02/2006 12:19

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0167	Sampled: 03/01/06 Received: 03/01/06
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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
<b>Batch: 6C02097 Extracted: 03/02/06</b>											
<b>Blank Analyzed: 03/02/2006 (6C02097-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/02/2006 (6C02097-BS1)</b>											
Mercury	7.88	0.20	0.050	ug/l	8.00		98	85-115			
<b>Matrix Spike Analyzed: 03/02/2006 (6C02097-MS1)</b>											
						<b>Source: IPB2608-01</b>					
Mercury	7.84	0.20	0.050	ug/l	8.00	ND	98	70-130			
<b>Matrix Spike Dup Analyzed: 03/02/2006 (6C02097-MSD1)</b>											
						<b>Source: IPB2608-01</b>					
Mercury	7.88	0.20	0.050	ug/l	8.00	ND	98	70-130	1	20	
<b>Batch: 6C04030 Extracted: 03/04/06</b>											
<b>Blank Analyzed: 03/07/2006 (6C04030-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
<b>LCS Analyzed: 03/07/2006 (6C04030-BS1)</b>											
Antimony	80.4	2.0	0.050	ug/l	80.0		100	85-115			
Cadmium	82.2	1.0	0.025	ug/l	80.0		103	85-115			
Copper	82.2	2.0	0.25	ug/l	80.0		103	85-115			
Lead	78.1	1.0	0.040	ug/l	80.0		98	85-115			
<b>Matrix Spike Analyzed: 03/07/2006 (6C04030-MS1)</b>											
						<b>Source: IPC0303-01</b>					
Antimony	80.9	2.0	0.050	ug/l	80.0	ND	101	70-130			
Cadmium	80.4	1.0	0.025	ug/l	80.0	ND	100	70-130			
Copper	80.2	2.0	0.25	ug/l	80.0	0.45	100	70-130			
Lead	77.8	1.0	0.040	ug/l	80.0	0.044	97	70-130			

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IPC0167	Sampled: 03/01/06 Received: 03/01/06
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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
<b>Batch: 6C04030 Extracted: 03/04/06</b>											
<b>Matrix Spike Analyzed: 03/07/2006 (6C04030-MS2)</b>						<b>Source: IPC0303-02</b>					
Antimony	80.8	2.0	0.050	ug/l	80.0	0.087	101	70-130			
Cadmium	79.7	1.0	0.025	ug/l	80.0	0.13	99	70-130			
Copper	81.0	2.0	0.25	ug/l	80.0	1.2	100	70-130			
Lead	77.6	1.0	0.040	ug/l	80.0	0.15	97	70-130			
<b>Matrix Spike Dup Analyzed: 03/07/2006 (6C04030-MSD1)</b>						<b>Source: IPC0303-01</b>					
Antimony	81.0	2.0	0.050	ug/l	80.0	ND	101	70-130	0	20	
Cadmium	80.1	1.0	0.025	ug/l	80.0	ND	100	70-130	0	20	
Copper	79.7	2.0	0.25	ug/l	80.0	0.45	99	70-130	1	20	
Lead	77.8	1.0	0.040	ug/l	80.0	0.044	97	70-130	0	20	

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 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
 Received: 03/01/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD RPD	Data Limit	Qualifiers
<b>Batch: 6C02051 Extracted: 03/02/06</b>											
<b>Blank Analyzed: 03/02/2006 (6C02051-BLK1)</b>											
Chloride	ND	0.50	0.15	mg/l							
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/02/2006 (6C02051-BS1)</b>											
Chloride	4.75	0.50	0.15	mg/l	5.00		95			90-110	
Sulfate	9.68	0.50	0.45	mg/l	10.0		97			90-110	
<b>Matrix Spike Analyzed: 03/02/2006 (6C02051-MS1) Source: IPC0165-01</b>											
Chloride	27.1	0.50	0.15	mg/l	5.00	22	102			80-120	
Sulfate	17.0	0.50	0.45	mg/l	10.0	6.7	103			80-120	
<b>Matrix Spike Dup Analyzed: 03/02/2006 (6C02051-MSD1) Source: IPC0165-01</b>											
Chloride	26.2	0.50	0.15	mg/l	5.00	22	84		3	80-120	20
Sulfate	16.5	0.50	0.45	mg/l	10.0	6.7	98		3	80-120	20
<b>Batch: 6C06069 Extracted: 03/06/06</b>											
<b>Blank Analyzed: 03/06/2006 (6C06069-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/06/2006 (6C06069-BS1)</b>											
Total Dissolved Solids	992	10	10	mg/l	1000		99			90-110	
<b>Duplicate Analyzed: 03/06/2006 (6C06069-DUP1) Source: IPC0087-01</b>											
Total Dissolved Solids	865	10	10	mg/l		860			1		10

Del Mar Analytical - Irvine  
 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
 Received: 03/01/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C07078 Extracted: 03/07/06</b>											
<b>Blank Analyzed: 03/07/2006 (6C07078-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/07/2006 (6C07078-BS1)</b>											
Total Suspended Solids	966	10	10	mg/l	1000		97	85-115			
<b>Duplicate Analyzed: 03/07/2006 (6C07078-DUP1)</b>											
						<b>Source: IPC0093-01</b>					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b>Batch: 6C09045 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09045-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/09/2006 (6C09045-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NR1
<b>LCS Dup Analyzed: 03/09/2006 (6C09045-BSD1)</b>											
Oil & Grease	17.3	5.0	0.94	mg/l	20.0		86	65-120	3	20	

Del Mar Analytical - Irvine  
 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
Received: 03/01/06

**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
IPC0167-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.67	4.8	15
IPC0167-01	Chloride - 300.0	Chloride	mg/l	13	0.50	150
IPC0167-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	3.60	0.15	10.00
IPC0167-01	Sulfate-300.0	Sulfate	mg/l	38	0.50	250
IPC0167-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	120	10	850

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06

Received: 03/01/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NR1** 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

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.*



# Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046  
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0167	Sampled: 03/01/06 Received: 03/01/06
--	---	---

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

### Subcontracted Laboratories

#### Alta 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: IPC0167-01

Analysis Performed: EDD + Level 4  
Samples: IPC0167-01

Del Mar Analytical - Irvine  
Sushmitha Reddy For Michele Chamberlin  
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

# Del Mar Analytical CHAIN OF CUSTODY FORM

Version 02/17/05

*IP Cold*

Client Name/Address:				Project:				ANALYSIS REQUIRED				Field readings:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101				Boeing-SSFL NPDES Routine Outfall 009 Stormwater at WS-13				Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg				Temp = 54.7 pH = 7.3	
Project Manager: Bronwyn Kelly Sampler: <i>Bronwyn Kelly</i>				Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				TCDD (and all congeners)				Comments	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Sb, Cd, Cu, Pb, Hg	Oil & Grease (EPA 413.1)	CH <sub>2</sub> SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS			
Outfall 009	W	Poly-1L	1	3/1/06 12:10	HNO3	1A	X						
Outfall 009-Dup	W	Poly-1L	1		HNO3	1B	X						
Outfall 009	W	Glass-Amber	2		None	2A, 2B		X					
Outfall 009	W	Glass-Amber	2		HCl	3A, 3B		X					
Outfall 009	W	Poly-500 ml	2		None	4A, 4B		X					
Outfall 009	W	Poly-500 ml	2		None	5A, 5B		X					
Relinquished By: <i>Kelly Bern</i> Date/Time: 3/1/06 1545							Received By: <i>IP Cold</i> Date/Time: 3/1/06 1545						
Relinquished By: <i>Bronwyn Kelly</i> Date/Time: 3/1/06 1700							Received By: <i>Bronwyn Kelly</i> Date/Time: 3/1/06 19:00						
Relinquished By: _____ Date/Time: _____							Received By: _____ Date/Time: _____						
Turn around Time: (check) _____ 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____ Sample Integrity: (check) _____ Intact _____ On Ice: _____							3/1/06 19:00						





March 09, 2006

**Alta Project I.D.: 27368**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 03, 2006 under your Project Name "IPC0167". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A standard 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

A handwritten signature in cursive script, appearing to read "Martha M. Maier".

Martha M. Maier  
Director of HRMS Services



**Section I: Sample Inventory Report**

**Date Received: 3/3/2006**

Alta Lab. ID

Client Sample ID

27368-001

IPC0167-01

**SECTION II**

Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	7807	Lab Sample:	0-MB001		
Sample Size:	1.00 L	Date Extracted:	5-Mar-06	Date Analyzed DB-5:	7-Mar-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000119		13C-2,3,7,8-TCDD	82.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000130		13C-1,2,3,7,8-PeCDD	84.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000161		13C-1,2,3,4,7,8-HxCDD	82.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000170		13C-1,2,3,6,7,8-HxCDD	81.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000161		13C-1,2,3,4,6,7,8-HpCDD	79.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000167		13C-OCDD	54.4	17 - 157	
OCDD	ND	0.00000485		13C-2,3,7,8-TCDF	85.8	24 - 169	
2,3,7,8-TCDF	ND	0.00000138		13C-1,2,3,7,8-PeCDF	89.7	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000126		13C-2,3,4,7,8-PeCDF	92.9	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000115		13C-1,2,3,4,7,8-HxCDF	82.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000677		13C-1,2,3,6,7,8-HxCDF	82.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000623		13C-2,3,4,6,7,8-HxCDF	83.9	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000697		13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000951		13C-1,2,3,4,6,7,8-HpCDF	71.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000890		13C-1,2,3,4,7,8,9-HpCDF	80.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000780		13C-OCDF	59.4	17 - 157	
OCDF	ND	0.00000335		CRS 37Cl-2,3,7,8-TCDD	90.3	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.00000119					
Total PeCDD	ND	0.00000130					
Total HxCDD	ND	0.00000164					
Total HpCDD	ND	0.00000167					
Total TCDF	ND	0.00000138					
Total PeCDF	ND	0.00000120					
Total HxCDF	ND	0.000000725					
Total HpCDF	ND	0.000000836					

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: Martha M. Maier 08-Mar-2006 14:47

OPR Results						EPA Method 1613		
Matrix:	Aqueous	QC Batch No:	7807	Lab Sample:	0-OPR001			
Sample Size:	1.00 L	Date Extracted:	5-Mar-06	Date Analyzed DB-5:	7-Mar-06	Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL		
2,3,7,8-TCDD	10.0	11.1	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	77.8	25 - 164		
1,2,3,7,8-PeCDD	50.0	56.7	35 - 71	13C-1,2,3,7,8-PeCDD	81.0	25 - 181		
1,2,3,4,7,8-HxCDD	50.0	54.3	35 - 82	13C-1,2,3,4,7,8-HxCDD	74.4	32 - 141		
1,2,3,6,7,8-HxCDD	50.0	53.3	38 - 67	13C-1,2,3,6,7,8-HxCDD	76.6	28 - 130		
1,2,3,7,8,9-HxCDD	50.0	52.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	74.2	23 - 140		
1,2,3,4,6,7,8-HpCDD	50.0	55.2	35 - 70	13C-OCDD	52.1	17 - 157		
OCDD	100	109	78 - 144	13C-2,3,7,8-TCDF	78.6	24 - 169		
2,3,7,8-TCDF	10.0	11.2	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	84.3	24 - 185		
1,2,3,7,8-PeCDF	50.0	55.2	40 - 67	13C-2,3,4,7,8-PeCDF	87.3	21 - 178		
2,3,4,7,8-PeCDF	50.0	56.1	34 - 80	13C-1,2,3,4,7,8-HxCDF	76.8	26 - 152		
1,2,3,4,7,8-HxCDF	50.0	55.2	36 - 67	13C-1,2,3,6,7,8-HxCDF	76.9	26 - 123		
1,2,3,6,7,8-HxCDF	50.0	56.7	42 - 65	13C-2,3,4,6,7,8-HxCDF	76.3	28 - 136		
2,3,4,6,7,8-HxCDF	50.0	56.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	69.6	29 - 147		
1,2,3,7,8,9-HxCDF	50.0	54.9	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	70.6	28 - 143		
1,2,3,4,6,7,8-HpCDF	50.0	55.1	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	74.0	26 - 138		
1,2,3,4,7,8,9-HpCDF	50.0	55.0	39 - 69	13C-OCDF	57.0	17 - 157		
OCDF	100	105	63 - 170	CRS 37Cl-2,3,7,8-TCDD	94.1	35 - 197		

Analyst: JMH

Approved By: Martha M. Maier 08-Mar-2006 14:47

Sample ID: **IPC0167-01**

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name	Del Mar Analytical, Irvine	Matrix	Aqueous	Lab Sample	27368-001		
Project	IPC0167	Sample Size	1.00 L	QC Batch No.	7807		
Date Collected	1-Mar-06			Date Analyzed DB-5	8-Mar-06		
Time Collected	1010			Date Analyzed DB-225	N/A		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000113		IS 13C-2,3,7,8-TCDD	89.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000824		13C-1,2,3,7,8-PeCDD	92.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000126		13C-1,2,3,4,7,8-HxCDD	84.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000130		13C-1,2,3,6,7,8-HxCDD	87.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000124		13C-1,2,3,4,6,7,8-HpCDD	91.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000191	0.00000250	13C-OCDD	66.7	17 - 157	
OCDD							
2,3,7,8-TCDF	ND	0.00000863		13C-2,3,7,8-TCDF	87.8	24 - 169	
1,2,3,7,8-PeCDF	ND	0.00000967		13C-1,2,3,7,8-PeCDF	97.1	24 - 185	
2,3,4,7,8-PeCDF	ND	0.00000850		13C-2,3,4,7,8-PeCDF	98.7	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.00000527		13C-1,2,3,4,7,8-HxCDF	87.9	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.00000506		13C-1,2,3,6,7,8-HxCDF	88.4	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.00000559		13C-2,3,4,6,7,8-HxCDF	84.7	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.00000738		13C-1,2,3,7,8,9-HxCDF	83.0	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.00000105		13C-1,2,3,4,6,7,8-HpCDF	83.0	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.00000967		13C-1,2,3,4,7,8,9-HpCDF	91.2	26 - 138	
OCDF	ND	0.00000280		13C-OCDF	73.5	17 - 157	
<b>Totals</b>				<b>CRS 37Cl-2,3,7,8-TCDD</b>	<b>91.4</b>	<b>35 - 197</b>	
<b>Footnotes</b>							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							
Total TCDD	ND	0.00000113					
Total PeCDD	ND	0.00000824					
Total HxCDD	ND	0.00000127					
Total HpCDD	0.00000256		0.00000506				
Total TCDF	ND	0.00000863					
Total PeCDF	ND	0.00000908					
Total HxCDF	ND	0.00000574					
Total HpCDF	ND	0.00000101					

Analyst: JMH

Approved By: Martha M. Maier 08-Mar-2006 14:47

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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.





17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9396 Fax (619) 505-9689  
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IPC0167

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 673-0106 <div style="font-size: 2em; margin-left: 20px; text-align: right;">27368</div> <div style="font-size: 2em; margin-left: 20px; text-align: right;">0.4°C</div>

Standard TAT is requested unless specific due date is requested => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Sampled:	Comments
Sample ID: IPC0167-01 Water		03/01/06 10:10	Instant Notification
1613-Dioxin-HR-Alta	03/08/06 10:10		J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	03/29/06 10:10		Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>			
1 L Amber (IPC0167-01C)			
1 L Amber (IPC0167-01D)			

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice::	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

Fed - Ex 3-2-06

	Date	Time		Date	Time
Released By	Date	Time	Received By	Date	Time

Project 27368

Page 10 of 278

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27368

Samples Arrival:	Date/Time 3/3/06 0855	Initials: BBB	Location: WR-2
Logged In:	Date/Time 3/3/06 1319	Initials: BBB	Location: WR-2
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> Cal
	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C	0.4	Time: 1000	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill			
Trk #	7920 3239 5438		
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?		COC	Sample Container
			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

# **APPENDIX G**

## **Section 108**

Outfall 009, March 1, 2006

AMEC Data Validation Reports

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID B4DF37  
Task Order 1261.001D.01  
SDG No. IPC0167

No. of Analyses 1

Laboratory Alta  
Reviewer K. Shadowlight  
Analysis/Method Dioxin/Furan by Method 1613

Date: April 2, 2006  
Reviewer's Signature  
*K. Shadowlight*

ACTION ITEMS <sup>a</sup>	
Case Narrative	
Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Detects below the laboratory lower calibration level were qualified as estimated. Holding Times: Any EMPC was qualified as an estimated nondetect. GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Routine Outfall 009

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC0167

Prepared by  
MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001.01  
Sample Delivery Group: IPC0167  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 2, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 009	IPC0167-01	27368-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 0°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.



## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7807-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7807-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualifications of the site samples were required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any reported estimated maximum possible concentration (EMPC) was qualified as an estimated nondetect, "UJ." Detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.

Sample ID: **IPC0167-01** *Outfall 009* **EPA Method 1613**

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27368-001
Project:	IPC0167	Sample Size:	1.00 L	QC Batch No.:	7807
Date Collected:	1-Mar-06			Date Analyzed DB-5:	8-Mar-06
Time Collected:	1010			Date Analyzed DB-225:	NA

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000113			13C-2,3,7,8-TCDD	89.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000824			13C-1,2,3,7,8-PeCDD	92.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0000126			13C-1,2,3,4,7,8-HxCDD	84.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000130			13C-1,2,3,6,7,8-HxCDD	87.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000124			13C-1,2,3,4,6,7,8-HpCDD	91.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000250			13C-OCDD	66.7	17 - 157	
OCDD	0.0000191			J	13C-2,3,7,8-TCDF	87.8	24 - 169	
2,3,7,8-TCDF	ND	0.00000863			13C-1,2,3,7,8-PeCDF	97.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000967			13C-2,3,4,7,8-PeCDF	98.7	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000850			13C-1,2,3,4,7,8-HxCDF	87.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000527			13C-1,2,3,6,7,8-HxCDF	88.4	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000506			13C-2,3,4,6,7,8-HxCDF	84.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000559			13C-1,2,3,7,8,9-HxCDF	83.0	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000738			13C-1,2,3,4,6,7,8-HpCDF	83.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.0000105			13C-1,2,3,4,7,8,9-HpCDF	91.2	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000967			13C-OCDF	73.5	17 - 157	
OCDF	ND	0.00000280			CRS 37C1,2,3,7,8-TCDD	91.4	33 - 197	

Totals		Footnotes	
Total TCDD	ND	0.00000113	a. Sample specific estimated detection limit.
Total PeCDD	ND	0.00000824	b. Estimated maximum possible concentration.
Total HxCDD	ND	0.00000127	c. Method detection limit.
Total HpCDD	0.00000256	0.00000506	d. Lower control limit - upper control limit.
Total TCDF	ND	0.00000863	
Total PeCDF	ND	0.00000908	
Total HxCDF	ND	0.00000574	
Total HpCDF	ND	0.00000101	

Analyst: **JMH** *Level IV* Approved By: **Martha M. Maier** 08-Mar-2006 14:47


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4MT37  
 Task Order: 1261.001D.01  
 SDG No.: IPC0167

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: Metals

Date: April 10, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative Deficiencies</b>	_____
<b>2. Out of Scope Analyses</b>	_____
<b>3. Analyses Not Conducted</b>	_____
<b>4. Missing Hardcopy Deliverables</b>	_____
<b>5. Incorrect Hardcopy Deliverables</b>	_____
<b>6. Deviations from Analysis Protocol, e.g.,</b>	Qualifications applied for a blank detect and a detect below the reporting limit.
Holding Times	_____
GC/MS Tune/Inst. Performance	_____
Calibration	_____
Method blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification	_____
Quantitation	_____
System Performance	_____
<b>COMMENTS<sup>b</sup></b>	_____
	_____
	_____
	_____
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Sampling  
Outfall 009

ANALYSIS: METALS

SAMPLE DELIVERY GROUP IPC0167

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES Sampling  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0167  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 10, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for ICP and ICP-MS Metals (DVP-5, Rev. 0), EPA Methods 200.8 and 245.1, and validation guidelines outlined in the USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 009	IPC0167-01	Water	200.8, 245.1

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analysis presented in this SDG. No sample qualifications were required.

#### 2.1.3 Holding Times

The date of collection recorded on the COC and the date of analysis recorded in the raw data documented that the sample analyses were performed within the specified holding times of six months for the ICP-MS metals and 28 days for mercury. No qualifications were required.

### 2.2 ICP-MS TUNING

The method-specified tune criteria were met and no qualifications were required.

### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP-MS metals and 85-115% for mercury. The laboratory analyzed reporting limit check standards in association with the sample in this SDG and the recoveries were considered to be acceptable. No qualifications were required.

### 2.4 BLANKS

Cadmium was detected in a bracketing CCB at 0.027 µg/L; therefore, cadmium detected in Outfall 009 was qualified as an estimated nondetect, "UJ." No further qualifications were required.



## 2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

No ICSA and ICSAB analyses were performed in association with the sample in this SDG for the ICP-MS metals; therefore, no assessment was made with respect to this criterion.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP-MS and mercury recoveries were within the laboratory-established control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

## 2.8 MATRIX SPIKES

No matrix spike analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was evaluated based on LCS results. No qualifications were required.

## 2.9 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

## 2.10 INTERNAL STANDARDS PERFORMANCE

For the target analytes analyzed by ICP-MS, the internal standards were within the method-specified control limits of 60-125%. No qualifications were required.

## 2.11 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Analytes detected below the reporting limit were qualified as estimated, "J," and denoted with "DNQ," in accordance with the NPDES permit. No further qualifications were required.

## **2.12 FIELD QC SAMPLES**

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### **2.12.1 Field Blanks and Equipment Rinsates**

The sample in this SDG had no associated field QC samples. No qualifications were required.

### **2.12.2 Field Duplicates**

There were no field duplicate analyses performed in association with the site sample.



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 2520 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0167

Sampled: 03/01/06  
 Received: 03/01/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IPC0167-01 (Outfall 009 - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	6C04030	0.050	2.0	1.1	1	03/04/06	03/07/06	J J	DNQ
Cadmium	EPA 200.8	6C04030	0.025	1.0	0.026	1	03/04/06	03/07/06	U J J	B
Copper	EPA 200.8	6C04030	0.25	2.0	3.2	1	03/04/06	03/07/06	J J	DNQ
Lead	EPA 200.8	6C04030	0.040	1.0	0.26	1	03/04/06	03/07/06	J J	DNQ
Mercury	EPA 245.1	6C02097	0.050	0.20	ND	1	03/02/06	03/02/06	U	

mm 4/11/06

Del Mar Analytical - Irvine  
 Sushmitha Reddy For Michele Chamberlin  
 Project Manager

LEVEL IV

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IPC0167 <Page 2 of 11>

**APPENDIX G**

**Section 109**

Outfall 009, March 7, 2006

Del Mar Analytical Laboratory Report



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 009

Sampled: 03/07/06  
Received: 03/07/06  
Issued: 03/23/06 17:33

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

**LABORATORY ID**  
IPC0797-01

**CLIENT ID**  
Outfall 009

**MATRIX**  
Water

Reviewed By:

*Michele Chamberlin*

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06

Received: 03/07/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0797-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C08082	0.050	2.0	0.73	1	03/08/06	03/09/06	J
Cadmium	EPA 200.8	6C08082	0.025	1.0	ND	1	03/08/06	03/09/06	
Copper	EPA 200.8	6C08082	0.25	2.0	2.1	1	03/08/06	03/09/06	
Lead	EPA 200.8	6C08082	0.040	1.0	ND	1	03/08/06	03/09/06	
Mercury	EPA 245.1	6C08072	0.050	0.20	ND	1	03/08/06	03/09/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0797	Sampled: 03/07/06 Received: 03/07/06
--	---	---

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0797-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C07127	0.15	0.50	19	1	03/07/06	03/08/06	
Nitrate/Nitrite-N	EPA 300.0	6C07127	0.080	0.15	1.6	1	03/07/06	03/08/06	
Oil & Grease	EPA 413.1	6C13044	0.90	4.8	1.8	1	03/13/06	03/13/06	J
Sulfate	EPA 300.0	6C07127	4.5	5.0	60	10	03/07/06	03/08/06	
Total Dissolved Solids	SM2540C	6C11037	10	10	280	1	03/11/06	03/11/06	
Total Suspended Solids	EPA 160.2	6C09147	10	10	ND	1	03/09/06	03/09/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
Received: 03/07/06

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 009 (IPC0797-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/07/2006 09:20	03/07/2006 18:25	03/07/2006 20:15	03/08/2006 03:42

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

 Sampled: 03/07/06  
 Received: 03/07/06

**METHOD BLANK/QC DATA**
**METALS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C08072 Extracted: 03/08/06</b>											
<b>Blank Analyzed: 03/08/2006 (6C08072-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/08/2006 (6C08072-BS1)</b>											
Mercury	8.08	0.20	0.050	ug/l	8.00		101	85-115			
<b>Matrix Spike Analyzed: 03/08/2006 (6C08072-MS1) Source: IPC0532-01</b>											
Mercury	8.40	0.20	0.050	ug/l	8.00	0.074	104	70-130			
<b>Matrix Spike Dup Analyzed: 03/08/2006 (6C08072-MSD1) Source: IPC0532-01</b>											
Mercury	8.41	0.20	0.050	ug/l	8.00	0.074	104	70-130	0	20	
<b>Batch: 6C08082 Extracted: 03/08/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C08082-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
<b>LCS Analyzed: 03/09/2006 (6C08082-BS1)</b>											
Antimony	78.4	2.0	0.050	ug/l	80.0		98	85-115			
Cadmium	79.2	1.0	0.025	ug/l	80.0		99	85-115			
Copper	79.6	2.0	0.25	ug/l	80.0		100	85-115			
Lead	80.2	1.0	0.040	ug/l	80.0		100	85-115			
<b>Matrix Spike Analyzed: 03/09/2006 (6C08082-MS1) Source: IPC0610-01</b>											
Antimony	86.7	2.0	0.050	ug/l	80.0	ND	108	70-130			
Cadmium	84.4	1.0	0.025	ug/l	80.0	ND	106	70-130			
Copper	78.8	2.0	0.25	ug/l	80.0	0.76	98	70-130			
Lead	83.5	1.0	0.040	ug/l	80.0	ND	104	70-130			

 Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager



# Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0797	Sampled: 03/07/06 Received: 03/07/06
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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
<b>Batch: 6C08082 Extracted: 03/08/06</b>											
<b>Matrix Spike Dup Analyzed: 03/09/2006 (6C08082-MSD1)</b>						<b>Source: IPC0610-01</b>					
Antimony	92.6	2.0	0.050	ug/l	80.0	ND	116	70-130	7	20	
Cadmium	88.5	1.0	0.025	ug/l	80.0	ND	111	70-130	5	20	
Copper	83.5	2.0	0.25	ug/l	80.0	0.76	103	70-130	6	20	
Lead	87.3	1.0	0.040	ug/l	80.0	ND	109	70-130	4	20	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
 Received: 03/07/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
<b>Batch: 6C07127 Extracted: 03/07/06</b>										
<b>Blank Analyzed: 03/07/2006 (6C07127-BLK1)</b>										
Chloride	0.162	0.50	0.15	mg/l						J
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l						
Sulfate	ND	0.50	0.45	mg/l						
<b>LCS Analyzed: 03/07/2006 (6C07127-BS1)</b>										
Chloride	4.68	0.50	0.15	mg/l	5.00		94	90-110		
Sulfate	9.43	0.50	0.45	mg/l	10.0		94	90-110		
<b>Matrix Spike Analyzed: 03/07/2006 (6C07127-MS1) Source: IPC0764-01</b>										
Chloride	30.0	1.0	0.30	mg/l	5.00	25	100	80-120		
Sulfate	32.9	1.0	0.90	mg/l	10.0	23	99	80-120		
<b>Matrix Spike Dup Analyzed: 03/07/2006 (6C07127-MSD1) Source: IPC0764-01</b>										
Chloride	29.9	1.0	0.30	mg/l	5.00	25	98	80-120	0	20
Sulfate	32.9	1.0	0.90	mg/l	10.0	23	99	80-120	0	20
<b>Batch: 6C09147 Extracted: 03/09/06</b>										
<b>Blank Analyzed: 03/09/2006 (6C09147-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 03/09/2006 (6C09147-BS1)</b>										
Total Suspended Solids	967	10	10	mg/l	1000		97	85-115		
<b>Duplicate Analyzed: 03/09/2006 (6C09147-DUP1) Source: IPC0690-01</b>										
Total Suspended Solids	60.0	10	10	mg/l		66			10	10

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 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
 Received: 03/07/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit	Data Qualifiers
<b>Batch: 6C11037 Extracted: 03/11/06</b>											
<b>Blank Analyzed: 03/11/2006 (6C11037-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/11/2006 (6C11037-BS1)</b>											
Total Dissolved Solids	984	10	10	mg/l	1000		98	90-110			
<b>Duplicate Analyzed: 03/11/2006 (6C11037-DUP1)</b>											
						<b>Source: IPC0651-01</b>					
Total Dissolved Solids	1860	10	10	mg/l		1800			3	10	
<b>Batch: 6C13044 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/13/2006 (6C13044-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/13/2006 (6C13044-BS1)</b>											
Oil & Grease	19.6	5.0	0.94	mg/l	20.0		98	65-120			M-NR1
<b>LCS Dup Analyzed: 03/13/2006 (6C13044-BSD1)</b>											
Oil & Grease	19.2	5.0	0.94	mg/l	20.0		96	65-120	2	20	

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
Received: 03/07/06

## 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
IPC0797-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.80	4.8	15
IPC0797-01	Chloride - 300.0	Chloride	mg/l	19	0.50	150
IPC0797-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.60	0.15	10.00
IPC0797-01	Sulfate-300.0	Sulfate	mg/l	60	5.0	250
IPC0797-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	280	10	850

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Michele Chamberlin  
Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
Received: 03/07/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NRI** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC0797	Sampled: 03/07/06 Received: 03/07/06
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## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

### Subcontracted Laboratories

**Alta 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: IPC0797-01

Analysis Performed: EDD + Level 4

Samples: IPC0797-01

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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IP 0797

**Del Mar Analytical** Version 02/17/05 **CHAIN OF CUSTODY FORM**

Client Name/Address:		Project:		ANALYSIS REQUIRED						Field readings:		
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Bernard &amp; Associates</i>		Boeing-SSFL NPDES Routine Outfall 009 Stormwater at WS-13 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Total Recoverable Metals:	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl, SO4, NO3+NO2-N	TDS, TSS	Temp = 54.2 pH = 6.9			
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl, SO4, NO3+NO2-N	TDS, TSS	Comments
Outfall 009	W	Poly-1L	1	3/7/06 0730	HNO3	1A	X					
Outfall 009-Dup	W	Poly-1L	1		HNO3	1B	X					
Outfall 009	W	Glass-Amber	2		None	2A, 2B		X				
Outfall 009	W	Glass-Amber	2		HCl	3A, 3B		X				
Outfall 009	W	Poly-500 ml	2		None	4A, 4B				X		
Outfall 009	W	Poly-500 ml	2		None	5A, 5B					X	
Relinquished By				Date/Time:	Received By		Date/Time:	Turn around Time: (check)				
<i>Bernard R</i>				3/7/06 1615	<i>[Signature]</i>		3/7/06 1615	24 Hours <input type="checkbox"/> 5 Days <input checked="" type="checkbox"/> 10 Days <input type="checkbox"/> Normal <input type="checkbox"/>				
Relinquished By				Date/Time:	Received By		Date/Time:	Perchlorate Only 72 Hours <input type="checkbox"/> Metals Only 72 Hours <input type="checkbox"/> Sample Integrity (Check) Intact <input checked="" type="checkbox"/> On Ice <input type="checkbox"/>				
<i>Yanyan Xie</i>				3/7/05 1825	<i>[Signature]</i>		3/7/06 1825	72 Hours <input type="checkbox"/> Perchlorate Only 72 Hours <input type="checkbox"/> Metals Only 72 Hours <input type="checkbox"/> Sample Integrity (Check) Intact <input checked="" type="checkbox"/> On Ice <input type="checkbox"/>				
Relinquished By				Date/Time:	Received By		Date/Time:					

3/7/06 1615  
3/7/06 1825  
2 WKS

(2)





March 15, 2006

**Alta Project I.D.: 27386**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 09, 2006 under your Project Name "IPC0797". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

A handwritten signature in cursive script that reads "Martha M. Maier".

Martha M. Maier  
Director of HRMS Services



**Section I: Sample Inventory Report**

**Date Received: 3/9/2006**

Alta Lab. ID

Client Sample ID

27386-001

IPC0797

**SECTION II**

EPA Method 1613

Method Blank		Lab Sample: 0-MB001				Date Analyzed DB-5: 14-Mar-06		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	7826	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup> Qualifiers
Sample Size:	1.00 L	Date Extracted:	12-Mar-06	Conc. (pg/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.821					13C-2,3,7,8-TCDD	88.6	25 - 164
1,2,3,7,8-PeCDD	ND	0.736					13C-1,2,3,7,8-PeCDD	82.7	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.72					13C-1,2,3,4,7,8-HxCDD	87.0	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.70					13C-1,2,3,6,7,8-HxCDD	82.6	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.62					13C-1,2,3,4,6,7,8-HpCDD	76.9	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	1.26					13C-OCDD	49.8	17 - 157
OCDD	ND	3.35					13C-2,3,7,8-TCDF	84.7	24 - 169
2,3,7,8-TCDF	ND	0.714					13C-1,2,3,7,8-PeCDF	78.6	24 - 185
1,2,3,7,8-PeCDF	ND	0.810					13C-2,3,4,7,8-PeCDF	79.7	21 - 178
2,3,4,7,8-PeCDF	ND	0.745					13C-1,2,3,4,7,8-HxCDF	82.5	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.432					13C-1,2,3,6,7,8-HxCDF	84.2	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.408					13C-2,3,4,6,7,8-HxCDF	80.7	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.449					13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.691					13C-1,2,3,4,6,7,8-HpCDF	62.3	28 - 143
1,2,3,4,6,7,8,9-HpCDF	ND	0.631					13C-1,2,3,4,7,8,9-HpCDF	73.7	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.773					13C-OCDF	55.0	17 - 157
OCDF	ND	2.72					CRS 37Cl-2,3,7,8-TCDD	111	35 - 197
<b>Totals</b>									
Total TCDD	ND	0.821							
Total PeCDD	ND	0.736							
Total HxCDD	ND	1.68							
Total HpCDD	ND	1.26							
Total TCDF	ND	0.714							
Total PeCDF	ND	0.777							
Total HxCDF	ND	0.483							
Total HpCDF	ND	0.699							

Footnotes

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: RAS  
 Approved By: Martha M. Maier  
 15-Mar-2006 11:20

**EPA Method 1613**

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-225: NA		
Matrix:	Aqueous	QC Batch No.:	7826	Date Analyzed DB-5:	14-Mar-06	
Sample Size:	1.00 L	Date Extracted:	12-Mar-06	Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.8	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	77.3	25 - 164
1,2,3,7,8-PeCDD	50.0	53.3	35 - 71	13C-1,2,3,7,8-PeCDD	70.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	53.3	35 - 82	13C-1,2,3,4,7,8-HxCDD	70.9	32 - 141
1,2,3,6,7,8-HxCDD	50.0	54.2	38 - 67	13C-1,2,3,6,7,8-HxCDD	69.7	28 - 130
1,2,3,7,8,9-HxCDD	50.0	52.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	61.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	56.3	35 - 70	13C-OCDD	42.3	17 - 157
OCDD	100	112	78 - 144	13C-2,3,7,8-TCDF	77.2	24 - 169
2,3,7,8-TCDF	10.0	10.5	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	67.8	24 - 185
1,2,3,7,8-PeCDF	50.0	53.3	40 - 67	13C-2,3,4,7,8-PeCDF	70.4	21 - 178
2,3,4,7,8-PeCDF	50.0	53.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	68.0	26 - 152
1,2,3,4,7,8-HxCDF	50.0	54.1	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.6	26 - 123
1,2,3,6,7,8-HxCDF	50.0	53.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	68.9	28 - 136
2,3,4,6,7,8-HxCDF	50.0	54.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	68.1	29 - 147
1,2,3,7,8,9-HxCDF	50.0	54.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	50.3	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	55.4	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	59.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	56.2	39 - 69	13C-OCDF	47.5	17 - 157
OCDF	100	110	63 - 170	CRS 37Cl-2,3,7,8-TCDD	108	35 - 197

Analyst: RAS  
 Approved By: Martha M. Maier  
 Date: 15-Mar-2006 11:20

**EPA Method 1613**

**IPC0797**

<b>Client Data</b>		<b>Sample Data</b>		<b>Laboratory Data</b>	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27386-001
Project:	IPC0797	Sample Size:	1.01 L	QC Batch No.:	7826
Date Collected:	7-Mar-06			Date Analyzed DB-5:	14-Mar-06
Time Collected:	0920			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.750			13C-2,3,7,8-TCDD	78.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.732			13C-1,2,3,7,8-PeCDD	76.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.23			13C-1,2,3,4,7,8-HxCDD	78.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.28			13C-1,2,3,6,7,8-HxCDD	79.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.19			13C-1,2,3,4,6,7,8-HpCDD	71.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.51			13C-OCDD	50.8	17 - 157	
OCDD	6.19				13C-2,3,7,8-TCDF	78.1	24 - 169	
2,3,7,8-TCDF	ND	0.846			13C-1,2,3,7,8-PeCDF	72.4	24 - 185	
1,2,3,7,8-PeCDF	ND	0.857			13C-2,3,4,7,8-PeCDF	73.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.750			13C-1,2,3,4,7,8-HxCDF	74.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.424			13C-1,2,3,6,7,8-HxCDF	75.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.370			13C-2,3,4,6,7,8-HxCDF	75.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.418			13C-1,2,3,7,8,9-HxCDF	75.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.639			13C-1,2,3,4,6,7,8-HpCDF	62.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.664			13C-1,2,3,4,7,8,9-HpCDF	68.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.799			13C-OCDF	54.8	17 - 157	
OCDF	ND	3.63			<b>CRS</b> 37Cl-2,3,7,8-TCDD	99.1	35 - 197	

Totals	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers
Total TCDD	ND	0.750	
Total PeCDD	ND	0.732	
Total HxCDD	ND	1.23	
Total HpCDD	ND	1.51	
Total TCDF	ND	0.846	
Total PeCDF	ND	0.803	
Total HxCDF	ND	0.452	
Total HpCDF	ND	0.726	

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: RAS

Approved By: Martha M. Maier 15-Mar-2006 11:20

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

**SUBCONTRACT ORDER - PROJECT # IPC0797**

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 673-0106  <i>27386</i> <i>0.4°C</i>

Standard TAT is requested unless specific due date is requested => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC0797-01 Water 1613-Dioxin-HR-Alta EDD + Level 4	Sampled: 03/07/06 09:20 03/14/06 09:20 04/04/06 09:20	Instant Notification J flags, 17 congeners, no TEQ, ug/L, sub=Alta Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b> 1 L Amber (IPC0797-01C) 1 L Amber (IPC0797-01D)		

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No     
 Sample labels/COC agree:  Yes  No     
 Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No     
 Samples Preserved Properly:  Yes  No     
 Samples Received at (temp): \_\_\_\_\_

Released By: *[Signature]* Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: *Fred-Ex* Date: *3/8/06* Time: \_\_\_\_\_  
 Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: *[Signature]* Date: *3/1/06* Time: *0900*



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Conley Dr., Suite A, Colton, CA 92224 Ph (909) 370-1067 Fax (909) 370-1048  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 525-9596 Fax (619) 525-9589  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0051  
 3820 E. Sunset Rd., Suite 20, Las Vegas, NV 89120 Ph (702) 785-3820 Fax (702) 786-3821

**SUBCONTRACT ORDER - PROJECT # IPC0797**

<p><b>SENDING LABORATORY:</b>                  Del Mar Analytical, Irvine                  17461 Derian Avenue, Suite 100                  Irvine, CA 92614                  Phone: (949) 261-1022                  Fax: (949) 261-1228                  Project Manager: Michele Chamberlin</p>	<p><b>RECEIVING LABORATORY:</b>                  Alta Analytical - SUB <span style="float: right;">27386</span>                  1104 Windfield Way                  El Dorado Hills, CA 95762                  Phone: (916) 933-1640                  Fax: (916) 673-0106</p> <p style="font-size: 2em; opacity: 0.5; transform: rotate(-15deg); position: absolute; right: 0; top: 50px;">Revised 0.42</p>
--	--

Standard TAT is requested unless specific due date is requested => Due Date: 3/21/06 Initials: MC

Analysis	Expiration	Comments
Sample ID: IPC0797-01 Water	Sampled: 03/07/06 09:20	Instant Notification
1613-Dioxin-HR-Alta	03/14/06 09:20	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/04/06 09:20	Excel EDD email to pm, include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IPC0797-01C)		
1 L Amber (IPC0797-01D)		

*PUSH*

**SAMPLE INTEGRITY:**

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

Released By: [Signature] Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: [Signature] Date: 3/9/06 Time: 0900

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27386

Samples Arrival:	Date/Time 3/1/06 0900	Initials: BBB	Location: WR-2
Logged In:	Date/Time 3/1/06 0948	Initials: BBB	Location: WR-2
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> Cal
	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input checked="" type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C	0.4	Time: 0910	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill			
Trk #	7913 9986 2968		
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?		COC	Sample Container
			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

# **APPENDIX G**

## **Section 110**

Outfall 009, March 7, 2006

AMEC Data Validation Reports

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID B4DF43  
 Task Order 1261.001D.01  
 SDG No. IPC0797

No. of Analyses 1

Laboratory Alta

Reviewer K. Shadowlight

Analysis/Method Dioxin/Furan by Method 1613

Date: <u>April 2, 2006</u>
Reviewer's Signature <i>K. Shadowlight</i>

<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	<b>Detects below the laboratory lower calibration level were qualified as estimated.</b>
Holding Times	
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Routine Outfall 009

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC0797

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001.01  
Sample Delivery Group: IPC0797  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 2, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 009	IPC0797-01	27386-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 0°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 02/02/2006 on instrument VG-8. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7826-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7826-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualifications of the site samples were required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.

Client Data		Sample Data		Laboratory Data			
Sample ID: <b>IPC0797</b>	Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 27386-001	Date Received: 9-Mar-06	EPA Method 1613		
Project: IPC0797	7-Mar-06	Sample Size: 1.01 L	QC Batch No.: 7826	Date Extracted: 12-Mar-06			
Date Collected: 0920			Date Analyzed DB-5: 14-Mar-06	Date Analyzed DB-225: NA			
Analyte	Conc. (pg/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.750		13C-2,3,7,8-TCDD	78.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.732		13C-1,2,3,7,8-PeCDD	76.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.23		13C-1,2,3,4,7,8-HxCDD	78.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.28		13C-1,2,3,6,7,8-HxCDD	79.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.19		13C-1,2,3,4,6,7,8-HpCDD	71.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.51		13C-OCDD	50.8	17 - 157	
OCDD	6.19			13C-2,3,7,8-TCDF	78.1	24 - 169	
2,3,7,8-TCDF	ND	0.846		13C-1,2,3,7,8-PeCDF	72.4	24 - 185	
1,2,3,7,8-PeCDF	ND	0.857		13C-2,3,4,7,8-PeCDF	73.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.750		13C-1,2,3,4,7,8-HxCDF	74.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.424		13C-1,2,3,6,7,8-HxCDF	75.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.370		13C-2,3,4,6,7,8-HxCDF	75.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.418		13C-1,2,3,7,8,9-HxCDF	75.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.639		13C-1,2,3,4,6,7,8-HpCDF	62.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.664		13C-1,2,3,4,7,8,9-HpCDF	68.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.799		13C-OCDF	54.8	17 - 157	
OCDF	ND	3.63		CRS 37Cl-2,3,7,8-TCDD	99.1	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.750					
Total PeCDD	ND	0.732					
Total HxCDD	ND	1.23					
Total HpCDD	ND	1.51					
Total TCDF	ND	0.846					
Total PeCDF	ND	0.803					
Total HxCDF	ND	0.452					
Total HpCDF	ND	0.726					

Rev QK  
 Qual Code  
 U → J → U → U → U

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst: RAS  
 Approved By: Martha M. Maier  
 Date: 15-Mar-2006 11:20

Level III

Project 27386


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

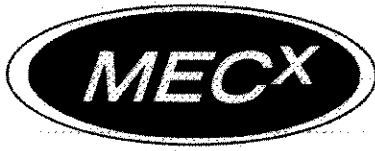
Package ID: B4MT45  
 Task Order: 1261.001D.01  
 SDG No.: IPC0797

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: Metals

Date: April 10, 2006  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications applied for: 1. Negative blank results 2. Reporting limit check standard recovery 3. Detect below the reporting limit _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Sampling  
Outfall 009

ANALYSIS: METALS

SAMPLE DELIVERY GROUP IPC0797

Prepared by

MECX, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## 1. INTRODUCTION

Task Order Title: NPDES Sampling  
MEC<sup>x</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0797  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 10, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for ICP and ICP-MS Metals (DVP-5, Rev. 0)*, *EPA Methods 200.8 and 245.1*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 009	IPC0797-01	Water	200.8, 245.1

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. No sample qualifications were required.

#### 2.1.3 Holding Times

The date of collection recorded on the COC and the date of analysis recorded in the raw data documented that the sample analyses were performed within the specified holding times of six months for the ICP-MS metals and 28 days for mercury. No qualifications were required.

### 2.2 ICP-MS TUNING

The method-specified tune criteria were met and no qualifications were required.

### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP-MS metals and 85-115% for mercury. The laboratory analyzed reporting limit check standards in association with the sample in this SDG. Cadmium and lead were recovered at 65%, each, in the 0.2 ppb reporting limit check standard. As the method blank and bracketing CCVs (see section 2.4) results were found to be negative, also indicating a potentially low bias in the instrument baseline, the reviewer chose to qualify the nondetected results for cadmium and lead as estimated, "UJ." The remaining and the recoveries were considered to be acceptable. No further qualifications were required.

## 2.4 BLANKS

Cadmium, copper, and lead method blank and CCV results were found to be negative values. The largest negative values were -0.50 µg/L for copper, -0.115 µg/L for cadmium, and -0.13 µg/L for lead. The cadmium, copper, and lead results for Outfall 009 were qualified as estimated, "J," for detects and, "UJ," for nondetects and the MDLs were raised to the absolute value of the negative interference. No further qualifications were required.

## 2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were performed in association with the sample in this SDG for the ICP-MS metals. Copper and cadmium were detected above the reporting limit in the ICSA. The reviewer checked the raw sample data and determined that the level of interferents in Outfall 009 was not large enough to cause sample qualification.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP-MS and mercury recoveries were within the laboratory-established control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

## 2.8 MATRIX SPIKES

No matrix spike analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was evaluated based on LCS results. No qualifications were required.

## 2.9 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

## 2.10 INTERNAL STANDARDS PERFORMANCE

For the target analytes analyzed by ICP-MS, the internal standards were within the method-specified control limits of 60-125%. No qualifications were required.

## 2.11 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Analytes detected below the reporting limit were qualified as estimated, "J," and denoted with "DNQ," in accordance with the NPDES permit. No further qualifications were required.

## 2.12 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### 2.12.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no associated field QC samples. No qualifications were required.

### 2.12.2 Field Duplicates

There were no field duplicate analyses performed in association with the site sample.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06  
 Received: 03/07/06

**METALS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0797-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C08082	0.050	2.0	0.73	1	03/08/06	03/09/06	J J
Cadmium	EPA 200.8	6C08082	0.025	1.0	ND	1	03/08/06	03/09/06	U J
Copper	EPA 200.8	6C08082	0.25	2.0	2.1	1	03/08/06	03/09/06	J
Lead	EPA 200.8	6C08082	0.040	1.0	ND	1	03/08/06	03/09/06	U J
Mercury	EPA 245.1	6C08072	0.050	0.20	ND	1	03/08/06	03/09/06	U

Rev Qual	Qual Code
J J	DNQ
U J	C, B, S
J	B, S
U J	C, B, S
U	

PM 4/10/06

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

LEVEL IV

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IPC0797 <Page 2 of 11>

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4WC63  
Task Order: 1261.001D.01  
SDG No.: IPC0797

No. of Analyses: 1

Laboratory: Del Mar Analytical  
Reviewer: P. Meeks  
Analysis/Method: General Minerals

Date: April 14, 2006  
Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
Case Narrative	_____
Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis	_____
Protocol, e.g.,	_____
Holding Times	_____
GC/MS Tune/Inst. Performance	_____
Calibration	_____
Method blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification	_____
Quantitation	_____
System Performance	_____
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# **DATA VALIDATION REPORT**

**NPDES Sampling  
Outfall 009**

**ANALYSIS: GENERAL MINERALS**

**SAMPLE DELIVERY GROUP: IPC0797**

**Prepared by**

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

Project: NPDES  
SDG: IPC0797  
Analysis: Gen. Min.

**DATA VALIDATION REPORT**

**1. INTRODUCTION**

Task Order Title: NPDES Sampling  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0797  
Project Manager: P. Costa  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 13, 2006

The sample listed in Table 1 was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *USEPA Methods for Chemical Analysis of Water and Wastes Method 300.0*, and validation guidelines outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form Is as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample Identification**

<b>Client ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>COC Method</b>
<b>Outfall 009</b>	<b>IPC0797-01</b>	<b>Water</b>	<b>General Minerals</b>

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . No preservation problems were noted by the laboratory. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and all analyses presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the date of analysis. The analyses were performed within the method specified holding times. No qualifications were required.

### 2.2 CALIBRATION

The initial calibration correlation coefficients were  $\geq 0.995$  and the ICV and CCV recoveries were within the control limits of 90-110%. No qualifications were required.

### 2.3 BLANKS

Chloride was detected in the method blank associated with the site sample analyses, but not at sufficient concentration to qualify the site sample. There were no other detects in the method blank or CCBs associated with the sample analyses. Raw data was reviewed to verify the blank data. No qualifications were required.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The reported LCS recoveries were within the laboratory-established control limits. No recovery was reported for nitrate/nitrite; however, the reviewer checked the raw data and determined that nitrate/nitrite was spiked into the LCS and that it was recovered acceptably. No qualifications were required.

DATA VALIDATION REPORT

---

## 2.5 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

## 2.6 MATRIX SPIKES

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Evaluation of method accuracy was based on LCS results. No qualifications were required.

## 2.7 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No qualifications were required.

## 2.8 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated sample. The following are findings associated with field QC samples:

### 2.8.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no associated field QC samples. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC0797

Sampled: 03/07/06

Received: 03/07/06

**INORGANICS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw	Qual Code
Sample ID: IPC0797-01 (Outfall 009 - Water) - cont.										
Reporting Units: mg/l										
Chloride	EPA 300.0	6C07127	0.15	0.50	19	1	03/07/06	03/08/06		
Nitrate/Nitrite-N	EPA 300.0	6C07127	0.080	0.15	1.6	1	03/07/06	03/08/06		
Oil & Grease	EPA 413.1	6C13044	0.90	4.8	1.8	1	03/13/06	03/13/06	✓	1
Sulfate	EPA 300.0	6C07127	4.5	5.0	60	10	03/07/06	03/08/06		
Total Dissolved Solids	SM2540C	6C11037	10	10	280	1	03/11/06	03/11/06	✓	
Total Suspended Solids	EPA 160.2	6C09147	10	10	ND	1	03/09/06	03/09/06	✓	

*\* Analysis not validated*

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

LEVEL IV

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IPC0797 <Page 3 of 11>

# **APPENDIX G**

## **Section 111**

**Outfall 009, March 18, 2006**

**Del Mar Analytical Laboratory Report**



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 009

Sampled: 03/18/06  
Received: 03/18/06  
Issued: 03/27/06 18:00

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

LABORATORY ID	CLIENT ID	MATRIX
IPC2013-01	Outfall 009	Water

Reviewed By:

*Michele Chamberlin*

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06  
 Received: 03/18/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2013-01 (Outfall 009 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C20085	0.050	2.0	0.51	1	03/20/06	03/21/06	J
Cadmium	EPA 200.8	6C20085	0.025	1.0	ND	1	03/20/06	03/21/06	
Copper	EPA 200.8	6C20085	0.25	2.0	2.6	1	03/20/06	03/21/06	
Lead	EPA 200.8	6C20085	0.040	1.0	ND	1	03/20/06	03/21/06	
Mercury	EPA 245.1	6C20077	0.050	0.20	ND	1	03/20/06	03/20/06	
Thallium	EPA 200.8	6C20085	0.15	1.0	ND	1	03/20/06	03/21/06	

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 Michele Chamberlin  
 Project Manager

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06

Received: 03/18/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2013-01 (Outfall 009 - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
Chloride	EPA 300.0	6C18032	0.75	2.5	46	5	03/18/06	03/18/06	
Nitrate/Nitrite-N	EPA 300.0	6C18032	0.080	0.15	ND	1	03/18/06	03/18/06	
Oil & Grease	EPA 413.1	6C24046	0.89	4.7	ND	1	03/24/06	03/24/06	
Sulfate	EPA 300.0	6C18032	2.2	2.5	240	5	03/18/06	03/18/06	
Total Dissolved Solids	SM2540C	6C21060	10	10	390	1	03/21/06	03/21/06	
Total Suspended Solids	EPA 160.2	6C21112	10	10	ND	1	03/21/06	03/21/06	

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 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06  
Received: 03/18/06

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 009 (IPC2013-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/18/2006 08:15	03/18/2006 14:50	03/18/2006 15:15	03/18/2006 15:59

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Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06  
 Received: 03/18/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C20077 Extracted: 03/20/06</b>											
<b>Blank Analyzed: 03/20/2006 (6C20077-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/20/2006 (6C20077-BS1)</b>											
Mercury	8.47	0.20	0.050	ug/l	8.00		106	85-115			
<b>Matrix Spike Analyzed: 03/20/2006 (6C20077-MS1)</b>											
						<b>Source: IPC1866-04</b>					
Mercury	8.85	0.20	0.050	ug/l	8.00	ND	111	70-130			
<b>Matrix Spike Dup Analyzed: 03/20/2006 (6C20077-MSD1)</b>											
						<b>Source: IPC1866-04</b>					
Mercury	8.69	0.20	0.050	ug/l	8.00	ND	109	70-130	2	20	
<b>Batch: 6C20085 Extracted: 03/20/06</b>											
<b>Blank Analyzed: 03/20/2006 (6C20085-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
Thallium	ND	1.0	0.15	ug/l							
<b>LCS Analyzed: 03/20/2006 (6C20085-BS1)</b>											
Antimony	73.9	2.0	0.050	ug/l	80.0		92	85-115			
Cadmium	74.9	1.0	0.025	ug/l	80.0		94	85-115			
Copper	81.2	2.0	0.25	ug/l	80.0		102	85-115			
Lead	76.8	1.0	0.040	ug/l	80.0		96	85-115			
Thallium	79.6	1.0	0.15	ug/l	80.0		100	85-115			

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 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC2013	Sampled: 03/18/06 Received: 03/18/06
--	---	---

## 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: 6C20085 Extracted: 03/20/06</b>											
<b>Matrix Spike Analyzed: 03/20/2006 (6C20085-MS1)</b>						<b>Source: IPC1984-01</b>					
Antimony	74.7	2.0	0.050	ug/l	80.0	0.69	93	70-130			
Cadmium	72.3	1.0	0.025	ug/l	80.0	0.13	90	70-130			
Copper	582	2.0	0.25	ug/l	80.0	490	115	70-130			
Lead	81.1	1.0	0.040	ug/l	80.0	6.7	93	70-130			
Thallium	77.4	1.0	0.15	ug/l	80.0	ND	97	70-130			
<b>Matrix Spike Analyzed: 03/20/2006 (6C20085-MS2)</b>						<b>Source: IPC1984-02</b>					
Antimony	74.3	2.0	0.050	ug/l	80.0	0.60	92	70-130			
Cadmium	71.8	1.0	0.025	ug/l	80.0	ND	90	70-130			
Copper	158	2.0	0.25	ug/l	80.0	92	82	70-130			
Lead	73.8	1.0	0.040	ug/l	80.0	0.24	92	70-130			
Thallium	76.6	1.0	0.15	ug/l	80.0	ND	96	70-130			
<b>Matrix Spike Dup Analyzed: 03/20/2006 (6C20085-MSD1)</b>						<b>Source: IPC1984-01</b>					
Antimony	74.1	2.0	0.050	ug/l	80.0	0.69	92	70-130	1	20	
Cadmium	71.7	1.0	0.025	ug/l	80.0	0.13	89	70-130	1	20	
Copper	570	2.0	0.25	ug/l	80.0	490	100	70-130	2	20	
Lead	79.9	1.0	0.040	ug/l	80.0	6.7	92	70-130	1	20	
Thallium	76.6	1.0	0.15	ug/l	80.0	ND	96	70-130	1	20	

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 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06  
 Received: 03/18/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C18032 Extracted: 03/18/06</b>											
<b>Blank Analyzed: 03/18/2006 (6C18032-BLK1)</b>											
Chloride	ND	0.50	0.15	mg/l							
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/18/2006 (6C18032-BS1)</b>											
Chloride	4.61	0.50	0.15	mg/l	5.00		92	90-110			M-3
Sulfate	9.52	0.50	0.45	mg/l	10.0		95	90-110			
<b>Matrix Spike Analyzed: 03/18/2006 (6C18032-MS1)</b>											
						<b>Source: IPC2009-01</b>					
Sulfate	57.0	0.50	0.45	mg/l	10.0	46	110	80-120			
<b>Matrix Spike Dup Analyzed: 03/18/2006 (6C18032-MSD1)</b>											
						<b>Source: IPC2009-01</b>					
Sulfate	56.2	0.50	0.45	mg/l	10.0	46	102	80-120	1	20	
<b>Batch: 6C21060 Extracted: 03/21/06</b>											
<b>Blank Analyzed: 03/21/2006 (6C21060-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/21/2006 (6C21060-BS1)</b>											
Total Dissolved Solids	966	10	10	mg/l	1000		97	90-110			
<b>Duplicate Analyzed: 03/21/2006 (6C21060-DUP1)</b>											
						<b>Source: IPC2064-01</b>					
Total Dissolved Solids	539	10	10	mg/l		540			0	10	
<b>Batch: 6C21112 Extracted: 03/21/06</b>											
<b>Blank Analyzed: 03/21/2006 (6C21112-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							

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 Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC2013	Sampled: 03/18/06 Received: 03/18/06
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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: 6C21112 Extracted: 03/21/06</b>											
<b>LCS Analyzed: 03/21/2006 (6C21112-BS1)</b>											
Total Suspended Solids	977	10	10	mg/l	1000		98	85-115			
<b>Duplicate Analyzed: 03/21/2006 (6C21112-DUP1)</b>											
Total Suspended Solids	26.0	10	10	mg/l		Source: IPC1568-01 25			4	10	
<b>Batch: 6C24046 Extracted: 03/24/06</b>											
<b>Blank Analyzed: 03/24/2006 (6C24046-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/24/2006 (6C24046-BS1)</b>											
Oil & Grease	18.0	5.0	0.94	mg/l	20.0		90	65-120			M-NRI
<b>LCS Dup Analyzed: 03/24/2006 (6C24046-BSD1)</b>											
Oil & Grease	19.0	5.0	0.94	mg/l	20.0		95	65-120	5	20	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC2013	Sampled: 03/18/06 Received: 03/18/06
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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
IPC2013-01	413.1 Oil and Grease	Oil & Grease	mg/l	-1	4.7	15
IPC2013-01	Antimony-200.8	Antimony	ug/l	0.51	2.0	6.00
IPC2013-01	Cadmium-200.8	Cadmium	ug/l	0	1.0	4.00
IPC2013-01	Chloride - 300.0	Chloride	mg/l	46	2.5	150
IPC2013-01	Copper-200.8	Copper	ug/l	2.60	2.0	14
IPC2013-01	Lead-200.8	Lead	ug/l	0	1.0	5.20
IPC2013-01	Mercury - 245.1	Mercury	ug/l	0.019	0.20	0.20
IPC2013-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0	0.15	10.00
IPC2013-01	Sulfate-300.0	Sulfate	mg/l	240	2.5	250
IPC2013-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	390	10	850
IPC2013-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06

Received: 03/18/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2013

Sampled: 03/18/06  
Received: 03/18/06

### Certification Summary

#### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

#### Subcontracted Laboratories

**Alta 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: IPC2013-01

Analysis Performed: EDD + Level 4

Samples: IPC2013-01

Del Mar Analytical - Irvine

Michele Chamberlin

Project Manager



# Del Mar Analytical CHAIN OF CUSTODY FORM

<b>Client Name/Address:</b> MVH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		<b>Project:</b> Boeing-SSFL NPDES Routine Outfall 009 Stormwater at WS-13		<b>Phone Number:</b> (626) 568-6691 <b>Fax Number:</b> (626) 568-6515		<b>Field readings:</b> Temp = 51.6 pH = 7.4																																															
<b>Project Manager:</b> Bronwyn Kelly <b>Sampler:</b> <i>Burress, R</i>				<b>Comments</b>																																																	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #																																															
Outfall 009	W	Poly-1L	1	03/18/06 08:15	HNO3	1A	X																																														
Outfall 009-Dup	W	Poly-1L	1	↓	HNO3	1B	X																																														
Outfall 009	W	Glass-Amber	2			None	2A, 2B		X																																												
Outfall 009	W	Glass-Amber	2			HCl	3A, 3B			X																																											
Outfall 009	W	Poly-500 ml	2			None	4A, 4B				X																																										
Outfall 009	W	Poly-500 ml	2			None	5A, 5B					X																																									
<b>Relinquished By:</b> <i>Rubert Burress</i> <b>Relinquished By:</b> <i>M. C. E.</i>		<b>Date/Time:</b> 03/18/06 1227 <b>Date/Time:</b> 3/18/06 1450		<b>Received By:</b> <i>M. C. E.</i> <b>Received By:</b> <i>[Signature]</i>		<b>Date/Time:</b> 3/18/06 1227 <b>Date/Time:</b> 3/18/06 1450		<b>TCDD (and all congeners)</b> <b>Oil &amp; Grease (EPA 413.1)</b> <b>CF, SO4, NO3+NO2-N</b> <b>TDS, TSS</b>		<b>Total Recoverable Metals:</b> Sb, Cd, Cu, Pb, Hg, Ti		<b>Turn around Time: (check)</b> 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____		<b>Sample Integrity: (Check)</b> Intact _____ On Ice: _____																																							



March 28, 2006

**Alta Project I.D.: 27445**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 21, 2006 under your Project Name "IPC2013". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

A handwritten signature in cursive script, appearing to read "Martha M. Maier".

Martha M. Maier  
Director of HRMS Services



**Section 1: Sample Inventory Report**

**Date Received: 3/21/2006**

**Alta Lab. ID**

**Client Sample ID**

27445-001

IPC2013-01

**SECTION II**

Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	7870	Lab Sample:	0-MB001		
Sample Size:	1.00 L	Date Extracted:	26-Mar-06	Date Analyzed DB-5:	28-Mar-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.000000649		13C-2,3,7,8-TCDD	78.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000669		13C-1,2,3,7,8-PeCDD	79.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000135		13C-1,2,3,4,7,8-HxCDD	86.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000141		13C-1,2,3,6,7,8-HxCDD	73.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000131		13C-1,2,3,4,6,7,8-HpCDD	69.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000168		13C-OCDD	52.7	17 - 157	
OCDD	0.00000537			13C-2,3,7,8-TCDF	80.3	24 - 169	
2,3,7,8-TCDF	ND	0.000000508		13C-1,2,3,7,8-PeCDF	77.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000504		13C-2,3,4,7,8-PeCDF	76.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000462		13C-1,2,3,4,7,8-HxCDF	74.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000340		13C-1,2,3,6,7,8-HxCDF	71.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000315		13C-2,3,4,6,7,8-HxCDF	68.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000356		13C-1,2,3,7,8,9-HxCDF	72.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000516		13C-1,2,3,4,6,7,8-HpCDF	57.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000635		13C-1,2,3,4,7,8,9-HpCDF	64.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000754		13C-OCDF	53.7	17 - 157	
OCDF	ND	0.00000185		CRS 37Cl-2,3,7,8-TCDD	88.7	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.000000649		Footnotes			
Total PeCDD	ND	0.000000669		a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.00000136		b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.00000168		c. Method detection limit.			
Total TCDF	ND	0.000000508		d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.000000483					
Total HxCDF	ND	0.000000457					
Total HpCDF	ND	0.00000104					

Analyst: RAS  
 Approved By: Melanee A. Schuld  
 28-Mar-2006 15:31

OPR Results		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	7870	Lab Sample:	0-OPR001	
Sample Size:	1.00 L	Date Extracted:	26-Mar-06	Date Analyzed DB-5:	28-Mar-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	12.3	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	81.2	25 - 164
1,2,3,7,8-PeCDD	50.0	60.2	35 - 71	13C-1,2,3,7,8-PeCDD	78.1	25 - 181
1,2,3,4,7,8-HxCDD	50.0	58.6	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.7	32 - 141
1,2,3,6,7,8-HxCDD	50.0	61.6	38 - 67	13C-1,2,3,6,7,8-HxCDD	75.9	28 - 130
1,2,3,7,8,9-HxCDD	50.0	58.9	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	70.4	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	63.3	35 - 70	13C-OCDD	49.2	17 - 157
OCDD	100	124	78 - 144	13C-2,3,7,8-TCDF	81.7	24 - 169
2,3,7,8-TCDF	10.0	11.8	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	75.4	24 - 185
1,2,3,7,8-PeCDF	50.0	60.5	40 - 67	13C-2,3,4,7,8-PeCDF	76.4	21 - 178
2,3,4,7,8-PeCDF	50.0	60.6	34 - 80	13C-1,2,3,4,7,8-HxCDF	73.5	26 - 152
1,2,3,4,7,8-HxCDF	50.0	61.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	69.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	62.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	72.4	28 - 136
2,3,4,6,7,8-HxCDF	50.0	61.9	35 - 78	13C-1,2,3,7,8,9-HxCDF	73.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	61.6	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	58.2	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	63.8	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	66.2	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	64.3	39 - 69	13C-OCDF	51.2	17 - 157
OCDF	100	123	63 - 170	CRS 37Cl-2,3,7,8-TCDD	91.0	35 - 197

Analyst: RAS

Approved By: Melanee A. Schuld 28-Mar-2006 15:31

**Sample ID: IPC2013-01**

**EPA Method 1613**

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27445-001
Project:	IPC2013	Sample Size:	1.01 L	QC Batch No.:	7870
Date Collected:	18-Mar-06			Date Analyzed DB-5:	28-Mar-06
Time Collected:	0815				

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.000000585			13C-2,3,7,8-TCDD	75.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000693			13C-1,2,3,7,8-PeCDD	69.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000135			13C-1,2,3,4,7,8-HxCDD	71.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000144			13C-1,2,3,6,7,8-HxCDD	63.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000132			13C-1,2,3,4,6,7,8-HpCDD	64.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000226			13C-OCDD	50.5	17 - 157	
OCDD	0.0000201			J,B	13C-2,3,7,8-TCDF	78.0	24 - 169	
2,3,7,8-TCDF	ND	0.000000514			13C-1,2,3,7,8-PeCDF	66.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000741			13C-2,3,4,7,8-PeCDF	68.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000684			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000407			13C-1,2,3,6,7,8-HxCDF	55.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000423			13C-2,3,4,6,7,8-HxCDF	57.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000427			13C-1,2,3,7,8,9-HxCDF	61.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000619			13C-1,2,3,4,6,7,8-HpCDF	52.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000874			13C-1,2,3,4,7,8,9-HpCDF	62.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000100			13C-OCDF	51.1	17 - 157	
OCDF	ND	0.00000173			<u>CBS</u> 37Cl-2,3,7,8-TCDD	91.8	35 - 197	

Totals		Footnotes	
Total TCDD	ND	a. Sample specific estimated detection limit.	
Total PeCDD	ND	b. Estimated maximum possible concentration.	
Total HxCDD	ND	c. Method detection limit.	
Total HpCDD	ND	d. Lower control limit - upper control limit.	
Total TCDF	ND		
Total PeCDF	ND		
Total HxCDF	ND		
Total HpCDF	ND		

Analyst: RAS      Approved By: Melanee A. Schulz      28-Mar-2006 15:31

**APPENDIX**



## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 506-9596 Fax (619) 506-9699  
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0051  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

## SUBCONTRACT ORDER - PROJECT # IPC2013

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical - Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 673-0106 <div style="text-align: right; font-size: 1.5em; margin-top: 10px;">             27445              0.5°C           </div>

Standard TAT is requested unless specific due date is requested => Due Date: 2 weeks Initials: MC

Analysis	Expiration	Comments
		Due 4/13/06

Sample ID: IPC2013-01	Water	Sampled: 03/18/06 08:15	Instant Notification
1613-Dioxin-HR-Alta		03/25/06 08:15	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4		04/15/06 08:15	Excel EDD email to pm, Include Std logs for Lvl IV

Containers Supplied:  
 1 L Amber (IPC2013-01C)  
 1 L Amber (IPC2013-01D)

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice::	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

	Date	Time		Date	Time
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time		Date	Time
Released By	Date	Time	Received By	Date	Time

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27445

Samples Arrival:	Date/Time 3/21/06 0900	Initials: BSB	Location: WR-2
Logged In:	Date/Time 3/21/06 1028	Initials: BSB	Location: WR-2
Delivered By:	<u>FedEx</u> UPS Cal DHL	Hand Delivered	Other
Preservation:	<u>Ice</u> <u>Blue Ice</u>	Dry Ice	None
Temp °C	0.5°C	Time: 0915	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill	Trk # 7908 5464 6177	✓	
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?	COC	Sample Container	<u>None</u>
Shipping Container	Alta <u>Client</u>	Retain	<u>Return</u> Dispose

Comments:

*Sampler's initials found on sample label*

# **APPENDIX G**

## **Section 112**

**Outfall 009, March 18, 2006**

**AMEC Data Validation Reports**


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID B4DF53  
 Task Order 1261.001D.01  
 SDG No. IPC2013

No. of Analyses 1

Laboratory Alta  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxin/Furan by Method 1613

Date: April 11, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualification was assigned for method blank contamination.
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Routine Outfall 009

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2013

Prepared by

MECX, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2013  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 11, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 009	IPC2013-01	27445-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 0°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 02/02/2006 on instrument VG-8. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7870-MB001) was extracted and analyzed with the sample in this SDG. Target compound OCDD was detected below the laboratory calibration level in the method blank as well as sample Outfall 009. The detect for OCDD was qualified as an estimated nondetect "UJ," at the level of contamination. There were no other target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7870-OPR001) was extracted and analyzed with the sample in this SDG. The recovery of 1,2,3,4,6,7,8-HpCDF exceeded the method control limits in the blank spike; however, as 1,2,3,4,6,7,8-HpCDF was not detected in the site sample, no qualification of the data was

required. The remaining recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## **2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## **2.7 FIELD QC SAMPLES**

Following are findings associated with field QC:

### **2.7.1 Field Blanks and Equipment Rinsates**

The sample in this SDG had no field blank or equipment rinsate identified. No qualifications of the site sample was required.

### **2.7.2 Field Duplicates**

No field duplicates were identified in association with the sample in this SDG.

## **2.8 INTERNAL STANDARDS**

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## **2.9 COMPOUND IDENTIFICATION**

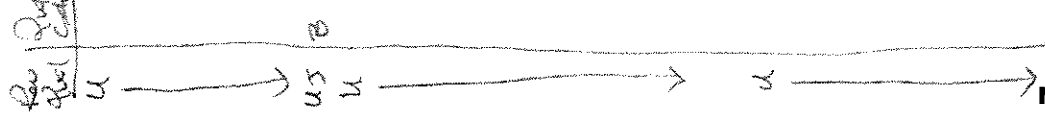
The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## **2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. No qualifications were required.

Client Data		Sample Data		Laboratory Data		
Sample ID: <b>IPC2013-01</b>	Del Mar Analytical, Irvine IPC2013 18-Mar-06 0815	Matrix: Aqueous Sample Size: 1.01 L	Lab Sample: 27445-001 QC Batch No.: 7870 Date Analyzed DB-5: 28-Mar-06	Date Received: 21-Mar-06 Date Extracted: 26-Mar-06 Date Analyzed DB-225: NA	<b>EPA Method 1613</b>	
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.000000585		IS 13C-2,3,7,8-TCDD	75.8	25 - 164
1,2,3,7,8-PeCDD	ND	0.000000693		13C-1,2,3,7,8-PeCDD	69.2	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000135		13C-1,2,3,4,7,8-HxCDD	71.5	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000144		13C-1,2,3,6,7,8-HxCDD	63.4	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000132		13C-1,2,3,4,6,7,8-HpCDD	64.8	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.00000226		13C-OCDD	50.5	17 - 157
OCDD	0.0000201			13C-2,3,7,8-TCDF	78.0	24 - 169
2,3,7,8-TCDF	ND	0.000000514		13C-1,2,3,7,8-PeCDF	66.9	24 - 185
1,2,3,7,8-PeCDF	ND	0.000000741		13C-2,3,4,7,8-PeCDF	68.3	21 - 178
2,3,4,7,8-PeCDF	ND	0.000000684		13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000407		13C-1,2,3,6,7,8-HxCDF	55.6	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000423		13C-2,3,4,6,7,8-HxCDF	57.6	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000427		13C-1,2,3,7,8,9-HxCDF	61.5	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.000000619		13C-1,2,3,4,6,7,8-HpCDF	52.7	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.000000874		13C-1,2,3,4,7,8,9-HpCDF	62.8	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000100		13C-OCDF	51.1	17 - 157
OCDF	ND	0.00000173		CRS 37Cl-2,3,7,8-TCDD	91.8	35 - 197
<b>Totals</b>						
Total TCDD	ND	0.000000585				
Total PeCDD	ND	0.000000693				
Total HxCDD	ND	0.00000137				
Total HpCDD	ND	0.00000226				
Total TCDF	ND	0.000000514				
Total PeCDF	ND	0.000000712				
Total HxCDF	ND	0.000000463				
Total HpCDF	ND	0.000000936				
<b>Footnotes</b>						
a. Sample specific estimated detection limit.						
b. Estimated maximum possible concentration.						
c. Method detection limit.						
d. Lower control limit - upper control limit.						

IPC2013-01 Outfall 009



Analyst: RAS  
Approved By: Melanee A. Schuld  
28-Mar-2006 15:31

Level III

**APPENDIX G**

**Section 113**

Outfall 009, March 28, 2006

Del Mar Analytical Laboratory Report



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 009

Sampled: 03/28/06  
Received: 03/28/06  
Issued: 03/30/06 19:18

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

**LABORATORY ID**  
IPC2827-01

**CLIENT ID**  
Outfall 009

**MATRIX**  
Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC2827	Sampled: 03/28/06 Received: 03/28/06
--	---	---

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2827-01 (Outfall 009 - Water)</b>									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C29080	0.050	2.0	0.30	1	03/29/06	03/29/06	J
Cadmium	EPA 200.8	6C29080	0.025	1.0	ND	1	03/29/06	03/29/06	
Copper	EPA 200.8	6C29080	0.25	2.0	2.6	1	03/29/06	03/29/06	
Lead	EPA 200.8	6C29080	0.040	1.0	0.17	1	03/29/06	03/29/06	J
Mercury	EPA 245.1	6C29072	0.050	0.20	ND	1	03/29/06	03/29/06	
Thallium	EPA 200.8	6C29080	0.15	1.0	ND	1	03/29/06	03/29/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
 Received: 03/28/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2827-01 (Outfall 009 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C28055	0.15	0.50	24	1	03/28/06	03/28/06	
Nitrate/Nitrite-N	EPA 300.0	6C28055	0.080	0.15	0.29	1	03/28/06	03/28/06	
Oil & Grease	EPA 413.1	6C29047	0.90	4.8	ND	1	03/29/06	03/29/06	
Sulfate	EPA 300.0	6C28055	0.90	1.0	94	2	03/28/06	03/28/06	
Total Dissolved Solids	SM2540C	6C29077	10	10	300	1	03/29/06	03/29/06	
Total Suspended Solids	EPA 160.2	6C29092	10	10	ND	1	03/29/06	03/29/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
Received: 03/28/06

**SHORT HOLD TIME DETAIL REPORT**

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 009 (IPC2827-01) - Water EPA 300.0	2	03/28/2006 08:55	03/28/2006 18:15	03/28/2006 20:00	03/28/2006 21:39

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IPC2827	Sampled: 03/28/06 Received: 03/28/06
--	---	---

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29072 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29072-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/29/2006 (6C29072-BS1)</b>											
Mercury	7.90	0.20	0.050	ug/l	8.00		99	85-115			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29072-MS1)</b>											
						<b>Source: IPC2718-01</b>					
Mercury	7.91	0.20	0.050	ug/l	8.00	ND	99	70-130			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29072-MSD1)</b>											
						<b>Source: IPC2718-01</b>					
Mercury	7.82	0.20	0.050	ug/l	8.00	ND	98	70-130	1	20	
<b>Batch: 6C29080 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29080-BLK1)</b>											
Antimony	ND	2.0	0.050	ug/l							
Cadmium	ND	1.0	0.025	ug/l							
Copper	ND	2.0	0.25	ug/l							
Lead	ND	1.0	0.040	ug/l							
Thallium	ND	1.0	0.15	ug/l							
<b>LCS Analyzed: 03/29/2006 (6C29080-BS1)</b>											
Antimony	82.4	2.0	0.050	ug/l	80.0		103	85-115			
Cadmium	81.9	1.0	0.025	ug/l	80.0		102	85-115			
Copper	79.3	2.0	0.25	ug/l	80.0		99	85-115			
Lead	81.8	1.0	0.040	ug/l	80.0		102	85-115			
Thallium	80.7	1.0	0.15	ug/l	80.0		101	85-115			

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
 Received: 03/28/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
---------	--------	-----------------	-----	-------	-------------	---------------	-----------	-------	-----	-----------	-----------------

Batch: 6C29080 Extracted: 03/29/06

Matrix Spike Analyzed: 03/29/2006 (6C29080-MS1)

Source: IPC2585-01

Antimony	84.4	2.0	0.050	ug/l	80.0	0.091	105	70-130			
Cadmium	80.3	1.0	0.025	ug/l	80.0	ND	100	70-130			
Copper	82.8	2.0	0.25	ug/l	80.0	8.6	93	70-130			
Lead	79.2	1.0	0.040	ug/l	80.0	0.67	98	70-130			
Thallium	77.3	1.0	0.15	ug/l	80.0	ND	97	70-130			

Matrix Spike Dup Analyzed: 03/29/2006 (6C29080-MSD1)

Source: IPC2585-01

Antimony	84.2	2.0	0.050	ug/l	80.0	0.091	105	70-130	0	20	
Cadmium	80.7	1.0	0.025	ug/l	80.0	ND	101	70-130	1	20	
Copper	82.7	2.0	0.25	ug/l	80.0	8.6	93	70-130	0	20	
Lead	79.2	1.0	0.040	ug/l	80.0	0.67	98	70-130	0	20	
Thallium	77.5	1.0	0.15	ug/l	80.0	ND	97	70-130	0	20	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009  Report Number: IPC2827	Sampled: 03/28/06 Received: 03/28/06
--	---	---

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
<b>Batch: 6C28055 Extracted: 03/28/06</b>										
<b>Blank Analyzed: 03/28/2006 (6C28055-BLK1)</b>										
Chloride	ND	0.50	0.15	mg/l						
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l						
Sulfate	ND	0.50	0.45	mg/l						
<b>LCS Analyzed: 03/28/2006 (6C28055-BS1)</b>										
Chloride	4.81	0.50	0.15	mg/l	5.00		96	90-110		M-3
Sulfate	9.76	0.50	0.45	mg/l	10.0		98	90-110		
<b>Matrix Spike Analyzed: 03/28/2006 (6C28055-MS1) Source: IPC2694-01</b>										
Sulfate	18.8	0.50	0.45	mg/l	10.0	8.7	101	80-120		
<b>Matrix Spike Dup Analyzed: 03/28/2006 (6C28055-MSD1) Source: IPC2694-01</b>										
Sulfate	18.7	0.50	0.45	mg/l	10.0	8.7	100	80-120	1	20
<b>Batch: 6C29047 Extracted: 03/29/06</b>										
<b>Blank Analyzed: 03/29/2006 (6C29047-BLK1)</b>										
Oil & Grease	ND	5.0	0.94	mg/l						
<b>LCS Analyzed: 03/29/2006 (6C29047-BS1) M-NR1</b>										
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88	65-120		
<b>LCS Dup Analyzed: 03/29/2006 (6C29047-BSD1)</b>										
Oil & Grease	17.2	5.0	0.94	mg/l	20.0		86	65-120	2	20
<b>Batch: 6C29077 Extracted: 03/29/06</b>										
<b>Blank Analyzed: 03/29/2006 (6C29077-BLK1)</b>										
Total Dissolved Solids	ND	10	10	mg/l						

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 Michele Chamberlin  
 Project Manager



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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IPC2827	Sampled: 03/28/06 Received: 03/28/06
--	---	---

## 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: 6C29077 Extracted: 03/29/06</b>											
<b>LCS Analyzed: 03/29/2006 (6C29077-BS1)</b>											
Total Dissolved Solids	994	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/29/2006 (6C29077-DUP1)</b>											
Total Dissolved Solids	240	10	10	mg/l		240			0	10	
<b>Batch: 6C29092 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29092-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29092-BS1)</b>											
Total Suspended Solids	953	10	10	mg/l	1000		95	85-115			
<b>Duplicate Analyzed: 03/29/2006 (6C29092-DUP1)</b>											
Total Suspended Solids	22.0	10	10	mg/l		21			5	10	

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 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
 Received: 03/28/06

## 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
IPC2827-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.76	4.8	15
IPC2827-01	Antimony-200.8	Antimony	ug/l	0.30	2.0	6.00
IPC2827-01	Cadmium-200.8	Cadmium	ug/l	0	1.0	4.00
IPC2827-01	Chloride - 300.0	Chloride	mg/l	24	0.50	150
IPC2827-01	Copper-200.8	Copper	ug/l	2.60	2.0	14
IPC2827-01	Lead-200.8	Lead	ug/l	0.17	1.0	5.20
IPC2827-01	Mercury - 245.1	Mercury	ug/l	0	0.20	0.20
IPC2827-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.29	0.15	10.00
IPC2827-01	Sulfate-300.0	Sulfate	mg/l	94	1.0	250
IPC2827-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	300	10	850
IPC2827-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

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 Michele Chamberlin  
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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
Received: 03/28/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager





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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009

Report Number: IPC2827

Sampled: 03/28/06  
Received: 03/28/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

### Subcontracted Laboratories

**Alta 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: IPC2827-01

Analysis Performed: EDD + Level 4  
Samples: IPC2827-01

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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IP(2827

**Del Mar Analytical** Version 03/01/06 **CHAIN OF CUSTODY FORM**

<b>Client Name/Address:</b> MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>[Signature]</i>		<b>Project:</b> Boeing-SSFL NPDES Routine Outfall 009 Stormwater at WS-13 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		<b>ANALYSIS REQUIRED</b>										Field readings: Temp = 55.4° pH = 7.4 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 (EPA 413.1)	Cl-, SO4, NO3+NO2-N	TDS, TSS	Turn around Time: (check)		
Outfall 009	W	Poly-1L	1	3/28/06 1500	HNO3	1A	X					24 Hours	5 Days	
Outfall 009-Dup	W	Poly-1L	1	↓	HNO3	1B	X					48 Hours	10 Days	
Outfall 009	W	Glass-Amber	2		None	2A, 2B		X				72 Hours	Normal	
Outfall 009	W	Glass-Amber	2		HCl	3A, 3B		X				Perchlorate Only 72 Hours		
Outfall 009	W	Poly-500 ml	2		None	4A, 4B		X				Metals Only 72 Hours		
Outfall 009	W	Poly-500 ml	2		None	5A, 5B		X				Sample Integrity: (Check) Intact	On Ice: <input checked="" type="checkbox"/>	
Outfall 009	W	Poly-500 ml	2			None								
Relinquished By				Date/Time: 3/28/06 1500	Received By			Date/Time: 3/28/06 1815						
Relinquished By				Date/Time: 3/28/06 1815	Received By			Date/Time: 3/28/06 1815						
Relinquished By				Date/Time: 3/28/06 1815	Received By			Date/Time: 3/28/06 1815						



April 04, 2006

**Alta Project I.D.: 27501**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 30, 2006 under your Project Name "IPC2827". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier  
Director of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Section I: Sample Inventory Report**

**Date Received: 3/30/2006**

Alta Lab. ID

Client Sample ID

27501-001

IPC2827-01

**SECTION II**

Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	7886	Lab Sample:	0-MB001			
Sample Size:	1.00 L	Date Extracted:	31-Mar-06	Date Analyzed DB-5:	1-Apr-06			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.000000977			IS 13C-2,3,7,8-TCDD	74.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000135			13C-1,2,3,7,8-PeCDD	74.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000919			13C-1,2,3,4,7,8-HxCDD	75.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000964			13C-1,2,3,6,7,8-HxCDD	75.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000913			13C-1,2,3,4,6,7,8-HpCDD	76.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.000000944			13C-OCDD	43.6	17 - 157	
OCDD	ND	0.00000222			13C-2,3,7,8-TCDF	79.1	24 - 169	
2,3,7,8-TCDF	ND	0.000000845			13C-1,2,3,7,8-PeCDF	81.7	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000110			13C-2,3,4,7,8-PeCDF	83.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000101			13C-1,2,3,4,7,8-HxCDF	75.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000457			13C-1,2,3,6,7,8-HxCDF	76.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000415			13C-2,3,4,6,7,8-HxCDF	76.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000487			13C-1,2,3,7,8,9-HxCDF	76.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000630			13C-1,2,3,4,6,7,8-HpCDF	69.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000489			13C-1,2,3,4,7,8,9-HpCDF	79.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000435			13C-OCDF	50.1	17 - 157	
OCDF	ND	0.00000220			CRS 37Cl-2,3,7,8-TCDD	81.3	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.000000977						
Total PeCDD	ND	0.00000135						
Total HxCDD	ND	0.000000932						
Total HpCDD	ND	0.000000944						
Total TCDF	ND	0.000000845						
Total PeCDF	ND	0.00000106						
Total HxCDF	ND	0.000000491						
Total HpCDF	ND	0.000000463						

**Footnotes**  
a. Sample specific estimated detection limit.  
b. Estimated maximum possible concentration.  
c. Method detection limit.  
d. Lower control limit - upper control limit.

Analyst: JMH  
Approved By: Martha M. Maier 03-Apr-2006 11:55

OPR Results		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7886	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	31-Mar-06	Date Analyzed DB-5:	1-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	63.0	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	63.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	63.7	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	63.7	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	52.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	31.1	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	63.0	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	67.1	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	68.4	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	63.4	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	64.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	65.5	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	63.2	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.3	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	56.4	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	37.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	78.6	35 - 197

Analyst: JMH

Approved By: Martha M. Maier 03-Apr-2006 11:55

**Sample ID:** IPC2827-01 **EPA Method 1613**

**Client Data**  
 Name: Del Mar Analytical, Irvine  
 Project: IPC2827  
 Date Collected: 28-Mar-06  
 Time Collected: 0855

**Sample Data**  
 Matrix: Aqueous  
 Sample Size: 1.02 L

**Laboratory Data**  
 Lab Sample: 27501-001 Date Received: 30-Mar-06  
 QC Batch No.: 7886 Date Extracted: 31-Mar-06  
 Date Analyzed DB-5: 1-Apr-06 Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.000000798			IS 13C-2,3,7,8-TCDD	72.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000126			13C-1,2,3,7,8-PeCDD	72.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000207			13C-1,2,3,4,7,8-HxCDD	72.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000212			13C-1,2,3,6,7,8-HxCDD	73.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000203			13C-1,2,3,4,6,7,8-HpCDD	73.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000854			J	13C-OCDD	38.5	17 - 157	
OCDD	0.0000895				13C-2,3,7,8-TCDF	74.1	24 - 169	
2,3,7,8-TCDF	ND	0.00000622			13C-1,2,3,7,8-PeCDF	80.3	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000124			13C-2,3,4,7,8-PeCDF	76.9	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000119			13C-1,2,3,4,7,8-HxCDF	74.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000454			13C-1,2,3,6,7,8-HxCDF	77.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000415			13C-2,3,4,6,7,8-HxCDF	75.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000473			13C-1,2,3,7,8,9-HxCDF	74.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000629			13C-1,2,3,4,6,7,8-HpCDF	68.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000276			13C-1,2,3,4,7,8,9-HpCDF	75.2	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000471			13C-OCDF	45.5	17 - 157	
OCDF	ND	0.00000601			CRS 37Cl-2,3,7,8-TCDD	86.9	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.000000798						
Total PeCDD	ND	0.00000126						
Total HxCDD	ND	0.00000207						
Total HpCDD	0.0000082							
Total TCDF	ND	0.00000622						
Total PeCDF	ND	0.00000121						
Total HxCDF	ND	0.00000224						
Total HpCDF	0.00000320							

**Footnotes**  
 a. Sample specific estimated detection limit.  
 b. Estimated maximum possible concentration.  
 c. Method detection limit.  
 d. Lower control limit - upper control limit.

Analyst: JMH  
 Approved By: Martha M. Maier 03-Apr-2006 11:55



**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IPC2827

**SENDING LABORATORY:**  
 Del Mar Analytical - Irvine  
 17461 Derian Avenue. Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Alta Analytical - SUB  
 1104 Windfield Way  
 El Dorado Hills, CA 95762  
 Phone : (916) 933-1640  
 Fax: (916) 673-0106

27501  
0.3°C

Standard TAT is requested unless specific due date is requested => Due Date: 4/5/06 Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2827-01 Water	Sampled: 03/28/06 08:55	Instant Notification
1613-Dioxin-HR-Alta	04/04/06 08:55	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/25/06 08:55	Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IPC2827-01C)		
1 L Amber (IPC2827-01D)		

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): \_\_\_\_\_

~~Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: Bethma J. Benedict Date: 3/30/06 Time: 0900~~

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

### SAMPLE LOG-IN CHECKLIST

Alta Project #: 27501

Samples Arrival:	Date/Time <u>3/30/06 0900</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u>
Logged In:	Date/Time <u>3/30/06 1125</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u>
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> Cal
	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered	<input type="radio"/> Other
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
Temp °C	<u>0.3°C</u>	Time: <u>1023</u>	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill	✓		
Trk # <u>7914 2591 2912</u>			
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?			None
Shipping Container	Alta	<input checked="" type="radio"/> Client	Retain
		<input checked="" type="radio"/> Return	Dispose

Comments:

# **APPENDIX G**

## **Section 114**

**Outfall 009, March 28, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

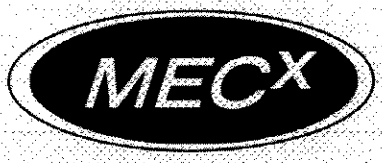
Package ID B4DF61  
 Task Order 1261.001D.01  
 SDG No. IPC2827

No. of Analyses 1

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/ Furans by Method 1613

Date: April 10, 2006 ~~February 17, 2006~~  
 Reviewer's Signature 

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated and annotated "DNQ" - EMPC values were qualified as estimated nondetects
COMMENTS <sup>b</sup>	
* Subcontracted analytical laboratory is not meeting contract and/or method requirements. * Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 009

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2827

Prepared by  
MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014



## 1. INTRODUCTION

Task Order Title:	NPDES
Contract Task Order:	1261.001D.01
Sample Delivery Group:	IPC2827
Project Manager:	P. Costa
Matrix:	Water
Analysis:	Dioxins/Furans
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	E. Wessling
Date of Review:	April 10, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 009	IPC2827-01	27501-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 0°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7886-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7886-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. Peaks which did not meet the ion abundance criteria for identification were qualified as estimated nondetects, as the values presented by the laboratory were the Estimated Possible Maximum Concentrations, EMPCs. No further qualifications were required.



**APPENDIX G**

**Section 115**

**Outfall 010, March 29, 2006**

**Del Mar Analytical Laboratory Report**



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 010

Sampled: 03/29/06  
Received: 03/29/06  
Issued: 03/31/06 17:25

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

**LABORATORY ID**

IPC2956-01

**CLIENT ID**

Outfall 010

**MATRIX**

Water

Reviewed By:

**Del Mar Analytical - Irvine**

Michele Chamberlin

Project Manager





# Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06

Received: 03/29/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC2956-01 (Outfall 010 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	6C30082	0.050	2.0	0.32	1	03/30/06	03/30/06	J
Cadmium	EPA 200.8	6C30082	0.025	1.0	ND	1	03/30/06	03/30/06	
Copper	EPA 200.8	6C30082	0.25	2.0	2.8	1	03/30/06	03/30/06	
Lead	EPA 200.8	6C30082	0.040	1.0	1.1	1	03/30/06	03/30/06	
Mercury	EPA 245.1	6C30065	0.050	0.20	ND	1	03/30/06	03/30/06	
Thallium	EPA 200.8	6C30082	0.15	1.0	ND	1	03/30/06	03/30/06	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06

Received: 03/29/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2956-01 (Outfall 010 - Water) - cont.</b>									
Reporting Units: mg/l									
Chloride	EPA 300.0	6C29054	0.15	0.50	5.4	1	03/29/06	03/29/06	
Nitrate/Nitrite-N	EPA 300.0	6C29054	0.080	0.15	0.20	1	03/29/06	03/29/06	
Oil & Grease	EPA 413.1	6C30048	0.90	4.8	ND	1	03/30/06	03/30/06	
Sulfate	EPA 300.0	6C29054	0.45	0.50	3.2	1	03/29/06	03/29/06	
Total Dissolved Solids	SM2540C	6C30063	10	10	110	1	03/30/06	03/30/06	
Total Suspended Solids	EPA 160.2	6C30086	10	10	18	1	03/30/06	03/30/06	

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 Michele Chamberlin  
 Project Manager

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing	Project ID: Routine Outfall 010	Sampled: 03/29/06
300 North Lake Avenue, Suite 1200		Received: 03/29/06
Pasadena, CA 91101	Report Number: IPC2956	
Attention: Bronwyn Kelly		

## SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 010 (IPC2956-01) - Water EPA 300.0	2	03/29/2006 11:33	03/29/2006 18:45	03/29/2006 21:30	03/29/2006 21:33

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 010 Report Number: IPC2956	Sampled: 03/29/06 Received: 03/29/06
--	---	---

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30065 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30065-BLK1)</b>											
Mercury	ND	0.20	0.050	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30065-BS1)</b>											
Mercury	7.87	0.20	0.050	ug/l	8.00		98	85-115			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30065-MS1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.16	0.20	0.050	ug/l	8.00	ND	102	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30065-MSD1)</b>											
						<b>Source: IPC2857-01</b>					
Mercury	8.19	0.20	0.050	ug/l	8.00	ND	102	70-130	0	20	
<b>Batch: 6C30082 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30082-BLK1)</b>											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
Thallium	ND	1.0	0.075	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30082-BS1)</b>											
Antimony	81.2	2.0	0.050	ug/l	80.0		102	85-115			
Cadmium	80.9	1.0	0.025	ug/l	80.0		101	85-115			
Copper	79.1	2.0	0.25	ug/l	80.0		99	85-115			
Lead	80.3	1.0	0.040	ug/l	80.0		100	85-115			
Thallium	81.1	1.0	0.15	ug/l	80.0		101	85-115			

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06

Received: 03/29/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30082 Extracted: 03/30/06</b>											
<b>Matrix Spike Analyzed: 03/30/2006 (6C30082-MS1)</b>						<b>Source: IPC2715-01</b>					
Antimony	75.5	2.0	0.18	ug/l	80.0	ND	94	70-130			
Cadmium	73.5	1.0	0.015	ug/l	80.0	ND	92	70-130			
Copper	99.5	2.0	0.49	ug/l	80.0	18	102	70-130			
Lead	81.5	1.0	0.13	ug/l	80.0	2.0	99	70-130			
Thallium	79.4	1.0	0.075	ug/l	80.0	ND	99	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30082-MSD1)</b>						<b>Source: IPC2715-01</b>					
Antimony	73.3	2.0	0.18	ug/l	80.0	ND	92	70-130	3	20	
Cadmium	71.1	1.0	0.015	ug/l	80.0	ND	89	70-130	3	20	
Copper	95.3	2.0	0.49	ug/l	80.0	18	97	70-130	4	20	
Lead	77.9	1.0	0.13	ug/l	80.0	2.0	95	70-130	5	20	
Thallium	76.9	1.0	0.075	ug/l	80.0	ND	96	70-130	3	20	

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 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 010  Report Number: IPC2956	Sampled: 03/29/06 Received: 03/29/06
--	---	---

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29054 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29054-BLK1)</b>											
Chloride	0.161	0.50	0.15	mg/l							J
Nitrate/Nitrite-N	ND	0.15	0.080	mg/l							
Sulfate	ND	0.50	0.45	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29054-BS1)</b>											
Chloride	4.63	0.50	0.15	mg/l	5.00		93	90-110			
Sulfate	9.51	0.50	0.45	mg/l	10.0		95	90-110			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29054-MS1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120			
Sulfate	10.3	0.50	0.45	mg/l	10.0	1.2	91	80-120			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29054-MSD1) Source: IPC2868-01</b>											
Chloride	4.83	0.50	0.15	mg/l	5.00	0.38	89	80-120	0	20	
Sulfate	10.2	0.50	0.45	mg/l	10.0	1.2	90	80-120	1	20	
<b>Batch: 6C30048 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30048-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30048-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NRI
<b>LCS Dup Analyzed: 03/30/2006 (6C30048-BSD1)</b>											
Oil & Grease	19.4	5.0	0.94	mg/l	20.0		97	65-120	9	20	

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06  
Received: 03/29/06

**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: 6C30063 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30063-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30063-BS1)</b>											
Total Dissolved Solids	990	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/30/2006 (6C30063-DUP1)</b>											
						<b>Source: IPC2961-01</b>					
Total Dissolved Solids	295	10	10	mg/l		300			2	10	
<b>Batch: 6C30086 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30086-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30086-BS1)</b>											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 03/30/2006 (6C30086-DUP1)</b>											
						<b>Source: IPC2670-01</b>					
Total Suspended Solids	216	10	10	mg/l		230			6	10	

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06  
Received: 03/29/06

## 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
IPC2956-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.67	4.8	15
IPC2956-01	Antimony-200.8	Antimony	ug/l	0.32	2.0	6.00
IPC2956-01	Cadmium-200.8	Cadmium	ug/l	0	1.0	4.00
IPC2956-01	Chloride - 300.0	Chloride	mg/l	5.40	0.50	150
IPC2956-01	Copper-200.8	Copper	ug/l	2.80	2.0	14
IPC2956-01	Lead-200.8	Lead	ug/l	1.10	1.0	5.20
IPC2956-01	Mercury - 245.1	Mercury	ug/l	0.036	0.20	0.20
IPC2956-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.20	0.15	10.00
IPC2956-01	Sulfate-300.0	Sulfate	mg/l	3.20	0.50	250
IPC2956-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	110	10	850
IPC2956-01	Thallium-200.8	Thallium	ug/l	0	1.0	2.00

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06

Received: 03/29/06

### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NR1** 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

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IPC2956

Sampled: 03/29/06

Received: 03/29/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

**Alta 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: IPC2956-01

Analysis Performed: EDD + Level 4

Samples: IPC2956-01

**Del Mar Analytical - Irvine**  
Michele Chamberlin  
Project Manager

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IPD 156

**Del Mar Analytical** Version 03/01/06 **CHAIN OF CUSTODY FORM**

Client Name/Address:		Project:		ANALYSIS REQUIRED		Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 010 Stormwater at Building 203		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl		Temp = 54 pH = 7.5			
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		TCDD (and all congeners)		Comments			
Sampler: <i>Pick Borden</i>				Oil & Grease (EPA 413.1)					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Botlle #	CH <sub>2</sub> SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS	
Outfall 010	W	Poly-1L	1	3-29-06 11:33	HNO3	1A			
Outfall 010-Dup	W	Poly-1L	1		HNO3	1B			
Outfall 010	W	Glass- Amber	2		None	2A, 2B			
Outfall 010	W	Glass- Amber	2		HCl	3A, 3B	X		
Outfall 010	W	Poly-500 ml	2		None	4A, 4B	X		
Outfall 010	W	Poly-500 ml	2	3-29-06 11:33	None	5A, 5B	X		
Relinquished By <i>Pick Borden</i>		Date/Time: 3-29-06 1600		Received By <i>Pick Borden</i>		Date/Time: 3/29/06 1600		Turn around Time: (check) 24 Hours _____ 5 Days _____	
Relinquished By <i>Pick Borden</i>		Date/Time: 3/29/06 1845		Received By <i>Pick Borden</i>		Date/Time: 3/29/06 1845		48 Hours _____ 10 Days _____	
Relinquished By _____		Date/Time: _____		Received By _____		Date/Time: _____		72 Hours _____ Normal _____	
								Percarbonate Only 72 Hours _____	
								Metals Only 72 Hours _____	
								Sample Integrity: (Check) Intact <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>	

3/29/06  
2045



April 04, 2006

**Alta Project I.D.: 27508**

**Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614**

**Dear Ms. Chamberlin,**

**Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 31, 2006 under your Project Name "IPC2956". 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, Alta's current certifications, and copies of the raw data (if requested).**

**Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.**

Sincerely,

**Martha M. Maier  
Director of HRMS Services**



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Section I: Sample Inventory Report**

**Date Received: 3/31/2006**

**Alta Lab. ID**

**Client Sample ID**

27508-001

IPC2956-01

**SECTION II**

Method Blank		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-MB001
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.00000128		69.5	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000135		75.3	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000138		74.1	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000142		76.8	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000135		76.9	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.000000972		37.5	17 - 157
OCDD	ND	0.00000275		70.7	24 - 169
2,3,7,8-TCDF	ND	0.00000102		75.7	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000106		78.6	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000103		74.4	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000440		76.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000410		76.4	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000469		76.1	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.000000599		65.9	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.000000722		76.7	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.000000661		47.0	17 - 157
OCDF	ND	0.00000405		83.8	35 - 197
<b>Totals</b>					
Total TCDD	ND	0.00000128			
Total PeCDD	ND	0.00000135			
Total HxCDD	ND	0.00000138			
Total HpCDD	ND	0.000000972			
Total TCDF	ND	0.00000102			
Total PeCDF	ND	0.00000104			
Total HxCDF	ND	0.000000474			
Total HpCDF	ND	0.000000692			

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:41

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

OPR Results		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-OPR001	
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.4	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	62.4	25 - 164
1,2,3,7,8-PeCDD	50.0	50.4	35 - 71	13C-1,2,3,7,8-PeCDD	65.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	50.5	35 - 82	13C-1,2,3,4,7,8-HxCDD	60.0	32 - 141
1,2,3,6,7,8-HxCDD	50.0	51.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130
1,2,3,7,8,9-HxCDD	50.0	52.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.0	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	53.4	35 - 70	13C-OCDD	30.1	17 - 157
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	61.7	24 - 169
2,3,7,8-TCDF	10.0	10.3	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	65.3	24 - 185
1,2,3,7,8-PeCDF	50.0	49.9	40 - 67	13C-2,3,4,7,8-PeCDF	68.0	21 - 178
2,3,4,7,8-PeCDF	50.0	50.1	34 - 80	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	51.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	53.9	42 - 65	13C-2,3,4,6,7,8-HxCDF	60.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	51.6	35 - 78	13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	52.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.0	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	49.9	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	60.3	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	50.7	39 - 69	13C-OCDF	37.3	17 - 157
OCDF	100	98.2	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.6	35 - 197

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:41



Sample ID: <b>IPC2956-01</b>		EPA Method 1613						
Client Data		Laboratory Data						
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 27508-001	Date Received: 31-Mar-06					
Project: IPC2956	Sample Size: 1.04 L	QC Batch No.: 7889	Date Extracted: 1-Apr-06					
Date Collected: 29-Mar-06		Date Analyzed DB-5: 3-Apr-06	Date Analyzed DB-225: NA					
Time Collected: 1133								
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000191			IS 13C-2,3,7,8-TCDD	52.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000134			13C-1,2,3,7,8-PeCDD	54.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000171			13C-1,2,3,4,7,8-HxCDD	49.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000175			13C-1,2,3,6,7,8-HxCDD	50.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000168			13C-1,2,3,4,6,7,8-HpCDD	51.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000314				13C-OCDD	30.2	17 - 157	
OCDD	0.000346				13C-2,3,7,8-TCDF	49.6	24 - 169	
2,3,7,8-TCDF	ND	0.00000151			13C-1,2,3,7,8-PeCDF	50.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000165			13C-2,3,4,7,8-PeCDF	52.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000146			13C-1,2,3,4,7,8-HxCDF	50.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000480			13C-1,2,3,6,7,8-HxCDF	50.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000428			13C-2,3,4,6,7,8-HxCDF	51.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000463			13C-1,2,3,7,8,9-HxCDF	51.4	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000610			13C-1,2,3,4,6,7,8-HpCDF	45.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000626			J	13C-1,2,3,4,7,8,9-HpCDF	52.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000112			13C-OCDF	36.0	17 - 157	
OCDF	0.0000585				CRS 37Cl-2,3,7,8-TCDD	82.8	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000191						
Total PeCDD	ND	0.00000134						
Total HxCDD	0.00000219							
Total HpCDD	0.00000618							
Total TCDF	ND	0.00000151						
Total PeCDF	ND	0.00000156						
Total HxCDF	0.00000434							
Total HpCDF	0.00000341							

**Footnotes**  
a. Sample specific estimated detection limit.  
b. Estimated maximum possible concentration.  
c. Method detection limit.  
d. Lower control limit - upper control limit.

Analyst: DMS  
Approved By: Martha M. Maier 04-Apr-2006 15:41

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IPC2956

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical - Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Chamberlin	Alta Analytical - SUB 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 673-0106 <div style="text-align: right; font-size: 1.5em; margin-top: 10px;">27508</div> <div style="text-align: right; font-size: 1.5em; margin-top: 10px;">2.0°C</div>

Standard TAT is requested unless specific due date is requested ⇒ Due Date: 4/16/06 Initials: \_\_\_\_\_

Analysis	Expiration	Sampled:	Comments
Sample ID: IPC2956-01 Water		03/29/06 11:33	Instant Notification
1613-Dioxin-HR-Alta	04/05/06 11:33		J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/26/06 11:33		Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>			
1 L Amber (IPC2956-01C)			
1 L Amber (IPC2956-01D)			

### SAMPLE INTEGRITY:

All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): \_\_\_\_\_

Released By: Angela Date: 3/30/06 Time: \_\_\_\_\_ Received By: Bethmaria Benedict Date: 3/31/06 Time: 0905

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27508

Samples Arrival:	Date/Time 3/31/06 0905	Initials: BdB	Location: WR-2
Logged In:	Date/Time 3/31/06 1104	Initials: BdB	Location: WR-2
Delivered By:	<u>FedEx</u>	UPS	Cal
		DHL	Hand Delivered
		Other	
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice
		None	
Temp °C	2.0°C	Time: 0935	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill			
Trk #	7903 76134744		
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?			<u>None</u>
Shipping Container	Alta	<u>Client</u>	Retain
			<u>Return</u>
			Dispose

Comments:

**APPENDIX G**

**Section 116**

**Outfall 010, March 29, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF68  
 Task Order 1261.001D.01  
 SDG No. IPC2956

No. of Analyses 1

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/Furans by 1613

Date: April 13, 2006  
 Reviewer's Signature 

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<p><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p><sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	





# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 010

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2956

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
Contract Task Order: 1261.001D.01  
Sample Delivery Group: IPC2956  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 13, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 010	IPC2956-01	27508-001	Water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received within the temperature limits at 2°C. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7889-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7889-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. No further qualifications were required.



Client Data		Sample Data		Laboratory Data		EPA Method 1613	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27508-001	Date Received:	31-Mar-06
Project:	IPC2956	Sample Size:	1.04 L	QC Batch No.:	7889	Date Extracted:	1-Apr-06
Date Collected:	29-Mar-06			Date Analyzed DB-5:	3-Apr-06	Date Analyzed DB-225:	NA
Time Collected:	1133						
Sample ID:	IPC2956-01	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.00000191			IS 13C-2,3,7,8-TCDD	52.7	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000134			13C-1,2,3,7,8-PeCDD	54.1	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000171			13C-1,2,3,4,7,8-HxCDD	49.3	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000175			13C-1,2,3,6,7,8-HxCDD	50.9	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000168			13C-1,2,3,4,6,7,8-HpCDD	51.2	23 - 140
1,2,3,4,6,7,8-HpCDD	0.0000314				13C-OCDD	30.2	17 - 157
OCDD	0.000346				13C-2,3,7,8-TCDF	49.6	24 - 169
2,3,7,8-TCDF	ND	0.00000151			13C-1,2,3,7,8-PeCDF	50.9	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000165			13C-2,3,4,7,8-PeCDF	52.3	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000146			13C-1,2,3,4,7,8-HxCDF	50.0	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.00000480			13C-1,2,3,6,7,8-HxCDF	50.5	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.00000428			13C-2,3,4,6,7,8-HxCDF	51.6	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.00000463			13C-1,2,3,7,8,9-HxCDF	51.4	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000610			13C-1,2,3,4,6,7,8-HpCDF	45.9	28 - 143
1,2,3,4,6,7,8-HpCDF	0.0000626				13C-1,2,3,4,7,8,9-HpCDF	52.3	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000112			13C-OCDF	36.0	17 - 157
OCDF	0.0000585				CRS 37Cl-2,3,7,8-TCDD	82.8	35 - 197
Totals							
Total TCDD	ND	0.00000191					
Total PeCDD	ND	0.00000134					
Total HxCDD	0.00000219						
Total HpCDD	0.00000618						
Total TCDF	ND	0.00000151					
Total PeCDF	ND	0.00000156					
Total HxCDF	0.00000434						
Total HpCDF	0.00000341						

Footnotes:  
a. Sample specific estimated detection limit.  
b. Estimated maximum possible concentration.  
c. Method detection limit.  
d. Lower control limit - upper control limit.

Analyst: DMS  
Approved By: Martha M. Mair 04-Apr-2006 15:41  
Project 27508  
Page 6 of 231

LEVEL IV

**APPENDIX G**

**Section 117**

**Outfall 011, March 29, 2006**

**Del Mar Analytical Laboratory Report**





LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Routine Outfall 011

Sampled: 03/29/06  
Received: 03/29/06  
Issued: 04/10/06 09:48

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is 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.

LABORATORY ID	CLIENT ID	MATRIX
IPC2962-01	Outfall 011	Water
IPC2962-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical - Irvine  
Amy Windham For Michele Chamberlin  
Project Manager



# Del Mar Analytical

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	
Carbon tetrachloride	EPA 624	6C30004	0.28	5.0	ND	1	03/30/06	03/30/06	
Chloroform	EPA 624	6C30004	0.33	2.0	ND	1	03/30/06	03/30/06	
1,1-Dichloroethane	EPA 624	6C30004	0.27	2.0	ND	1	03/30/06	03/30/06	C
1,2-Dichloroethane	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	
1,1-Dichloroethene	EPA 624	6C30004	0.42	3.0	ND	1	03/30/06	03/30/06	
Ethylbenzene	EPA 624	6C30004	0.25	2.0	ND	1	03/30/06	03/30/06	
Tetrachloroethene	EPA 624	6C30004	0.32	2.0	ND	1	03/30/06	03/30/06	
Toluene	EPA 624	6C30004	0.36	2.0	ND	1	03/30/06	03/30/06	
1,1,1-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	
1,1,2-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	
Trichloroethene	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	
Trichlorofluoromethane	EPA 624	6C30004	0.34	5.0	ND	1	03/30/06	03/30/06	
Vinyl chloride	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	
Xylenes, Total	EPA 624	6C30004	0.90	4.0	ND	1	03/30/06	03/30/06	
Surrogate: Dibromofluoromethane (80-120%)					117 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				

**Sample ID: IPC2962-02 (Trip Blank - Water)**

Reporting Units: ug/l

Benzene	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	
Carbon tetrachloride	EPA 624	6C30004	0.28	5.0	ND	1	03/30/06	03/30/06	
Chloroform	EPA 624	6C30004	0.33	2.0	ND	1	03/30/06	03/30/06	
1,1-Dichloroethane	EPA 624	6C30004	0.27	2.0	ND	1	03/30/06	03/30/06	C
1,2-Dichloroethane	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	
1,1-Dichloroethene	EPA 624	6C30004	0.42	3.0	ND	1	03/30/06	03/30/06	
Ethylbenzene	EPA 624	6C30004	0.25	2.0	ND	1	03/30/06	03/30/06	
Tetrachloroethene	EPA 624	6C30004	0.32	2.0	ND	1	03/30/06	03/30/06	
Toluene	EPA 624	6C30004	0.36	2.0	ND	1	03/30/06	03/30/06	
1,1,1-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	
1,1,2-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	
Trichloroethene	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	
Trichlorofluoromethane	EPA 624	6C30004	0.34	5.0	ND	1	03/30/06	03/30/06	
Vinyl chloride	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	
Xylenes, Total	EPA 624	6C30004	0.90	4.0	ND	1	03/30/06	03/30/06	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					107 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06

Received: 03/29/06

## 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
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
<b>Reporting Units: ug/l</b>									
Bis(2-ethylhexyl)phthalate	EPA 625	6C31065	1.6	4.8	ND	0.952	03/31/06	04/04/06	
2,4-Dinitrotoluene	EPA 625	6C31065	0.19	8.6	ND	0.952	03/31/06	04/04/06	
N-Nitrosodimethylamine	EPA 625	6C31065	0.095	7.6	ND	0.952	03/31/06	04/04/06	
Pentachlorophenol	EPA 625	6C31065	0.095	7.6	ND	0.952	03/31/06	04/04/06	
2,4,6-Trichlorophenol	EPA 625	6C31065	0.095	5.7	ND	0.952	03/31/06	04/04/06	
Surrogate: 2-Fluorophenol (30-120%)					57 %				
Surrogate: Phenol-d6 (35-120%)					63 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					77 %				
Surrogate: Nitrobenzene-d5 (45-120%)					70 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					70 %				
Surrogate: Terphenyl-d14 (45-120%)					75 %				

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MWH-Pasadena/Boeing  
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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2962-01 (Outfall 011 - Water) - cont.</b>									
Reporting Units: ug/l									
alpha-BHC	EPA 608	6C30097	0.00095	0.0095	ND	0.952	03/30/06	03/31/06	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					62 %				
<i>Surrogate: Tetrachloro-m-xylene (35-115%)</i>					62 %				

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 Amy Windham For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2962-01 (Outfall 011 - Water) - cont.</b>									
Reporting Units: ug/l									
Copper	EPA 200.8	6C29141	0.49	2.0	3.9	1	03/29/06	03/30/06	
Lead	EPA 200.8	6C29141	0.13	1.0	3.0	1	03/29/06	03/30/06	
Mercury	EPA 245.1	6C30065	0.063	0.20	ND	1	03/30/06	03/30/06	
<b>Sample ID: IPC2962-01RE1 (Outfall 011 - Water)</b>									
Reporting Units: ug/l									
Lead	EPA 200.8	6D07127	0.040	1.0	3.6	1	03/29/06	04/08/06	

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

### INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC2962-01 (Outfall 011 - Water) - cont.</b>									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	6C31112	0.30	0.50	0.56	1	03/31/06	03/31/06	
Biochemical Oxygen Demand	EPA 405.1	6C29138	0.59	2.0	1.7	1	03/29/06	04/03/06	J
Chloride	EPA 300.0	6C29052	N/A	0.50	18	1	03/29/06	03/29/06	
Nitrate/Nitrite-N	EPA 300.0	6C29052	0.072	0.26	0.58	1	03/29/06	03/29/06	
Oil & Grease	EPA 413.1	6C30048	0.90	4.8	1.5	1	03/30/06	03/30/06	J
Sulfate	EPA 300.0	6C29052	0.18	0.50	28	1	03/29/06	03/29/06	
Surfactants (MBAS)	SM5540-C	6C29127	0.044	0.10	0.068	1	03/29/06	03/29/06	J
Total Dissolved Solids	SM2540C	6C30063	10	10	180	1	03/30/06	03/30/06	
Total Suspended Solids	EPA 160.2	6C30086	10	10	19	1	03/30/06	03/30/06	
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	6C29122	0.10	0.10	ND	1	03/29/06	03/29/06	
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	6C30113	0.040	1.0	39	1	03/30/06	03/30/06	
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	6C30093	2.2	5.0	ND	1	03/30/06	03/30/06	
Perchlorate	EPA 314.0	6C30069	0.80	4.0	ND	1	03/30/06	03/30/06	
<b>Sample ID: IPC2962-01 (Outfall 011 - Water)</b>									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	6C30062	1.0	1.0	330	1	03/30/06	03/30/06	

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager



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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
Received: 03/29/06

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 (IPC2962-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/29/2006 14:11	03/29/2006 18:45	03/29/2006 19:30	03/29/2006 20:30
EPA 180.1	2	03/29/2006 14:11	03/29/2006 18:45	03/30/2006 15:00	03/30/2006 16:00
EPA 300.0	2	03/29/2006 14:11	03/29/2006 18:45	03/29/2006 20:30	03/29/2006 21:02
EPA 405.1	2	03/29/2006 14:11	03/29/2006 18:45	03/29/2006 22:45	04/03/2006 22:45
SM5540-C	2	03/29/2006 14:11	03/29/2006 18:45	03/29/2006 18:11	03/29/2006 22:12

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Amy Windham For Michele Chamberlin  
Project Manager

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Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## 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
<b>Batch: 6C30004 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30004-BLK1)</b>											
Benzene	0.340	2.0	0.28	ug/l							J
Carbon tetrachloride	ND	5.0	0.28	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,2-Dichloroethane	ND	2.0	0.28	ug/l							
1,1-Dichloroethene	ND	3.0	0.42	ug/l							
Ethylbenzene	ND	2.0	0.25	ug/l							
Tetrachloroethene	ND	2.0	0.32	ug/l							
Toluene	ND	2.0	0.36	ug/l							
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l							
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l							
Trichloroethene	ND	5.0	0.26	ug/l							
Trichlorofluoromethane	ND	5.0	0.34	ug/l							
Vinyl chloride	ND	5.0	0.26	ug/l							
Xylenes, Total	ND	4.0	0.90	ug/l							
Surrogate: Dibromofluoromethane	22.6			ug/l	25.0		90	80-120			
Surrogate: Toluene-d8	25.6			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			
<b>LCS Analyzed: 03/30/2006 (6C30004-BS1)</b>											
Benzene	24.2	2.0	0.28	ug/l	25.0		97	65-120			
Carbon tetrachloride	29.2	5.0	0.28	ug/l	25.0		117	65-140			
Chloroform	25.8	2.0	0.33	ug/l	25.0		103	65-130			
1,1-Dichloroethane	31.9	2.0	0.27	ug/l	25.0		128	65-130			
1,2-Dichloroethane	24.7	2.0	0.28	ug/l	25.0		99	60-140			
1,1-Dichloroethene	26.8	3.0	0.42	ug/l	25.0		107	70-130			
Ethylbenzene	24.5	2.0	0.25	ug/l	25.0		98	70-125			
Tetrachloroethene	23.2	2.0	0.32	ug/l	25.0		93	65-125			
Toluene	24.0	2.0	0.36	ug/l	25.0		96	70-125			
1,1,1-Trichloroethane	25.9	2.0	0.30	ug/l	25.0		104	65-135			
1,1,2-Trichloroethane	24.3	2.0	0.30	ug/l	25.0		97	65-125			
Trichloroethene	24.4	5.0	0.26	ug/l	25.0		98	70-125			
Trichlorofluoromethane	26.0	5.0	0.34	ug/l	25.0		104	60-140			
Vinyl chloride	23.2	5.0	0.26	ug/l	25.0		93	50-130			
Surrogate: Dibromofluoromethane	25.4			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	26.0			ug/l	25.0		104	80-120			

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## 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
<b>Batch: 6C30004 Extracted: 03/30/06</b>											
<b>LCS Analyzed: 03/30/2006 (6C30004-BS1)</b>											
Surrogate: 4-Bromofluorobenzene	25.7			ug/l	25.0		103	80-120			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30004-MS1) Source: IPC2561-11</b>											
Benzene	30.6	2.0	0.28	ug/l	25.0	ND	122	60-125			
Carbon tetrachloride	34.0	5.0	0.28	ug/l	25.0	ND	136	65-140			
Chloroform	35.2	2.0	0.33	ug/l	25.0	ND	141	65-135			MI
1,1-Dichloroethane	41.4	2.0	0.27	ug/l	25.0	ND	166	60-130			M7
1,2-Dichloroethane	31.2	2.0	0.28	ug/l	25.0	ND	125	60-140			
1,1-Dichloroethene	36.1	3.0	0.42	ug/l	25.0	ND	144	60-135			MI
Ethylbenzene	30.0	2.0	0.25	ug/l	25.0	ND	120	65-130			
Tetrachloroethene	27.3	2.0	0.32	ug/l	25.0	ND	109	60-130			
Toluene	30.3	2.0	0.36	ug/l	25.0	ND	121	65-125			
1,1,1-Trichloroethane	33.6	2.0	0.30	ug/l	25.0	ND	134	65-140			
1,1,2-Trichloroethane	33.2	2.0	0.30	ug/l	25.0	ND	133	60-130			MI
Trichloroethene	28.6	5.0	0.26	ug/l	25.0	ND	114	60-125			
Trichlorofluoromethane	35.8	5.0	0.34	ug/l	25.0	ND	143	55-145			
Vinyl chloride	31.8	5.0	0.26	ug/l	25.0	ND	127	40-135			
Surrogate: Dibromofluoromethane	29.1			ug/l	25.0		116	80-120			
Surrogate: Toluene-d8	27.2			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	26.7			ug/l	25.0		107	80-120			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30004-MSD1) Source: IPC2561-11</b>											
Benzene	30.1	2.0	0.28	ug/l	25.0	ND	120	60-125	2	20	
Carbon tetrachloride	34.3	5.0	0.28	ug/l	25.0	ND	137	65-140	1	25	
Chloroform	34.6	2.0	0.33	ug/l	25.0	ND	138	65-135	2	20	MI
1,1-Dichloroethane	36.8	2.0	0.27	ug/l	25.0	ND	147	60-130	12	20	M7
1,2-Dichloroethane	31.6	2.0	0.28	ug/l	25.0	ND	126	60-140	1	20	
1,1-Dichloroethene	34.6	3.0	0.42	ug/l	25.0	ND	138	60-135	4	20	MI
Ethylbenzene	29.0	2.0	0.25	ug/l	25.0	ND	116	65-130	3	20	
Tetrachloroethene	26.3	2.0	0.32	ug/l	25.0	ND	105	60-130	4	20	
Toluene	29.6	2.0	0.36	ug/l	25.0	ND	118	65-125	2	20	
1,1,1-Trichloroethane	33.1	2.0	0.30	ug/l	25.0	ND	132	65-140	1	20	
1,1,2-Trichloroethane	32.9	2.0	0.30	ug/l	25.0	ND	132	60-130	1	25	MI
Trichloroethene	27.6	5.0	0.26	ug/l	25.0	ND	110	60-125	4	20	
Trichlorofluoromethane	33.8	5.0	0.34	ug/l	25.0	ND	135	55-145	6	25	
Vinyl chloride	29.7	5.0	0.26	ug/l	25.0	ND	119	40-135	7	30	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IPC2962	Sampled: 03/29/06 Received: 03/29/06
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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
<b>Batch: 6C30004 Extracted: 03/30/06</b>											
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30004-MSD1)</b>						<b>Source: IPC2561-11</b>					
Surrogate: Dibromofluoromethane	29.5			ug/l	25.0		118	80-120			
Surrogate: Toluene-d8	26.9			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	27.3			ug/l	25.0		109	80-120			

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C31065 Extracted: 03/31/06</b>										
<b>Blank Analyzed: 04/04/2006 (6C31065-BLK1)</b>										
Bis(2-ethylhexyl)phthalate	ND	5.0	1.7	ug/l						
2,4-Dinitrotoluene	ND	9.0	0.20	ug/l						
N-Nitrosodimethylamine	ND	8.0	0.10	ug/l						
Pentachlorophenol	ND	8.0	0.10	ug/l						
2,4,6-Trichlorophenol	ND	6.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	13.3			ug/l	20.0		66 30-120			
Surrogate: Phenol-d6	13.5			ug/l	20.0		68 35-120			
Surrogate: 2,4,6-Tribromophenol	15.6			ug/l	20.0		78 45-120			
Surrogate: Nitrobenzene-d5	5.98			ug/l	10.0		60 45-120			
Surrogate: 2-Fluorobiphenyl	6.24			ug/l	10.0		62 45-120			
Surrogate: Terphenyl-d14	7.92			ug/l	10.0		79 45-120			
<b>LCS Analyzed: 04/04/2006 (6C31065-BS1)</b>										
Bis(2-ethylhexyl)phthalate	10.6	5.0	1.7	ug/l	10.0		106 60-130			M-NR1
2,4-Dinitrotoluene	11.1	9.0	0.20	ug/l	10.0		111 60-120			
N-Nitrosodimethylamine	9.24	8.0	0.10	ug/l	10.0		92 40-120			
Pentachlorophenol	10.9	8.0	0.10	ug/l	10.0		109 50-120			
2,4,6-Trichlorophenol	10.0	6.0	0.10	ug/l	10.0		100 60-120			
Surrogate: 2-Fluorophenol	12.5			ug/l	20.0		62 30-120			
Surrogate: Phenol-d6	14.2			ug/l	20.0		71 35-120			
Surrogate: 2,4,6-Tribromophenol	16.2			ug/l	20.0		81 45-120			
Surrogate: Nitrobenzene-d5	7.82			ug/l	10.0		78 45-120			
Surrogate: 2-Fluorobiphenyl	7.24			ug/l	10.0		72 45-120			
Surrogate: Terphenyl-d14	7.24			ug/l	10.0		72 45-120			
<b>LCS Dup Analyzed: 04/04/2006 (6C31065-BSD1)</b>										
Bis(2-ethylhexyl)phthalate	11.3	5.0	1.7	ug/l	10.0		113 60-130	6	20	
2,4-Dinitrotoluene	11.7	9.0	0.20	ug/l	10.0		117 60-120	5	20	
N-Nitrosodimethylamine	10.0	8.0	0.10	ug/l	10.0		100 40-120	8	20	
Pentachlorophenol	11.7	8.0	0.10	ug/l	10.0		117 50-120	7	25	
2,4,6-Trichlorophenol	10.3	6.0	0.10	ug/l	10.0		103 60-120	3	20	
Surrogate: 2-Fluorophenol	13.6			ug/l	20.0		68 30-120			
Surrogate: Phenol-d6	15.7			ug/l	20.0		78 35-120			
Surrogate: 2,4,6-Tribromophenol	16.8			ug/l	20.0		84 45-120			
Surrogate: Nitrobenzene-d5	8.28			ug/l	10.0		83 45-120			
Surrogate: 2-Fluorobiphenyl	7.32			ug/l	10.0		73 45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IPC2962	Sampled: 03/29/06 Received: 03/29/06
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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
<b>Batch: 6C31065 Extracted: 03/31/06</b>											
<b>LCS Dup Analyzed: 04/04/2006 (6C31065-BSD1)</b>											
Surrogate: Terphenyl-d14	7.82			ug/l	10.0		78	45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IPC2962	Sampled: 03/29/06 Received: 03/29/06
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## METHOD BLANK/QC DATA

### ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30097 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/31/2006 (6C30097-BLK1)</b>											
alpha-BHC	ND	0.010	0.0010	ug/l							
Surrogate: Decachlorobiphenyl	0.472			ug/l	0.500		94	45-120			
Surrogate: Tetrachloro-m-xylene	0.407			ug/l	0.500		81	35-115			
<b>LCS Analyzed: 03/31/2006 (6C30097-BS1)</b>											
alpha-BHC	0.434	0.010	0.0010	ug/l	0.500		87	45-120			M-NRI
Surrogate: Decachlorobiphenyl	0.441			ug/l	0.500		88	45-120			
Surrogate: Tetrachloro-m-xylene	0.377			ug/l	0.500		75	35-115			
<b>LCS Dup Analyzed: 03/31/2006 (6C30097-BSD1)</b>											
alpha-BHC	0.452	0.010	0.0010	ug/l	0.500		90	45-120	4	30	
Surrogate: Decachlorobiphenyl	0.452			ug/l	0.500		90	45-120			
Surrogate: Tetrachloro-m-xylene	0.398			ug/l	0.500		80	35-115			

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## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD Limit	Data Qualifiers
<b>Batch: 6C29141 Extracted: 03/29/06</b>										
<b>Blank Analyzed: 03/30/2006 (6C29141-BLK1)</b>										
Copper	ND	2.0	0.25	ug/l						
Lead	ND	1.0	0.040	ug/l						
<b>LCS Analyzed: 03/30/2006 (6C29141-BS1)</b>										
Copper	75.5	2.0	0.25	ug/l	80.0		94	85-115		
Lead	78.2	1.0	0.040	ug/l	80.0		98	85-115		
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS1)</b>										
					<b>Source: IPC2844-01</b>					
Copper	384	2.0	0.25	ug/l	80.0	320	80	70-130		
Lead	76.3	1.0	0.040	ug/l	80.0	1.1	94	70-130		
<b>Matrix Spike Analyzed: 03/30/2006 (6C29141-MS2)</b>										
					<b>Source: IPC2911-01</b>					
Copper	87.2	2.0	0.25	ug/l	80.0	8.8	98	70-130		
Lead	83.4	1.0	0.040	ug/l	80.0	0.35	104	70-130		
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C29141-MSD1)</b>										
					<b>Source: IPC2844-01</b>					
Copper	403	2.0	0.25	ug/l	80.0	320	104	70-130	5	20
Lead	82.3	1.0	0.040	ug/l	80.0	1.1	102	70-130	8	20
<b>Batch: 6C30065 Extracted: 03/30/06</b>										
<b>Blank Analyzed: 03/30/2006 (6C30065-BLK1)</b>										
Mercury	ND	0.20	0.050	ug/l						
<b>LCS Analyzed: 03/30/2006 (6C30065-BS1)</b>										
Mercury	7.87	0.20	0.050	ug/l	8.00		98	85-115		

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 6C30065 Extracted: 03/30/06</u></b>											
<b>Matrix Spike Analyzed: 03/30/2006 (6C30065-MS1)</b>						<b>Source: IPC2857-01</b>					
Mercury	8.16	0.20	0.050	ug/l	8.00	ND	102	70-130			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30065-MSD1)</b>						<b>Source: IPC2857-01</b>					
Mercury	8.19	0.20	0.050	ug/l	8.00	ND	102	70-130	0	20	
<b><u>Batch: 6D07127 Extracted: 04/07/06</u></b>											
<b>Blank Analyzed: 04/07/2006 (6D07127-BLK1)</b>											
Lead	ND	1.0	0.040	ug/l							
<b>LCS Analyzed: 04/07/2006 (6D07127-BS1)</b>											
Lead	91.6	1.0	0.040	ug/l	80.0		114	85-115			
<b>Matrix Spike Analyzed: 04/08/2006 (6D07127-MS1)</b>						<b>Source: IPD0703-01</b>					
Lead	90.3	1.0	0.040	ug/l	80.0	0.24	113	70-130			
<b>Matrix Spike Dup Analyzed: 04/08/2006 (6D07127-MSD1)</b>						<b>Source: IPD0703-01</b>					
Lead	91.9	1.0	0.040	ug/l	80.0	0.24	115	70-130	2	20	

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29052 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29052-BLK1)</b>											
Chloride	ND	0.50	N/A	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29052-BS1)</b>											
Chloride	4.80	0.50	N/A	mg/l	5.00		96	90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100	90-110			M-3
<b>Matrix Spike Analyzed: 03/29/2006 (6C29052-MS1) Source: IPC2876-02</b>											
Chloride	20.0	0.50	N/A	mg/l	5.00	16	80	80-120			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29052-MSD1) Source: IPC2876-02</b>											
Chloride	20.4	0.50	N/A	mg/l	5.00	16	88	80-120	2	20	
<b>Batch: 6C29127 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 03/29/2006 (6C29127-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
<b>LCS Analyzed: 03/29/2006 (6C29127-BS1)</b>											
Surfactants (MBAS)	0.269	0.10	0.044	mg/l	0.250		108	90-110			
<b>Matrix Spike Analyzed: 03/29/2006 (6C29127-MS1) Source: IPC2820-01</b>											
Surfactants (MBAS)	0.345	0.10	0.044	mg/l	0.250	0.090	102	50-125			
<b>Matrix Spike Dup Analyzed: 03/29/2006 (6C29127-MSD1) Source: IPC2820-01</b>											
Surfactants (MBAS)	0.347	0.10	0.044	mg/l	0.250	0.090	103	50-125	1	20	

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C29138 Extracted: 03/29/06</b>											
<b>Blank Analyzed: 04/03/2006 (6C29138-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 04/03/2006 (6C29138-BS1)</b>											
Biochemical Oxygen Demand	186	100	30	mg/l	198		94	85-115			
<b>LCS Dup Analyzed: 04/03/2006 (6C29138-BSD1)</b>											
Biochemical Oxygen Demand	185	100	30	mg/l	198		93	85-115	1	20	
<b>Batch: 6C30048 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30048-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30048-BS1)</b>											
Oil & Grease	17.8	5.0	0.94	mg/l	20.0		89	65-120			M-NRI
<b>LCS Dup Analyzed: 03/30/2006 (6C30048-BSD1)</b>											
Oil & Grease	19.4	5.0	0.94	mg/l	20.0		97	65-120	9	20	
<b>Batch: 6C30062 Extracted: 03/30/06</b>											
<b>Duplicate Analyzed: 03/30/2006 (6C30062-DUP1)</b>											
Specific Conductance	492	1.0	1.0	umhos/cm		Source: IPC2961-01 500			2	5	
<b>Batch: 6C30063 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30063-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30063 Extracted: 03/30/06</b>											
<b>LCS Analyzed: 03/30/2006 (6C30063-BS1)</b>											
Total Dissolved Solids	990	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 03/30/2006 (6C30063-DUP1)</b>											
						<b>Source: IPC2961-01</b>					
Total Dissolved Solids	295	10	10	mg/l		300			2	10	
<b>Batch: 6C30069 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30069-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 03/30/2006 (6C30069-BS1)</b>											
Perchlorate	50.4	4.0	0.80	ug/l	50.0		101	85-115			M-3
<b>Batch: 6C30086 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30086-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/30/2006 (6C30086-BS1)</b>											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 03/30/2006 (6C30086-DUP1)</b>											
						<b>Source: IPC2670-01</b>					
Total Suspended Solids	216	10	10	mg/l		230			6	10	
<b>Batch: 6C30093 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30093-BLK1)</b>											
Total Cyanide	ND	5.0	2.2	ug/l							

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C30093 Extracted: 03/30/06</b>											
<b>LCS Analyzed: 03/30/2006 (6C30093-BS1)</b>											
Total Cyanide	190	5.0	2.2	ug/l	200		95	90-110			
<b>Matrix Spike Analyzed: 03/30/2006 (6C30093-MS1)</b>											
Total Cyanide	187	5.0	2.2	ug/l	200	ND	94	70-115			
<b>Matrix Spike Dup Analyzed: 03/30/2006 (6C30093-MSD1)</b>											
Total Cyanide	178	5.0	2.2	ug/l	200	ND	89	70-115	5	15	
<b>Batch: 6C30113 Extracted: 03/30/06</b>											
<b>Blank Analyzed: 03/30/2006 (6C30113-BLK1)</b>											
Turbidity	0.0400	1.0	0.040	NTU							J
<b>Duplicate Analyzed: 03/30/2006 (6C30113-DUP1)</b>											
Turbidity	3.02	1.0	0.040	NTU		3.0			1	20	
<b>Duplicate Analyzed: 03/30/2006 (6C30113-DUP2)</b>											
Turbidity	0.420	1.0	0.040	NTU		0.40			5	20	J
<b>Batch: 6C31112 Extracted: 03/31/06</b>											
<b>Blank Analyzed: 03/31/2006 (6C31112-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 03/31/2006 (6C31112-BS1)</b>											
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0		112	80-115			

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C31112 Extracted: 03/31/06</b>											
<b>Matrix Spike Analyzed: 03/31/2006 (6C31112-MS1)</b>						<b>Source: IPC2824-01</b>					
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	ND	115	70-120			
<b>Matrix Spike Dup Analyzed: 03/31/2006 (6C31112-MSD1)</b>						<b>Source: IPC2824-01</b>					
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	ND	115	70-120	0	15	

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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
IPC2962-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.50	4.8	10.00
IPC2962-01	608-Pest Boeing 001/002 Q (LL)	alpha-BHC	ug/l	0	0.0095	0.0100
IPC2962-01	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IPC2962-01	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00
IPC2962-01	625-Boeing 001/002 Q-LL	2,4,6-Trichlorophenol	ug/l	0	5.7	6.50
IPC2962-01	625-Boeing 001/002 Q-LL	2,4-Dinitrotoluene	ug/l	0.11	8.6	9.10
IPC2962-01	625-Boeing 001/002 Q-LL	Bis(2-ethylhexyl)phthalate	ug/l	0.93	4.8	4.00
IPC2962-01	625-Boeing 001/002 Q-LL	N-Nitrosodimethylamine	ug/l	0	7.6	8.10
IPC2962-01	625-Boeing 001/002 Q-LL	Pentachlorophenol	ug/l	0	7.6	8.20
IPC2962-01	BOD	Biochemical Oxygen Demand	mg/l	1.70	2.0	20
IPC2962-01	Chloride - 300.0	Chloride	mg/l	18	0.50	150
IPC2962-01	Copper-200.8	Copper	ug/l	3.90	2.0	7.10
IPC2962-01	Cyanide-335.2 5ppb	Total Cyanide	ug/l	0.24	5.0	5.00
<b>IPC2962-01</b>	<b>Lead-200.8</b>	<b>Lead</b>	<b>ug/l</b>	<b>3.00</b>	<b>1.0</b>	<b>2.60</b>
IPC2962-01	MBAS - SM5540-C	Surfactants (MBAS)	mg/l	0.068	0.10	0.50
IPC2962-01	Mercury - 245.1	Mercury	ug/l	0.034	0.20	0.20
IPC2962-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.58	0.26	8.00
IPC2962-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IPC2962-01	Sulfate-300.0	Sulfate	mg/l	28	0.50	300
IPC2962-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	180	10	950
<b>IPC2962-01RE1</b>	<b>Lead-200.8</b>	<b>Lead</b>	<b>ug/l</b>	<b>3.60</b>	<b>1.0</b>	<b>2.60</b>
IPC2962-02	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IPC2962-02	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00

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### DATA QUALIFIERS AND DEFINITIONS

- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- 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.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M7** The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
- M-NR1** 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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### Certification Summary

#### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
1613A/1613B	Water		
EDD + Level 4	Water		
EPA 120.1	Water	X	X
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	N/A	X
EPA 335.2	Water	X	X
EPA 350.2	Water		X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
SM2540C	Water	X	X
SM5540-C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

#### Subcontracted Laboratories

**Alta 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: IPC2962-01

Analysis Performed: EDD + Level 4

Samples: IPC2962-01

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**Del Mar Analytical** Version 03/1/06 **CHAIN OF CUSTODY FORM**

<b>Client Name/Address:</b> MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Stumpf &amp; Burrows</i>		<b>Project:</b> Boeing-SSFL NPDES Routine Outfall 011 Perimeter Pond Phone Number: (626) 568-6691 Fax Number: (626) 568-6515																																																
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Total Recoverable Metals: Cu, Pb, Hg	Settleable Solids	VOCs 624 + xylenes	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	Cl, SO4, NO3+NO2-N, Perchlorate	Turbidity, TDS, TSS, Conductivity	Ammonia-N	Alpha BHC (8081A)	2,4,6 Trichlorophenol, 2,4-dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	Field readings: Temp = 64.5 pH = 7.7	Comments																														
Outfall 011	W	Poly-1L	1	HNO3	1A	X																																												
Outfall 011-Dup	W	Poly-1L	1	HNO3	1B	X																																												
Outfall 011	W	Poly-1L	1	None	2		X																																											
Outfall 011	W	VOAs	3	HCl	3A, 3B, 3C			X																																										
Outfall 011	W	1L Amber	2	None	4A, 4B				X																																									
Outfall 011	W	1L Amber	2	HCl	5A, 5B					X																																								
Outfall 011	W	Poly-500 ml	1	NaOH	6						X																																							
Outfall 011	W	Poly-500 ml	1	None	7							X																																						
Outfall 011	W	Poly-500 ml	2	None	8A, 8B								X																																					
Outfall 011	W	Poly-500 ml	2	None	9A, 9B									X																																				
Outfall 011	W	Poly-500 ml	2	None	10A, 10B										X																																			
Outfall 011	W	Poly-500 ml	1	H2SO4	11											X																																		
Outfall 011	W	1L Amber	2	None	12A, 12B																																													
Outfall 011	W	1L Amber	2	None	13A, 13B																																													
Trip Blank	W	VOAs	3	HCl	15A, 15B, 15C																																													
Relinquished By	3-29-06			Date/Time:	Received By			3/29/06 1600			Date/Time:	Turn around Time: (check)			24 Hours			5 Days			48 Hours			10 Days			72 Hours			Normal			Perchlorate Only 72 Hours			Metals Only 72 Hours			Sample Integrity: (Check)			Intact			On Ice			4°C		
Relinquished By	3-29-06			Date/Time:	Received By			3/29/06 1845			Date/Time:	Turn around Time: (check)			24 Hours			5 Days			48 Hours			10 Days			72 Hours			Normal			Perchlorate Only 72 Hours			Metals Only 72 Hours			Sample Integrity: (Check)			Intact			On Ice			4°C		
Relinquished By	3-29-06			Date/Time:	Received By			3/29/06 1845			Date/Time:	Turn around Time: (check)			24 Hours			5 Days			48 Hours			10 Days			72 Hours			Normal			Perchlorate Only 72 Hours			Metals Only 72 Hours			Sample Integrity: (Check)			Intact			On Ice			4°C		





April 04, 2006

**Alta Project I.D.: 27514**

Ms. Michele Chamberlin  
Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Dear Ms. Chamberlin,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 31, 2006 under your Project Name "IPC2962". 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, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at [mmaier@altalab.com](mailto:mmaier@altalab.com). Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier  
Director of HRMS Services



*Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.*



**Section I: Sample Inventory Report**

**Date Received: 3/31/2006**

Alta Lab. ID

Client Sample ID

27514-001

IPC2962-01

**SECTION II**

Method Blank		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-MB001	
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06	
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Date Analyzed DB-225:	NA
Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers			
IS 13C-2,3,7,8-TCDD	ND	0.00000128			69.5	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000135			75.3	25 - 181
1,2,3,4,7,8-HxCDF	ND	0.00000138			74.1	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000142			76.8	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000135			76.9	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.000000972			37.5	17 - 157
OCDD	ND	0.00000275			70.7	24 - 169
2,3,7,8-TCDF	ND	0.00000102			75.7	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000106			78.6	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000103			74.4	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000440			76.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000410			76.4	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000469			76.1	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.000000599			65.9	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.000000722			76.7	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.000000661			47.0	17 - 157
OCDF	ND	0.00000405			83.8	35 - 197
<b>Totals</b>						
Total TCDD	ND	0.00000128				
Total PeCDD	ND	0.00000135				
Total HxCDD	ND	0.00000138				
Total HpCDD	ND	0.000000972				
Total TCDF	ND	0.00000102				
Total PeCDF	ND	0.00000104				
Total HxCDF	ND	0.000000474				
Total HpCDF	ND	0.000000692				

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:45

OPR Results		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7889	Lab Sample:	0-OPR001
Sample Size:	1.00 L	Date Extracted:	1-Apr-06	Date Analyzed DB-5:	3-Apr-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	62.4	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	65.4	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	60.0	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.0	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	30.1	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	61.7	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	65.3	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	68.0	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	58.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	60.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	51.0	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	60.3	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	37.3	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.6	35 - 197

Analyst: DMS

Approved By: Martha M. Maier 04-Apr-2006 15:45

Sample ID: **IPC2962-01** EPA Method 1613

**Client Data**  
 Name: Del Mar Analytical, Irvine  
 Project: IPC2962  
 Date Collected: 29-Mar-06  
 Time Collected: 1411

**Sample Data**  
 Matrix: Aqueous  
 Sample Size: 1.02 L

**Laboratory Data**  
 Lab Sample: 27514-001  
 QC Batch No.: 7889  
 Date Analyzed DB-5: 3-Apr-06  
 Date Received: 31-Mar-06  
 Date Extracted: 1-Apr-06  
 Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000107			13C-2,3,7,8-TCDD	69.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000115			13C-1,2,3,7,8-PeCDD	74.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000859			13C-1,2,3,4,7,8-HxCDD	66.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000895			13C-1,2,3,6,7,8-HxCDD	68.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000850			13C-1,2,3,4,6,7,8-HpCDD	69.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000299				13C-OCDD	39.7	17 - 157	
OCDD	0.000254				13C-2,3,7,8-TCDF	65.6	24 - 169	
2,3,7,8-TCDF	ND	0.00000108			13C-1,2,3,7,8-PeCDF	63.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000140			13C-2,3,4,7,8-PeCDF	69.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000119			13C-1,2,3,4,7,8-HxCDF	66.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000319			13C-1,2,3,6,7,8-HxCDF	66.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000309			13C-2,3,4,6,7,8-HxCDF	69.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000328			13C-1,2,3,7,8,9-HxCDF	69.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000453			13C-1,2,3,4,6,7,8-HpCDF	61.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000475			J	13C-1,2,3,4,7,8,9-HpCDF	72.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000967			13C-OCDF	48.9	17 - 157	
OCDF	0.0000144			J	CRS 37Cl-2,3,7,8-TCDD	84.3	35 - 197	
<b>Totals</b>								
Total TCDD	ND	0.00000107						
Total PeCDD	ND	0.00000115						
Total HxCDD	0.00000469		0.00000765					
Total HpCDD	0.00000681							
Total TCDF	ND	0.00000108						
Total PeCDF	ND		0.000000894					
Total HxCDF	0.00000228							
Total HpCDF	0.00000120		0.00000361					

**Footnotes**

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.

Analyst:   
 Approved By: Martha M. Maier 04-Apr-2006 15:45

**APPENDIX**

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
E	The reported value exceeds the calibration range of the instrument.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
*	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 corresponds 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**

<b>Accrediting Authority</b>	<b>Certificate Number</b>
State of Alaska, DEC	CA413-02
State of Arizona	AZ0639
State of Arkansas, DEQ	05-013-0
State of Arkansas, DOH	Reciprocity through CA
State of California – NELAP Primary AA	02102CA
State of Colorado	
State of Connecticut	PH-0182
State of Florida, DEP	E87777
Commonwealth of Kentucky	90063
State of Louisiana, Health and Hospitals	LA050001
State of Louisiana, DEQ	01977
State of Maine	CA0413
State of Michigan	81178087
State of Mississippi	Reciprocity through CA
Naval Facilities Engineering Service Center	
State of Nevada	CA413
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	CA200001-002
State of Pennsylvania	68-00490
State of South Carolina	87002001
State of Tennessee	02996
State of Texas	TX247-2005A
U.S. Army Corps of Engineers	
State of Utah	9169330940
Commonwealth of Virginia	00013
State of Washington	C1285
State of Wisconsin	998036160
State of Wyoming	8TMS-Q



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228  
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4657 Fax (909) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IPC2962**

**SENDING LABORATORY:**  
 Del Mar Analytical - Irvine  
 17461 Derian Avenue. Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Alta Analytical - SUB  
 1104 Windfield Way  
 El Dorado Hills, CA 95762  
 Phone : (916) 933-1640  
 Fax: (916) 673-0106

27514  
1.3°C

Standard TAT is requested unless specific due date is requested => Due Date: 4/6/06 Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IPC2962-01 Water	Sampled: 03/29/06 14:11	
1613-Dioxin-HR-Alta	04/05/06 14:11	J flags, 17 congeners, no TEQ, ug/L, sub=Alta
EDD + Level 4	04/26/06 14:11	Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IPC2962-01G)		
1 L Amber (IPC2962-01H)		

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): \_\_\_\_\_

Released By: [Signature] Date: 3/30/06 Time: \_\_\_\_\_ Received By: Bettina J. Bredet Date: 3/31/06 Time: 0905

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**SAMPLE LOG-IN CHECKLIST**

Alta Project #: 27514

Samples Arrival:	Date/Time 3/31/06 0905	Initials: BBB	Location: WR-2
Logged In:	Date/Time 3/31/06 1200	Initials: BBB	Location: WR-2
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> Cal
	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C	1.3°	Time:	1010
		Thermometer ID:	DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill			
Trk #	7919 02179339		
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 <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Preservation Documented?		COC	Sample Container
		None	
Shipping Container	Alta	Client	Retain
		Return	Dispose

Comments:

# **APPENDIX G**

## **Section 118**


**Outfall 011, March 29, 2006**

**AMEC Data Validation Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4DF73  
 Task Order 1261.001D.01  
 SDG No. IPC2962

No. of Analyses 1  
 Date: April 14, 2006  
 Reviewer's Signature 

Laboratory Alta Analytical  
 Reviewer E. Wessling  
 Analysis/Method Dioxins/Furans by 1613

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - results between the RL and the MDL were estimated
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Outfall 011

ANALYSIS: DIOXINS/FURANS  
SAMPLE DELIVERY GROUP: IPC2962

Prepared by

MEC, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## 1. INTRODUCTION

Task Order Title:	NPDES
Contract Task Order:	1261.001D.01
Sample Delivery Group:	IPC2962
Project Manager:	P. Costa
Matrix:	Water
Analysis:	Dioxins/Furans
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	E. Wessling
Date of Review:	April 14, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 011	IPC2962-01	27514-001	Water	1613



## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample was shipped to Alta for dioxin/furan analysis and was received below the temperature limits at 1.3°C. As the sample was not noted to be damaged or frozen, no qualifications were required. According to the case narrative and laboratory login sheet, the sample was received intact and in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to Del Mar Analytical-Irvine, custody seals were not required. The Client ID was added to the sample result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted and analyzed within one year of collection. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 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 (see section 2.3.2). 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%. No qualifications were required.

## 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

The initial calibration was analyzed 01/12/2006 on instrument VG-7. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were 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 QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was 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. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

## 2.4 BLANKS

One method blank (0-7889-MB001) was extracted and analyzed with the sample in this SDG. There were no target compounds detected in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (0-7889-OPR001) was extracted and analyzed with the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no field blank or equipment rinsate identified. No qualification of the site sample was required.

### 2.7.2 Field Duplicates

No field duplicates were identified in association with the sample in this SDG.

## 2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." These "J" values were annotated with the qualification code of "DNQ" to comply with the reporting requirements of the NPDES permit. Peaks not meeting the ion ratio identification criterion were qualified as estimated nondetects, "UJ," for the Estimated Maximum Possible Concentration (EMPC) value. Reported detects for total dioxin or total furan isomers containing both dioxin or furan and EMPC values were qualified as estimated detects, "J." No further qualifications were required.



Client Data		Sample Data		Laboratory Data			
Sample ID: IPC2962-01	Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 27514-001	Due Received: 31-Mar-06	EPA Method 1613		
Project: IPC2962	Date Collected: 29-Mar-06	Sample Size: 1.02 L	QC Batch No.: 7889	Date Extracted: 1-Apr-06			
Time Collected: 1411			Date Analyzed DB-S: 3-Apr-06	Date Analyzed DB-225: NA			
Analyte	Conc. (ug/L)	DL <sup>a</sup>	EMPC <sup>b</sup>	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.00000107		13C-2,3,7,8-TCDD	69.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000115		13C-1,2,3,7,8-PeCDD	74.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000859		13C-1,2,3,4,7,8-HxCDD	66.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000895		13C-1,2,3,6,7,8-HxCDD	68.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000850		13C-1,2,3,4,6,7,8-HpCDD	69.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000299			13C-OCDD	39.7	17 - 157	
OCDD	0.000254			13C-2,3,7,8-TCDF	65.6	24 - 169	
2,3,7,8-TCDF	ND	0.00000108		13C-1,2,3,7,8-PeCDF	63.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000140		13C-2,3,4,7,8-PeCDF	69.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000119		13C-1,2,3,4,7,8-HxCDF	66.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000319		13C-1,2,3,6,7,8-HxCDF	66.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000309		13C-2,3,4,6,7,8-HxCDF	69.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000328		13C-1,2,3,7,8,9-HxCDF	69.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000453		13C-1,2,3,4,6,7,8-HpCDF	61.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000475			13C-1,2,3,4,7,8,9-HpCDF	72.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000967		13C-OCDF	48.9	17 - 157	
OCDF	0.0000144			CRS 37Cl-2,3,7,8-TCDD	84.3	35 - 197	
<b>Totals</b>							
Total TCDD	ND	0.00000107					
Total PeCDD	ND	0.00000115					
Total HxCDD	0.00000469						0.00000765
Total HpCDD	0.0000681						
Total TCDF	ND	0.00000108					
Total PeCDF	ND						0.000000894
Total HxCDF	0.00000228						0.00000361
Total HpCDF	0.0000120						

Footnotes  
a. Sample specific estimated detection limit.  
b. Estimated maximum possible concentration.  
c. Method detection limit.  
d. Lower control limit - upper control limit.

Approved By: Martha M. Maier 04-Apr-2006 15:45

# LEVEL IV

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4MT56  
 Task Order: 1261.001D.01  
 SDG No.: IPC2962

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: Metals

Date: April 13, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis	
Protocol, e.g.,	Reanalysis result rejected in favor of original result.
Holding Times	
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Sampling  
Outfall 011

ANALYSIS: METALS

SAMPLE DELIVERY GROUP IPC2962

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES Sampling  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC2962  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 13, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for ICP and ICP-MS Metals (DVP-5, Rev. 0)*, *EPA Method 200.8*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 011	IPC2962-01	Water	200.8



## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. Outfall 011 was reanalyzed for lead. As the laboratory did not append the MWH ID for the reanalysis with "RE1," the reviewer added this information to the Form I. No sample qualifications were required.

#### 2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analyses recorded in the raw data documented that the sample analyses were performed within the specified holding times of six months for the ICP-MS metals. No qualifications were required.

### 2.2 ICP-MS TUNING

The method-specified tune criteria were met and no qualifications were required.

### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP-MS metals. The laboratory analyzed reporting limit check standards in association with the sample in this SDG and the recoveries were considered to be acceptable. No qualifications were required.

### 2.4 BLANKS

There were no detects in the associated method blanks and CCBs associated with the sample in this SDG. No qualifications were required.

**DATA VALIDATION REPORT**

**2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)**

No ICSA and ICSAB analyses were performed in association with the sample in this SDG for the ICP-MS metals; therefore, no assessment was made with respect to this criterion.

**2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The ICP-MS recoveries were within the laboratory-established control limits of 85-115%. No qualifications were required.

**2.7 LABORATORY DUPLICATES**

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

**2.8 MATRIX SPIKES**

No matrix spike analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was evaluated based on LCS results. No qualifications were required.

**2.9 ICP/MS AND ICP SERIAL DILUTION**

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

**2.10 INTERNAL STANDARDS PERFORMANCE**

For the target analytes analyzed by ICP-MS, the internal standards were within the method-specified control limits of 60-125%. No qualifications were required.

**2.11 SAMPLE RESULT VERIFICATION**

A Level IV review was performed for the sample in this data package. Calculations were verified and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Per a request from MWH personnel, the laboratory reanalyzed sample Outfall 011 for lead. As the reanalysis result was similar to the

Project: NPDES  
SDG: IPC2962  
Analysis: Metals

**DATA VALIDATION REPORT**

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original result, the reanalysis result, Outfall 011 RE1, was rejected, "R," in favor of the original result. No further qualifications were required.

**2.12 FIELD QC SAMPLES**

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

**2.12.1 Field Blanks and Equipment Rinsates**

The sample in this SDG had no associated field QC samples. No qualifications were required.

**2.12.2 Field Duplicates**

There were no field duplicate analyses performed in association with the site sample.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011  
 Routine Outfall 011  
 Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC2962-01 (Outfall 011 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	6C29141	0.49	2.0	3.9	1	03/29/06	03/30/06	
Lead	EPA 200.8	6C29141	0.13	1.0	3.0	1	03/29/06	03/30/06	
Mercury	EPA 245.1	6C30065	0.063	0.20	ND	1	03/30/06	03/30/06	*
Sample ID: IPC2962-01RE1 (Outfall 011 - Water)									
Reporting Units: ug/l									
Lead	EPA 200.8	6D07127	0.040	1.0	3.6	1	03/29/06	04/08/06	R D

Rev Qual Code

\* Analysis not validated

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager

LEVEL IV


The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

IPC2962 <Page 5 of 22>

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4VO55  
 Task Order 1261.001D.01  
 SDG No. IPC2962

No. of Analyses 12  
 Date: April 16, 2006  
 Reviewer's Signature 

Laboratory Del Mar - Irvine  
 Reviewer E. Wessling  
 Analysis/Method Volatiles

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for the following: - continuing calibration outliers
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Outfall 011

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IPC2962

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC2962  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 16, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0), EPA Method 624, and the National Functional Guidelines for Organic Data Review (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 011	IPC2962-01	Water	624
Trip Blank	IPC2962-02	Water	624



## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved. Information regarding lack of headspace in the VOA vials was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

#### 2.1.3 Holding Times

The water samples were analyzed within 14 days of collection. No qualifications were required.

### 2.2 GC/MS TUNING

The BFB tune performed at the beginning of each daily analytical sequence met the abundance criteria specified in EPA Method 624. No qualifications were required.

### 2.3 CALIBRATION

An initial calibration dated 3/23/2006 was associated with the sample analyses. The average RRFs were ≥0.05 and the %RSDs were ≤35% for all target compounds. One continuing calibration was associated with the sample analyses, dated 03/30/06. The RRFs were ≥0.05 and all %Ds were within the QC limit of ≤20% with the exception of 1,1-dichloroethane which had a %D above QC limits. The site sample Outfall 011 was qualified as an estimated nondetect for 1,1-dichloroethane. No further qualifications were required.

A representative number of average RRFs and %RSDs for the initial calibration and RRFs and %Ds for the continuing calibration were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

### 2.4 BLANKS

One method blank (6C30004-BLK1) was analyzed with this SDG. No target compounds were detected above the MDLs in the method blank with the exception of benzene, although this

**DATA VALIDATION REPORT**

compound was reported as a nondetect in the QC summary information. As benzene was not detected in the site samples, no qualifications were required for benzene. Review of the method blank raw data indicated no other false negatives. No qualifications were required.

**2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

One blank spike (6C30004-BS1) was analyzed with this SDG. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

**2.6 SURROGATE RECOVERY**

The surrogate recoveries were within the laboratory QC limits of 80-120% for this SDG. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

**2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

No MS/MSD analyses were performed in association with the site samples in this SDG. Method accuracy was evaluated based upon the surrogate and blank spike recoveries. No qualifications were required.

**2.8 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:

**2.8.1 Trip Blanks**

Sample Trip Blank was the trip blank associated with site sample Outfall 011. No target compounds were detected in the trip blank. No qualifications were required.

**2.8.2 Field Blanks and Equipment Rinsates**

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.8.3 Field Duplicates

There were no field duplicate samples identified for this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standard: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. The internal standard areas were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for a short list of volatile target compounds by EPA Method 624. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. No qualifications were required.

## 2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

## 2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011  
 Routine Outfall 011

Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## 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: IPC2962-01 (Outfall 011 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	u
Carbon tetrachloride	EPA 624	6C30004	0.28	5.0	ND	1	03/30/06	03/30/06	u
Chloroform	EPA 624	6C30004	0.33	2.0	ND	1	03/30/06	03/30/06	u
1,1-Dichloroethane	EPA 624	6C30004	0.27	2.0	ND	1	03/30/06	03/30/06	u
1,2-Dichloroethane	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	u
1,1-Dichloroethene	EPA 624	6C30004	0.42	3.0	ND	1	03/30/06	03/30/06	u
Ethylbenzene	EPA 624	6C30004	0.25	2.0	ND	1	03/30/06	03/30/06	u
Tetrachloroethene	EPA 624	6C30004	0.32	2.0	ND	1	03/30/06	03/30/06	u
Toluene	EPA 624	6C30004	0.36	2.0	ND	1	03/30/06	03/30/06	u
1,1,1-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	u
1,1,2-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	u
Trichloroethene	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	u
Trichlorofluoromethane	EPA 624	6C30004	0.34	5.0	ND	1	03/30/06	03/30/06	u
Vinyl chloride	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	u
Xylenes, Total	EPA 624	6C30004	0.90	4.0	ND	1	03/30/06	03/30/06	u
Surrogate: Dibromofluoromethane (80-120%)					117 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IPC2962-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	u
Carbon tetrachloride	EPA 624	6C30004	0.28	5.0	ND	1	03/30/06	03/30/06	u
Chloroform	EPA 624	6C30004	0.33	2.0	ND	1	03/30/06	03/30/06	u
1,1-Dichloroethane	EPA 624	6C30004	0.27	2.0	ND	1	03/30/06	03/30/06	u
1,2-Dichloroethane	EPA 624	6C30004	0.28	2.0	ND	1	03/30/06	03/30/06	u
1,1-Dichloroethene	EPA 624	6C30004	0.42	3.0	ND	1	03/30/06	03/30/06	u
Ethylbenzene	EPA 624	6C30004	0.25	2.0	ND	1	03/30/06	03/30/06	u
Tetrachloroethene	EPA 624	6C30004	0.32	2.0	ND	1	03/30/06	03/30/06	u
Toluene	EPA 624	6C30004	0.36	2.0	ND	1	03/30/06	03/30/06	u
1,1,1-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	u
1,1,2-Trichloroethane	EPA 624	6C30004	0.30	2.0	ND	1	03/30/06	03/30/06	u
Trichloroethene	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	u
Trichlorofluoromethane	EPA 624	6C30004	0.34	5.0	ND	1	03/30/06	03/30/06	u
Vinyl chloride	EPA 624	6C30004	0.26	5.0	ND	1	03/30/06	03/30/06	u
Xylenes, Total	EPA 624	6C30004	0.90	4.0	ND	1	03/30/06	03/30/06	u
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					107 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				

# LEVEL IV

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager

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IPC2962 <Page 2 of 22>

NPDES - 4374


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4WC64  
 Task Order: 1261.001D.01  
 SDG No.: IPC2962

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: General Minerals

Date: April 13, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
<b>Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis</b>	
Protocol, e.g.,	Qualification applied for CCV recovery.
Holding Times	
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# **DATA VALIDATION REPORT**

**NPDES Sampling  
Outfall 011**

**ANALYSIS: GENERAL MINERALS**

**SAMPLE DELIVERY GROUP: IPC2962**

**Prepared by**

**MECX, LLC  
12269 East Vassar Drive  
Aurora, CO 80014**

## 1. INTRODUCTION

Task Order Title: NPDES Sampling  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC2962  
Project Manager: P. Costa  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 13, 2006

The sample listed in Table 1 was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *USEPA Methods for Chemical Analysis of Water and Wastes Methods 120.1, 180.1, and 350.2*, and validation guidelines outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form Is as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 011	IPC2962-01	Water	General Minerals



## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . No preservation problems were noted by the laboratory. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and all analyses presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analysis. All analyses were performed within the method specified holding times. No qualifications were required.

### 2.2 CALIBRATION

For turbidity and specific conductivity, the check standard recoveries were found to be acceptable. For ammonia, no information regarding the standardization of the titrant was provided; therefore, the ammonia LCS result was compared to the calibration control limits. As the ammonia LCS recovery was above the CCV control limit, ammonia detected in Outfall 011 was qualified as estimated, "J." No further qualifications were required.

### 2.3 BLANKS

There were no detects in the method blanks or CCBs associated with the sample analyses. Raw data was reviewed to verify the blank data. No qualifications were required.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The reported ammonia LCS recovery was within the laboratory-established control limits. LCS samples are not applicable to the turbidity and specific conductivity analyses. No qualifications were required.

DATA VALIDATION REPORT

## 2.5 LABORATORY DUPLICATES

Laboratory duplicate analyses were performed for conductivity only. The RPD was within the laboratory-established control limit of  $\leq 5\%$ . No qualifications were required.

## 2.6 MATRIX SPIKES

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Evaluation of the ammonia method accuracy was based on the LCS result. No qualifications were required.

## 2.7 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No qualifications were required.

## 2.8 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated sample. The following are findings associated with field QC samples:

### 2.8.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no associated field QC samples. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011  
 Routine Outfall 011  
 Report Number: IPC2962

Sampled: 03/29/06  
 Received: 03/29/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IPC2962-01 (Outfall 011 - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	6C31112	0.30	0.50	0.56	1	03/31/06	03/31/06	J	R
Biochemical Oxygen Demand	EPA 405.1	6C29138	0.59	2.0	1.7	1	03/29/06	04/03/06	* J	
Chloride	EPA 300.0	6C29052	N/A	0.50	18	1	03/29/06	03/29/06		
Nitrate/Nitrite-N	EPA 300.0	6C29052	0.072	0.26	0.58	1	03/29/06	03/29/06		
Oil & Grease	EPA 413.1	6C30048	0.90	4.8	1.5	1	03/30/06	03/30/06	J	
Sulfate	EPA 300.0	6C29052	0.18	0.50	28	1	03/29/06	03/29/06		
Surfactants (MBAS)	SM5540-C	6C29127	0.044	0.10	0.068	1	03/29/06	03/29/06	J	
Total Dissolved Solids	SM2540C	6C30063	10	10	180	1	03/30/06	03/30/06		
Total Suspended Solids	EPA 160.2	6C30086	10	10	19	1	03/30/06	03/30/06		
Sample ID: IPC2962-01 (Outfall 011 - Water)										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	6C29122	0.10	0.10	ND	1	03/29/06	03/29/06		
Sample ID: IPC2962-01 (Outfall 011 - Water)										
Reporting Units: NTU										
Turbidity	EPA 180.1	6C30113	0.040	1.0	39	1	03/30/06	03/30/06		
Sample ID: IPC2962-01 (Outfall 011 - Water)										
Reporting Units: ug/l										
Total Cyanide	EPA 335.2	6C30093	2.2	5.0	ND	1	03/30/06	03/30/06	*	
Perchlorate	EPA 314.0	6C30069	0.80	4.0	ND	1	03/30/06	03/30/06	*	
Sample ID: IPC2962-01 (Outfall 011 - Water)										
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	6C30062	1.0	1.0	330	1	03/30/06	03/30/06		

\*Analysis not validated

LEVEL IV

Del Mar Analytical - Irvine  
 Amy Windham For Michele Chamberlin  
 Project Manager

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IPC2962 <Page 6 of 22>

**APPENDIX G**

**Section 119**

Outfall 012, March 3, 2006

Del Mar Analytical Laboratory Report



**LABORATORY REPORT**

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Alfa Outfall 012 - During Test

Sampled: 03/03/06  
Received: 03/04/06  
Issued: 03/23/06 16:19

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 3 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.

LABORATORY ID	CLIENT ID	MATRIX
IPC0533-01	Outfall 012	Water
IPC0533-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
--	--	---

CORRECTIVE ACTION REPORT

Department: Extractions  
Method: EPA 8015B  
QC Batch: 6C09115

Date: 03/13/2006  
Matrix: Water

Identification and Definition of Problem:

The percent recovery for extractable fuel hydrocarbons (EFH) in the LCS was above method acceptance limits.

Determination of the Cause of the Problem:

The LCS was contaminated by an undetermined source during the extraction process.

Corrective Action Taken:

The EFH recovery in the LCSD was acceptable. Neither the method blank, LCSD, nor any samples in the batch displayed chromatographic results indicative of the contamination in the LCS. However, all results for EFH in the batch with concentrations above the reporting limit are potentially biased high and can be considered estimates only.

*Michele Chamberlin*

Quality Assurance Approval: \_\_\_\_\_

Michele Chamberlin

Date: 03/24/2006 08:57 AM

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
--	--	---

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0533-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	6C14048	0.30	0.96	4.6	0.962	03/14/06	03/14/06	

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	6C09115	0.043	0.48	0.86	0.952	03/09/06	03/10/06	
Surrogate: n-Octacosane (40-125%)					89 %				

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 Project Manager

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C13043	0.25	0.50	0.60	5	03/13/06	03/13/06	
Surrogate: 4-BFB (FID) (65-140%)					99 %				
<b>Sample ID: IPC0533-02 (Trip Blank - Water)</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C13043	0.050	0.10	ND	1	03/13/06	03/13/06	
Surrogate: 4-BFB (FID) (65-140%)					102 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
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## PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0533-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	6C09002	0.32	2.0	ND	1	03/09/06	03/09/06	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C09002	0.32	5.0	ND	1	03/09/06	03/09/06	
1,2,3-Trichloropropane	EPA 624	6C09002	0.40	10	ND	1	03/09/06	03/09/06	
Di-isopropyl Ether (DIPE)	EPA 624	6C09002	0.25	5.0	ND	1	03/09/06	03/09/06	
tert-Butanol (TBA)	EPA 624	6C09002	3.1	25	ND	1	03/09/06	03/09/06	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					98 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					102 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					112 %				
<b>Sample ID: IPC0533-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	6C09002	0.32	2.0	ND	1	03/09/06	03/09/06	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C09002	0.32	5.0	ND	1	03/09/06	03/09/06	
1,2,3-Trichloropropane	EPA 624	6C09002	0.40	10	ND	1	03/09/06	03/09/06	
Di-isopropyl Ether (DIPE)	EPA 624	6C09002	0.25	5.0	ND	1	03/09/06	03/09/06	
tert-Butanol (TBA)	EPA 624	6C09002	3.1	25	ND	1	03/09/06	03/09/06	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					95 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					105 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					105 %				

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
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## 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
<b>Sample ID: IPC0533-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Naphthalene	EPA 625	6C09086	4.3	9.5	28	0.952	03/10/06	03/14/06	
N-Nitrosodimethylamine	EPA 625	6C09086	3.5	19	ND	0.952	03/10/06	03/14/06	
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					82 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					80 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					85 %				
Surrogate: Terphenyl-d14 (45-120%)					97 %				

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	6C05021	0.30	0.50	0.56	1	03/05/06	03/05/06	
Biochemical Oxygen Demand	EPA 405.1	6C04035	0.59	2.0	ND	1	03/04/06	03/09/06	K
Oil & Grease	EPA 413.1	6C15047	0.90	4.8	ND	1	03/15/06	03/15/06	
Total Dissolved Solids	SM2540C	6C10060	10	10	270	1	03/10/06	03/10/06	
Total Suspended Solids	EPA 160.2	6C09101	10	10	19	1	03/09/06	03/09/06	
<b>Sample ID: IPC0533-01 (Outfall 012 - Water)</b>									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	6C04044	0.10	0.10	ND	1	03/04/06	03/04/06	
<b>Sample ID: IPC0533-01 (Outfall 012 - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	6C04043	0.040	1.0	17	1	03/04/06	03/04/06	
<b>Sample ID: IPC0533-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	6C09075	0.80	4.0	ND	1	03/09/06	03/09/06	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
--	--	---

## 1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P6C1311	0.49	1.0	ND	1	03/13/06	03/13/06	
Surrogate: Dibromofluoromethane (70-130%)					115 %				

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IPC0533-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/03/2006 17:30	03/04/2006 10:30	03/04/2006 16:00	03/04/2006 17:00
EPA 180.1	2	03/03/2006 17:30	03/04/2006 10:30	03/04/2006 14:00	03/04/2006 15:00
EPA 405.1	2	03/03/2006 17:30	03/04/2006 10:30	03/04/2006 17:35	03/09/2006 13:45

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
--	--	---

## METHOD BLANK/QC DATA

### TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C14048 Extracted: 03/14/06</b>											
<b>Blank Analyzed: 03/14/2006 (6C14048-BLK1)</b>											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
<b>LCS Analyzed: 03/14/2006 (6C14048-BS1)</b>											
Total Recoverable Hydrocarbons	4.22	1.0	0.31	mg/l	5.00		84	65-120			M-NR1
<b>LCS Dup Analyzed: 03/14/2006 (6C14048-BSD1)</b>											
Total Recoverable Hydrocarbons	4.34	1.0	0.31	mg/l	5.00		87	65-120	3	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0533	Sampled: 03/03/06 Received: 03/04/06
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## METHOD BLANK/QC DATA

### EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C09115 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09115-BLK1)</b>											
EFH (C13 - C22)	ND	0.50	0.045	mg/l							
EFH (C13 - C40)	ND	0.50	0.045	mg/l							
Surrogate: n-Octacosane	0.178			mg/l	0.200		89	40-125			
<b>LCS Analyzed: 03/09/2006 (6C09115-BS1)</b>											
EFH (C13 - C40)	1.18	0.50	0.045	mg/l	0.750		157	40-120			M-NRI LI, N-2
Surrogate: n-Octacosane	0.192			mg/l	0.200		96	40-125			
<b>LCS Dup Analyzed: 03/09/2006 (6C09115-BSD1)</b>											
EFH (C13 - C40)	0.631	0.50	0.045	mg/l	0.750		84	40-120	61	25	R-2
Surrogate: n-Octacosane	0.177			mg/l	0.200		88	40-125			

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 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## METHOD BLANK/QC DATA

### VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C13043 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/13/2006 (6C13043-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.0108			mg/l	0.0100		108	65-140			
<b>LCS Analyzed: 03/13/2006 (6C13043-BS1)</b>											
GRO (C4 - C12)	0.835	0.10	0.050	mg/l	0.800		104	65-140			
Surrogate: 4-BFB (FID)	0.0246			mg/l	0.0300		82	65-140			
<b>Matrix Spike Analyzed: 03/13/2006 (6C13043-MS1)</b>											
<b>Source: IPC0560-01</b>											
GRO (C4 - C12)	0.313	0.10	0.050	mg/l	0.220	0.11	92	60-145			
Surrogate: 4-BFB (FID)	0.0125			mg/l	0.0100		125	65-140			
<b>Matrix Spike Dup Analyzed: 03/13/2006 (6C13043-MSD1)</b>											
<b>Source: IPC0560-01</b>											
GRO (C4 - C12)	0.333	0.10	0.050	mg/l	0.220	0.11	101	60-145	6	20	
Surrogate: 4-BFB (FID)	0.0125			mg/l	0.0100		125	65-140			

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Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## 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
<b>Batch: 6C09002 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09002-BLK1)</b>											
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l							
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l							
1,2,3-Trichloropropane	ND	10	0.40	ug/l							
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l							
tert-Butanol (TBA)	ND	25	3.1	ug/l							
Surrogate: Dibromofluoromethane	25.1			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	26.7			ug/l	25.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	24.6			ug/l	25.0		98	80-120			
<b>LCS Analyzed: 03/09/2006 (6C09002-BS1)</b>											
1,2-Dibromoethane (EDB)	26.4	2.0	0.32	ug/l	25.0		106	70-125			
Methyl-tert-butyl Ether (MTBE)	24.2	5.0	0.32	ug/l	25.0		97	55-140			
1,2,3-Trichloropropane	20.6	10	0.40	ug/l	25.0		82	55-130			
Di-isopropyl Ether (DIPE)	24.7	5.0	0.25	ug/l	25.0		99	60-135			
tert-Butanol (TBA)	143	25	3.1	ug/l	125		114	65-135			
Surrogate: Dibromofluoromethane	25.7			ug/l	25.0		103	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	27.2			ug/l	25.0		109	80-120			
<b>Matrix Spike Analyzed: 03/09/2006 (6C09002-MS1)</b>											
<b>Source: IPC0533-01</b>											
1,2-Dibromoethane (EDB)	29.1	2.0	0.32	ug/l	25.0	ND	116	65-130			
Methyl-tert-butyl Ether (MTBE)	22.7	5.0	0.32	ug/l	25.0	ND	91	50-150			
1,2,3-Trichloropropane	20.2	10	0.40	ug/l	25.0	ND	81	50-135			
Di-isopropyl Ether (DIPE)	22.4	5.0	0.25	ug/l	25.0	ND	90	60-140			
tert-Butanol (TBA)	144	25	3.1	ug/l	125	ND	115	60-145			
Surrogate: Dibromofluoromethane	23.2			ug/l	25.0		93	80-120			
Surrogate: Toluene-d8	25.5			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	29.2			ug/l	25.0		117	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
<b>Batch: 6C09002 Extracted: 03/09/06</b>											
<b>Matrix Spike Dup Analyzed: 03/09/2006 (6C09002-MSD1)</b>						<b>Source: IPC0533-01</b>					
1,2-Dibromoethane (EDB)	22.9	2.0	0.32	ug/l	25.0	ND	92	65-130	24	25	
Methyl-tert-butyl Ether (MTBE)	22.2	5.0	0.32	ug/l	25.0	ND	89	50-150	2	25	
1,2,3-Trichloropropane	19.7	10	0.40	ug/l	25.0	ND	79	50-135	3	30	
Di-isopropyl Ether (DIPE)	20.8	5.0	0.25	ug/l	25.0	ND	83	60-140	7	25	
tert-Butanol (TBA)	142	25	3.1	ug/l	125	ND	114	60-145	1	25	
Surrogate: Dibromofluoromethane	22.9			ug/l	25.0		92	80-120			
Surrogate: Toluene-d8	25.6			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	23.0			ug/l	25.0		92	80-120			

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Report Number: IPC0533

Sampled: 03/03/06

Received: 03/04/06

## 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	RPD Limit	Data Qualifiers
<b>Batch: 6C09086 Extracted: 03/09/06</b>										
<b>Blank Analyzed: 03/13/2006 (6C09086-BLK1)</b>										
Naphthalene	ND	10	4.5	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	141			ug/l	200		70	30-120		
Surrogate: Phenol-d6	148			ug/l	200		74	35-120		
Surrogate: 2,4,6-Tribromophenol	198			ug/l	200		99	45-120		
Surrogate: Nitrobenzene-d5	70.8			ug/l	100		71	45-120		
Surrogate: 2-Fluorobiphenyl	71.7			ug/l	100		72	45-120		
Surrogate: Terphenyl-d14	75.9			ug/l	100		76	45-120		
<b>LCS Analyzed: 03/13/2006 (6C09086-BS1)</b>										
Naphthalene	71.0	10	4.5	ug/l	100		71	50-120		
N-Nitrosodimethylamine	62.3	20	3.7	ug/l	100		62	40-120		
Surrogate: 2-Fluorophenol	114			ug/l	200		57	30-120		
Surrogate: Phenol-d6	134			ug/l	200		67	35-120		
Surrogate: 2,4,6-Tribromophenol	189			ug/l	200		94	45-120		
Surrogate: Nitrobenzene-d5	69.0			ug/l	100		69	45-120		
Surrogate: 2-Fluorobiphenyl	79.6			ug/l	100		80	45-120		
Surrogate: Terphenyl-d14	76.4			ug/l	100		76	45-120		
<b>LCS Dup Analyzed: 03/13/2006 (6C09086-BSD1)</b>										
Naphthalene	78.4	10	4.5	ug/l	100		78	50-120	10	20
N-Nitrosodimethylamine	68.4	20	3.7	ug/l	100		68	40-120	9	20
Surrogate: 2-Fluorophenol	136			ug/l	200		68	30-120		
Surrogate: Phenol-d6	149			ug/l	200		74	35-120		
Surrogate: 2,4,6-Tribromophenol	202			ug/l	200		101	45-120		
Surrogate: Nitrobenzene-d5	75.9			ug/l	100		76	45-120		
Surrogate: 2-Fluorobiphenyl	88.0			ug/l	100		88	45-120		
Surrogate: Terphenyl-d14	78.9			ug/l	100		79	45-120		

M-NRI

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Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C04035 Extracted: 03/04/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C04035-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 03/09/2006 (6C04035-BS1)</b>											
Biochemical Oxygen Demand	218	100	30	mg/l	198		110	85-115			
<b>LCS Dup Analyzed: 03/09/2006 (6C04035-BSD1)</b>											
Biochemical Oxygen Demand	214	100	30	mg/l	198		108	85-115	2	20	
<b>Batch: 6C04043 Extracted: 03/04/06</b>											
<b>Blank Analyzed: 03/04/2006 (6C04043-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 03/04/2006 (6C04043-DUP1)</b>											
Turbidity	43.0	2.0	0.080	NTU		42			2	20	
						<b>Source: IPC0438-01</b>					
<b>Batch: 6C05021 Extracted: 03/05/06</b>											
<b>Blank Analyzed: 03/05/2006 (6C05021-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 03/05/2006 (6C05021-BS1)</b>											
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0		115	80-115			
<b>Matrix Spike Analyzed: 03/05/2006 (6C05021-MS1)</b>											
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	0.56	109	70-120			
						<b>Source: IPC0533-01</b>					

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C05021 Extracted: 03/05/06</b>											
<b>Matrix Spike Dup Analyzed: 03/05/2006 (6C05021-MSD1)</b>						<b>Source: IPC0533-01</b>					
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	0.56	106	70-120	3	15	
<b>Batch: 6C09075 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09075-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 03/09/2006 (6C09075-BS1)</b>											
Perchlorate	50.9	4.0	0.80	ug/l	50.0		102	85-115			
<b>Matrix Spike Analyzed: 03/09/2006 (6C09075-MS1)</b>						<b>Source: IPB1671-01</b>					
Perchlorate	49.9	4.0	0.80	ug/l	50.0	ND	100	80-120			
<b>Matrix Spike Dup Analyzed: 03/09/2006 (6C09075-MSD1)</b>						<b>Source: IPB1671-01</b>					
Perchlorate	51.2	4.0	0.80	ug/l	50.0	ND	102	80-120	3	20	
<b>Batch: 6C09101 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09101-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/09/2006 (6C09101-BS1)</b>											
Total Suspended Solids	950	10	10	mg/l	1000		95	85-115			
<b>Duplicate Analyzed: 03/09/2006 (6C09101-DUP1)</b>						<b>Source: IPC0567-01</b>					
Total Suspended Solids	688	10	10	mg/l		750			9	10	

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C10060 Extracted: 03/10/06</b>											
<b>Blank Analyzed: 03/10/2006 (6C10060-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/10/2006 (6C10060-BS1)</b>											
Total Dissolved Solids	950	10	10	mg/l	1000		95	90-110			
<b>Duplicate Analyzed: 03/10/2006 (6C10060-DUP1)</b>											
Total Dissolved Solids	257	10	10	mg/l		270			5	10	
<b>Batch: 6C15047 Extracted: 03/15/06</b>											
<b>Blank Analyzed: 03/15/2006 (6C15047-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/15/2006 (6C15047-BS1)</b>											
Oil & Grease	16.6	5.0	0.94	mg/l	20.0		83	65-120			M-NR1
<b>LCS Dup Analyzed: 03/15/2006 (6C15047-BSD1)</b>											
Oil & Grease	17.0	5.0	0.94	mg/l	20.0		85	65-120	2	20	

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Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## METHOD BLANK/QC DATA

### 1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: P6C1311 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/13/2006 (P6C1311-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	70-130			
<b>LCS Analyzed: 03/13/2006 (P6C1311-BS1)</b>											
1,4-Dioxane	11.9	1.0	0.49	ug/l	10.0		119	70-130			
Surrogate: Dibromofluoromethane	0.990			ug/l	1.00		99	70-130			
<b>LCS Dup Analyzed: 03/13/2006 (P6C1311-BSD1)</b>											
1,4-Dioxane	11.6	1.0	0.49	ug/l	10.0		116	70-130	3	20	
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	70-130			
<b>Matrix Spike Analyzed: 03/13/2006 (P6C1311-MS1) Source: PPC0361-01</b>											
1,4-Dioxane	10.6	1.0	0.49	ug/l	10.0	ND	106	65-125			
Surrogate: Dibromofluoromethane	1.10			ug/l	1.00		110	70-130			
<b>Matrix Spike Dup Analyzed: 03/13/2006 (P6C1311-MSD1) Source: PPC0361-01</b>											
1,4-Dioxane	11.3	1.0	0.49	ug/l	10.0	ND	113	65-125	6	20	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	70-130			

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
Received: 03/04/06

### DATA QUALIFIERS AND DEFINITIONS

- K** The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l. Therefore the reported result is an estimated value only.
- L1** Laboratory Control Sample recovery was above method control limits.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-2** See corrective action report.
- R-2** The RPD exceeded the method control limit.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

### ADDITIONAL COMMENTS

**For GRO (C4-C12):**

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

**For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :**

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



# Del Mar Analytical

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
Received: 03/04/06

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	N/A	X
EPA 350.2	Water		X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
EPA 8260B	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

### Subcontracted Laboratories

**Del Mar Analytical - Phoenix** NELAC Cert #01109CA, California Cert #2446, Arizona Cert #AZ0426, Nevada Cert #AZ-907

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

Samples: IPC0533-01

**Del Mar Analytical - Irvine**  
Michele Chamberlin  
Project Manager

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# Del Mar Analytical

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 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3820 Fax (702) 796-3821

## SUBCONTRACT ORDER - PROJECT # IPC0533

**SENDING LABORATORY:**  
 Del Mar Analytical, Irvine  
 17461 Derian Avenue, Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Del Mar Analytical - Phoenix  
 9830 S. 51st Street, Suite B-120  
 Phoenix, AZ 85044  
 Phone : (480) 785-0043  
 Fax: (480) 785-0851

Analysis	Expiration	Due	Comments
Sample ID: IPC0533-01 Water Dioxane-8260B-out	03/17/06 17:30	03/15/06 12:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
<b>Containers Supplied:</b>			
40 ml VOA w/HCL (IPC0533-01M)			
40 ml VOA w/HCL (IPC0533-01N)			
40 ml VOA w/HCL (IPC0533-01O)			

PPC0248-1

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No  
 Custody Seals Present:  Yes  No  
 Sample labels/COC agree:  Yes  No  
 Samples Preserved Properly:  Yes  No  
 Samples Received On Ice:  Yes  No  
 Samples Received at (temp): 4.0°C

Released By: Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: Fed - Ex Date: 3-6-06 Time: \_\_\_\_\_  
 Released By: FEDEX Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: Date: 3/8/06 Time: 09:45

IPC0533

Client Name/Address:		Project:		ANALYSIS REQUIRED												Field readings:															
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES During Test -- Outfall 012 Alfa Test Stand		Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec. (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Ttr. (350.2) w/ dist	Percarbonate	Turbidity, TDS, TSS	Settleable Solids	Temp = 57.4 pH = 7.8	Comments							
Outfall 012	W	1L Amber	1	3/4/06 - 5:30p	HCl	1A	X																								
Outfall 012 duplicate	W	1L Amber	1		HCl	1B	X																								
Outfall 012	W	VOAs	1		HCl	2A		X																							
Outfall 012 duplicate	W	VOAs	2		HCl	2B, 2C	X																								
Outfall 012	W	1L Amber	1		None	3A		X																							
Outfall 012 duplicate	W	1L Amber	1		None	3B		X																							
Outfall 012	W	VOAs	1		HCl	4A			X																						
Outfall 012 duplicate	W	VOAs	2		HCl	4B, 4C		X																							
Outfall 012	W	1L Amber	1		HCl	5A				X																					
Outfall 012 duplicate	W	1L Amber	1		HCl	5B				X																					
Outfall 012	W	VOAs	1		HCl	6A										X															
Outfall 012 duplicate	W	VOAs	2		HCl	6B, 6C										X															
Outfall 012	W	1L Poly	1		None	7A										X															
Outfall 012	W	1L Amber	1		None	8A												X													
Outfall 012 duplicate	W	1L Amber	1		None	8B												X													
Outfall 012	W	500ml Poly	1		H2SO4	9A													X												
Outfall 012	W	1L Poly	1		None	10A														X											
Outfall 012	W	1L Poly	1		None	11A															X										
Trip Blank	W	VOAs	6		HCl	12A, 12B, 12C, 12D, 12E, 12F		X								X															
Relinquished By	Date/Time:		Received By	Date/Time:		Turn around Time: (check)												24 Hours		48 Hours		72 Hours		Percarbonate Only 72 Hours		Metals Only 72 Hours					
<i>Paul Bury</i>	3/4/06 0805		<i>BD &amp; Co</i>	3/4/06 0805														5 Days		10 Days		Normal									
Relinquished By	Date/Time:		Received By	Date/Time:																											
<i>BD &amp; Co</i>	3/4/06 1030		<i>BD &amp; Co</i>	3/4/06 1030																											
Relinquished By	Date/Time:		Received By	Date/Time:																											
<i>BD &amp; Co</i>	3/4/06 1030		<i>BD &amp; Co</i>	3/4/06 1030																											



# **APPENDIX G**

## **Section 120**

Outfall 012, March 3, 2006

AMEC Data Validation Reports


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4SV33  
 Task Order 1261.001D.01  
 SDG No. IPC0533

No. of Analyses 1

Laboratory Del Mar - Irvine  
 Reviewer E. Wessling  
 Analysis/Method Semivolatiles

Date: April 10, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	<u>No associated method blank, BS or BSD</u>
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	<u>Qualifications were assigned for the following: Naphthalene rejected for lack of method blank</u>
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 012 – During Test

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP IPC0533

Prepared by

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





# **DATA VALIDATION REPORT**

**NPDES Monitoring Program  
Annual Outfall 012 – During Test**

**ANALYSIS: SEMIVOLATILES**

**SAMPLE DELIVERY GROUP IPC0533**

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0533  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Semivolatiles  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 10, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for Semivolatile Organics (DVP-3, Rev. 0), EPA Method 625, and the National Functional Guidelines For Organic Data Review (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1: Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0533-01	Water	625

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C at 3°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for the analysis presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The water sample was extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 GC/MS TUNING

The DFTPP tunes analyzed at the beginning of each daily analytical sequence met the abundance criteria specified in EPA Method 625. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration analyzed 02/27/06 was associated with the sample in this SDG. The %RSDs for all target compounds were ≤35%. An initial calibration verification (ICV) was analyzed following the initial calibration, with %Ds for all target compounds within the QC limits of ≤20%. No qualifications were required.

## 2.4 BLANKS

A method blank was extracted on 3/9/2006. The extraction batch was left open and the site sample added to the extraction batch on the next day. Since the method blank extraction was completed prior to the site sample prep, there was no associated method blank. The QA Manager at Del Mar Analytical confirmed that this is not an acceptable practice by the laboratory standards.

Since there was no associated method blank, the detect for naphthalene could not definitively be determined to be site contamination and was therefore rejected, "R." The nondetect was for NDMA not qualified.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

A blank spike/blank spike duplicate pair was extracted on 3/9/06. The extraction batch was left open and the site sample added to the extraction batch on the next day. Since the QC extraction batch was completed prior to the site sample prep, there was no associated method QC. The QA Manager at Del Mar Analytical confirmed that this is not an acceptable practice by the laboratory standards.

The reviewer was able to review the surrogate recoveries to determine some information about extraction efficiencies, but no specific accuracy or precision information was available. The NDMA was not qualified and the naphthalene was previously rejected for lack of an associated method blank. No qualifications were required.

## 2.6 SURROGATE RECOVERY

Surrogate recoveries for the sample were within the laboratory QC limits. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the sample of this SDG. Evaluation of method accuracy and precision could not be determined due to the lack of a blank spike/blank spike duplicate. No qualifications were required.

## 2.8 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:

### 2.8.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate samples identified for this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times for the sample were within the control limits established by the continuing calibration standard: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. The internal standard area counts were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for naphthalene and NDMA by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Results were reported in  $\mu\text{g/L}$  (ppb). No qualifications were required.

## 2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

## 2.13 SYSTEM PERFORMANCE



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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

### 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: IPC0533-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	6C09086	4.3	9.5	28	0.952	03/10/06	03/14/06	Handwritten: R/B
N-Nitrosodimethylamine	EPA 625	6C09086	3.5	19	ND	0.952	03/10/06	03/14/06	Handwritten: R/B
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					82 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					80 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					85 %				
Surrogate: Terphenyl-d14 (45-120%)					97 %				

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

# LEVEL IV

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IPC0533 <Page 7 of 22>

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4TF8  
 Task Order: 1261.001D.01  
 SDG No.: IPC0533

No. of Analyses: 2

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: Total Fuel Hydrocarbons

Date: <u>April 10, 2006</u>
Reviewer's Signature <i>P. Meeks</i>

<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	<b>Qualifications applied for LCS/LCSD RPD outlier.</b>
Holding Times	
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	





# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 012

ANALYSIS: TOTAL FUEL HYDROCARBONS

SAMPLE DELIVERY GROUP: IPC0533

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0533  
Project Manager: P. Costa  
Matrix: Water  
Analysis: TFH/EFH  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 8, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in *the MEC<sup>X</sup> Data Validation Procedure for Levels C and D Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0533-01	Water	8015B & 8015M
Trip Blank	IPC0533-02	Water	8015M

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C at 3°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for the analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The water samples were analyzed within 14 days of collection for the gasoline range organics analysis (GRO). The sample for extractable fuel hydrocarbons (EFH) was extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 CALIBRATION

Two initial calibrations, one for EFH analyzed 02/22/06 and one for GRO analyzed 10/05/05, were associated with the samples in this SDG. The %RSDs for target compounds GRO (C4-C12) and EFH (C13-C22) were ≤20%. An initial calibration verification (ICV) was analyzed following each initial calibration, with %Ds for the target compounds within the QC limit of ≤15%. The continuing calibrations bracketing the sample analyses had %Ds of ≤15% for both GRO and EFH analyses. No qualifications were required.

### 2.3 BLANKS

Two method blanks, one GRO (6C13043-BLK1) and one EFH (6C09115-BLK1) were associated with this SDG. Target compounds GRO (C4-C12) and EFH (C13-C22) were not detected above the MDLs in the respective method blanks. Review of the method blank raw data indicated no false negatives. No qualifications were required.

## 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One GRO blank spike (6C13043-BS1) and one EFH blank spike/blank spike duplicate pair (6C09115-BS1/BSD1) were associated with this SDG. The EFH recovery was above the control limit in the LCS only and the RPD for the EFH BS/BSD pair exceeded the QC limit of  $\leq 25\%$ . EFH detected in Outfall 012 was qualified as estimated, "J," for the RPD outlier. All other recoveries were within the laboratory-established QC limits and no further qualifications were required.

## 2.5 SURROGATE RECOVERY

The samples for GRO analysis were fortified with the surrogate compound 4-BFB, and for EFH analysis, n-octacosane. Surrogate recoveries were within the laboratory-established QC limits of 65-140% for 4-BFB and 40-125% for n-octacosane. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the samples of this SDG. Evaluation of method accuracy and precision was based on the blank spike and blank spike/blank spike duplicate results. No qualifications were required.

## 2.7 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 sample. Following are findings associated with field QC samples:

### 2.7.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.7.2 Trip Blanks

GRO was not detected above the MDL in sample Trip Blank. No qualifications were required.

### 2.7.3 Field Duplicates

There were no field duplicate samples identified for this SDG.

## 2.8 COMPOUND IDENTIFICATION

The laboratory analyzed for target compounds GRO (C4-C12) and EFH (C13-C22). Review of the sample chromatograms, retention times, and patterns indicated no problems with target compound identification. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limit was supported by the low point of the initial calibrations and the laboratory MDLs. Results were reported in mg/L (ppm). No qualifications were required.



# Del Mar Analytical

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300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
Received: 03/04/06

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C13043	0.25	0.50	0.60	5	03/13/06	03/13/06	Rev Qual
Surrogate: 4-BFB (FID) (65-140%)					99 %				
<b>Sample ID: IPC0533-02 (Trip Blank - Water)</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C13043	0.050	0.10	ND	1	03/13/06	03/13/06	U
Surrogate: 4-BFB (FID) (65-140%)					102 %				

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

LEVEL IV

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IPC0533 <Page 5 of 22>



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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test  
Report Number: IPC0533

Sampled: 03/03/06  
Received: 03/04/06

## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw Qual	Qual Code
Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.										
Reporting Units: mg/l										
EFH (C13 - C22)	EPA 8015B	6C09115	0.043	0.48	0.86	0.952	03/09/06	03/10/06	J	*54
Surrogate: n-Octacosane (40-125%)										

PM 4/11/06

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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LEVEL IV

IPC0533 <Page 4 of 22>



**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID B4VO42  
 Task Order 1261.001D.01  
 SDG No. IPC0533

No. of Analyses 1

Laboratory Del Mar Analytical-Phoenix  
 Reviewer K. Shadowlight  
 Analysis/Method 1,4-Dioxane by Method 8260

Date: April 12, 2006  
 Reviewer's Signature  
*K. Shadowlight*

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g.,	_____
Holding Times	_____
GC/MS Tune/Inst. Performance	_____
Calibration	_____
Method blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification	_____
Quantitation	_____
System Performance	_____
COMMENTS <sup>b</sup>	Acceptable as reviewed.

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.  
<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

**NPDES Monitoring Program  
Outfall 012**

**ANALYSIS: VOLATILES**

**SAMPLE DELIVERY GROUP: IPC0533**

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0533  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 12, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0), SW-846 Method 8260B, and the National Functional Guidelines for Organic Data Review (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID (Irvine)	Laboratory ID (Phoenix)	Matrix	COC Method
Outfall 012	IPC0533-01	PPC0248-01	Water	8260B

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The sample in this SDG was received within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $3^{\circ}\text{C}$  at Del Mar-Irvine. The 1,4-dioxane analysis was subcontracted to Del Mar-Phoenix, and the temperature recorded upon receipt was  $4^{\circ}\text{C}$ . According to the case narrative for this SDG, the sample was received intact, on ice, and properly preserved. Information regarding lack of headspace in the VOA vials was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC from the field to the laboratory was signed and dated by both field and laboratory personnel, and the transfer COC from Del Mar-Irvine to Del Mar-Phoenix was signed by personnel from both laboratories. As the sample was couriered directly from the field to the laboratory, custody seals were not required. Custody seals were present on the cooler upon receipt at Del Mar-Phoenix. The Client ID was added to the result summary by the reviewer. No qualifications were required.

#### 2.1.3 Holding Times

The water sample was analyzed within 14 days of collection. No qualifications were required.

### 2.2 GC/MS TUNING

The BFB tunes met the abundance criteria specified in SW-846 Method 8260, and the sample was analyzed within 12 hours of the BFB injection times. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 02/17/06, was associated with the sample in this SDG. The average RRF for target compound 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . The continuing calibration associated with the sample analysis was dated 03/13/06. The laboratory reported the continuing calibration and the blank spike (P6C1311-BS1) of the blank spike/blank spike duplicate pair from the same analysis. As a single analysis can not be reported as both a CCV and a blank spike, the reviewer reported the analysis as the continuing calibration. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was within the QC limit of  $\leq 20\%$ . The average RRF and %RSD in the initial calibration and RRF and %D in the continuing calibration were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

**DATA VALIDATION REPORT**

**2.4 BLANKS**

One method blank (P6C1311-BLK1) was analyzed with this SDG. Target compound 1,4-dioxane was not detected above the MDL in the method blank. Review of the method blank raw data indicated no false negative. No qualifications were required.

**2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The laboratory analyzed one blank spike/blank spike duplicate pair (P6C1311-BS1/BSD1) with this SDG. As P6C1311-BS1 was reported as a CCV (see section 2.3), P6C1311-BSD1 was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the QC limits of 70-130%. The recovery was calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

**2.6 SURROGATE RECOVERY**

The surrogate recovery was within the laboratory QC limits of 70-130% for this SDG. The recovery was calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

**2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were not performed on the sample of this SDG. Evaluation of method accuracy was based on the blank spike result. No qualifications were required.

**2.8 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 sample. Following are findings associated with field QC samples:

**2.8.1 Trip Blanks**

There was no trip blank sample associated with this SDG. No qualifications were required.

**2.8.2 Field Blanks and Equipment Rinsates**

The sample in this SDG had no field blank or equipment rinsate identified. No qualifications were required.

**DATA VALIDATION REPORT**

---

**2.8.3 Field Duplicates**

No field duplicates were identified in association with the sample in this SDG.

**2.9 INTERNAL STANDARDS PERFORMANCE**

The internal standard area counts and retention times were within the control limits established by the continuing calibration standard: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. The area counts were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

**2.10 COMPOUND IDENTIFICATION**

The laboratory analyzed for volatile target compound 1,4-dioxane by EPA Method 8260B. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

**2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limit was supported by the low point of the initial calibration and the laboratory MDL. No qualifications were required.

**2.12 TENTATIVELY IDENTIFIED COMPOUNDS**

TICs were not reported by the laboratory for this SDG. No qualifications were required.

**2.13 SYSTEM PERFORMANCE**

Review of the raw data indicated no problems with system performance. No qualifications were required.



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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06

Received: 03/04/06

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0533-01 (Outfall #12 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P6C1311	0.49	1.0	ND	1	03/13/06	03/13/06	u
Surrogate: Dibromofluoromethane (70-130%)					115 %				

Rev  
Qual  
Code

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

LEVEL IV

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IPC0533 <Page 9 of 22>

NPDES - 4434



**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

MECX, LLC  
 12260 East Vassar Drive  
 Suite 500  
 Lakewood, CO 80226

Package ID B4VO43  
 Task Order 1261.001D.01  
 SDG No. IPC0533

No. of Analyses x 2

Laboratory Del Mar - Irvine

Date: April 12, 2006

Reviewer E. Wessling

Reviewer's Signature: 

Analysis/Method Volatiles

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	
COMMENTS <sup>b</sup>	Acceptable as reviewed
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Outfall 012 – During Test

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IPC0533

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0533  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: E. Wessling  
Date of Review: April 14, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0), EPA Method 624, and the National Functional Guidelines for Organic Data Review (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0533-01	Water	624
Trip Blank	IPC0533-02	Water	624

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved. Information regarding lack of headspace in the VOA vials was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

#### 2.1.3 Holding Times

The water samples were analyzed within 14 days of collection. No qualifications were required.

### 2.2 GC/MS TUNING

The BFB tune performed at the beginning of each daily analytical sequence met the abundance criteria specified in EPA Method 624. No qualifications were required.

### 2.3 CALIBRATION

An initial calibration dated 2/06/2006 was associated with the sample analyses. The average RRFs were ≥0.05 and the %RSDs were ≤35% for all target compounds. The initial calibration raw data noted that only the primary ion was found in the standard at 125 ppb for tert-butanol (TBA). The secondary ion was identified in all other points of the calibration curve, in the continuing calibration and in the blank spike. The reviewer did not qualify the nondetects for TBA in the site samples for this anomaly. One continuing calibration was associated with the sample analyses, dated 03/09/06. The RRFs were ≥0.05 and all %Ds were within the QC limit of ≤20%.

A representative number of average RRFs and %RSDs for the initial calibration and RRFs and %Ds for the continuing calibration were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.4 BLANKS

One method blank (6C09002-BLK1) was analyzed with this SDG. No target compounds were detected above the MDLs in the method blank. Review of the method blank raw data indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (6C09002-BS1) was analyzed with this SDG. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The surrogate recoveries were within the laboratory QC limits of 80-120% for this SDG. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed on the site sample in this SDG. All recoveries and RPDs were within QC limits. A review of the raw data did not reveal any transcription or calculation errors. TBA was recovered with both primary and secondary ions identified in the site sample. No qualifications were required.

## 2.8 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:

### 2.8.1 Trip Blanks

Sample Trip Blank was the trip blank associated with site sample Outfall 012. No target compounds were detected in the trip blank. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

**DATA VALIDATION REPORT**

---

**2.8.2 Field Blanks and Equipment Rinsates**

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

**2.8.3 Field Duplicates**

There were no field duplicate samples identified for this SDG.

**2.9 INTERNAL STANDARDS PERFORMANCE**

The internal standard area counts and retention times were within the control limits established by the continuing calibration standard: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. The internal standard areas were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

**2.10 COMPOUND IDENTIFICATION**

The laboratory analyzed for a short list of volatile target compounds by EPA Method 624. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

**2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. No qualifications were required.

**2.12 TENTATIVELY IDENTIFIED COMPOUNDS**

TICs were not reported by the laboratory for this SDG. No qualifications were required.

**2.13 SYSTEM PERFORMANCE**

Review of the raw data indicated no problems with system performance. No qualifications were required.



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2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
Received: 03/04/06

## 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: IPC0533-01 (Outfall 012 - Water)										
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	6C09002	0.32	2.0	ND	1	03/09/06	03/09/06	<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px;"> <i>Pass</i> <i>Qual</i>   <i>Qual</i> <i>Code</i> </div>	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C09002	0.32	5.0	ND	1	03/09/06	03/09/06		
1,2,3-Trichloropropane	EPA 624	6C09002	0.40	10	ND	1	03/09/06	03/09/06		
Di-isopropyl Ether (DIPE)	EPA 624	6C09002	0.25	5.0	ND	1	03/09/06	03/09/06		
tert-Butanol (TBA)	EPA 624	6C09002	3.1	25	ND	1	03/09/06	03/09/06		
Surrogate: Dibromofluoromethane (80-120%)					98 %					
Surrogate: Toluene-d8 (80-120%)					102 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					112 %					
Sample ID: IPC0533-02 (Trip Blank - Water)										
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	6C09002	0.32	2.0	ND	1	03/09/06	03/09/06	<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px;"> <i>Pass</i> <i>Qual</i>   <i>Qual</i> <i>Code</i> </div>	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C09002	0.32	5.0	ND	1	03/09/06	03/09/06		
1,2,3-Trichloropropane	EPA 624	6C09002	0.40	10	ND	1	03/09/06	03/09/06		
Di-isopropyl Ether (DIPE)	EPA 624	6C09002	0.25	5.0	ND	1	03/09/06	03/09/06		
tert-Butanol (TBA)	EPA 624	6C09002	3.1	25	ND	1	03/09/06	03/09/06		
Surrogate: Dibromofluoromethane (80-120%)					95 %					
Surrogate: Toluene-d8 (80-120%)					105 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					105 %					

# LEVEL IV

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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IPC0533 <Page 6 of 22>



**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4WCP4  
 Task Order: 1261.001D.01  
 SDG No.: IPC0533

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: General Minerals

Date: April 11, 2006  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications applied for a CCV outlier and for insufficient oxygen depletion criteria.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Sampling  
Outfall 012

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IPC0533

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES Sampling  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0533  
Project Manager: P. Costa  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 10, 2006

The sample listed in Table 1 was validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0), USEPA Methods for Chemical Analysis of Water and Wastes Methods 160.1, 160.2, 160.5, 180.1, 314.0, 350.2, 405.1, 413.1, and 418.1 and Standard Methods for the Examination of Water and Wastewater Method SM2540-C, and validation guidelines outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form Is as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0533-01	Water	General Minerals

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . No preservation problems were noted by the laboratory. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and all analyses presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analysis. All analyses were performed within the method specified holding times. No qualifications were required.

### 2.2 CALIBRATION

For all applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$  and the ICV and CCV recoveries were within the control limits of 90-110%. For those methods requiring weight determinations, balance calibration logs were reviewed and found to be acceptable. For ammonia, no information regarding the standardization of the titrant was provided; therefore, as the LCS recovery was above the calibration control limit, at 115%, ammonia detected in Outfall 012 was qualified as estimated, "J." No further qualifications were required.

### 2.3 BLANKS

There were no detects in the method blanks or CCBs associated with the sample analyses. Raw data was reviewed to verify the blank data. No qualifications were required.

## 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The reported LCS and LCSD (BOD, total recoverable hydrocarbons, and oil and grease only) recoveries and RPDs were within the laboratory-established control limits. No qualifications were required.

## 2.5 LABORATORY DUPLICATES

Laboratory duplicate analyses were performed on Outfall 012 for TDS only. The RPD was within the control limit of  $\leq 10\%$  and no qualifications were required.

## 2.6 MATRIX SPIKES

MS/MSD analyses were performed on Outfall 012 for ammonia only. The recoveries were within the laboratory-established control limits of 70-120% and the RPD was within the control limit of  $\leq 15\%$ . For all other analyses, evaluation of all method accuracy and precision (for BOD, total recoverable hydrocarbons, and oil and grease) was based on LCS or LCS/LCSD results. No qualifications were required.

## 2.7 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. The BOD analysis of Outfall 012 did not meet the oxygen depletion criteria of 2 mg/L; therefore, nondetected BOD in Outfall 012 was qualified as estimated, "UJ." No further qualifications were required.

## 2.8 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated sample. The following are findings associated with field QC samples:

### 2.8.1 Field Blanks and Equipment Rinsates

The sample in this SDG had no associated field QC samples. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06  
 Received: 03/04/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0533-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	6C05021	0.30	0.50	0.56	1	03/05/06	03/05/06	J
Biochemical Oxygen Demand	EPA 405.1	6C04035	0.59	2.0	ND	1	03/04/06	03/09/06	UJ K
Oil & Grease	EPA 413.1	6C15047	0.90	4.8	ND	1	03/15/06	03/15/06	U
Total Dissolved Solids	SM2540C	6C10060	10	10	270	1	03/10/06	03/10/06	
Total Suspended Solids	EPA 160.2	6C09101	10	10	19	1	03/09/06	03/09/06	
Sample ID: IPC0533-01 (Outfall 012 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	6C04044	0.10	0.10	ND	1	03/04/06	03/04/06	U
Sample ID: IPC0533-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	6C04043	0.040	1.0	17	1	03/04/06	03/04/06	
Sample ID: IPC0533-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	6C09075	0.80	4.0	ND	1	03/09/06	03/09/06	U

Rev Qual	Qual Code
J	R
UJ K	*7
U	

LEVEL IV

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IPC0533 <Page 8 of 22>



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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0533

Sampled: 03/03/06

Received: 03/04/06

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IPC0533-01 (Outfall 012 - Water)										
Reporting Units: mg/l										
Total Recoverable Hydrocarbons	EPA 418.1	6C14048	0.30	0.96	4.6	0.962	03/14/06	03/14/06		

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Michele Chamberlin  
Project Manager

LEVEL IV

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IPC0533 <Page 3 of 22>



**APPENDIX G**

**Section 121**

Outfall 012, March 8, 2006

Del Mar Analytical Laboratory Report



### LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project: Alfa Outfall 012 - During Test

Sampled: 03/08/06  
Received: 03/08/06  
Issued: 03/23/06 17:02

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*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 Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 3 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.

LABORATORY ID	CLIENT ID	MATRIX
IPC0941-01	Outfall 012	Water
IPC0941-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager



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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0941-01 (Outfall 012 - Water)					Sampled: 03/08/06				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	6C17052	0.31	1.0	ND	1	03/17/06	03/17/06	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0941-01RE1 (Outfall 012 - Water) - cont.					Sampled: 03/08/06				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	6C14067	0.042	0.47	ND	0.943	03/14/06	03/15/06	
Surrogate: n-Octacosane (40-125%)					81 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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## VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0941-01 (Outfall 012 - Water) - cont.</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C15044	0.050	0.10	ND	1	03/15/06	03/15/06	
Surrogate: 4-BFB (FID) (65-140%)					78 %				
<b>Sample ID: IPC0941-02 (Trip Blank - Water)</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C15044	0.050	0.10	ND	1	03/15/06	03/15/06	
Surrogate: 4-BFB (FID) (65-140%)					93 %				

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0941-01 (Outfall 012 - Water)</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	6C10013	0.32	2.0	ND	1	03/10/06	03/10/06	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C10013	0.32	5.0	ND	1	03/10/06	03/10/06	
1,2,3-Trichloropropane	EPA 624	6C10013	0.40	10	ND	1	03/10/06	03/10/06	
Di-isopropyl Ether (DIPE)	EPA 624	6C10013	0.25	5.0	ND	1	03/10/06	03/10/06	
tert-Butanol (TBA)	EPA 624	6C10013	3.1	25	ND	1	03/10/06	03/10/06	
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				
<b>Sample ID: IPC0941-02 (Trip Blank - Water)</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	6C10013	0.32	2.0	ND	1	03/10/06	03/10/06	
Methyl-tert-butyl Ether (MTBE)	EPA 624	6C10013	0.32	5.0	ND	1	03/10/06	03/10/06	
1,2,3-Trichloropropane	EPA 624	6C10013	0.40	10	ND	1	03/10/06	03/10/06	
Di-isopropyl Ether (DIPE)	EPA 624	6C10013	0.25	5.0	ND	1	03/10/06	03/10/06	
tert-Butanol (TBA)	EPA 624	6C10013	3.1	25	ND	1	03/10/06	03/10/06	
Surrogate: Dibromofluoromethane (80-120%)					110 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
--	--	---

## 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
<b>Sample ID: IPC0941-01 (Outfall 012 - Water)</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: ug/l									
Naphthalene	EPA 625	6C13056	4.3	9.5	ND	0.952	03/13/06	03/17/06	
N-Nitrosodimethylamine	EPA 625	6C13056	3.5	19	ND	0.952	03/13/06	03/17/06	
Surrogate: 2-Fluorophenol (30-120%)					48 %				
Surrogate: Phenol-d6 (35-120%)					49 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					63 %				
Surrogate: Nitrobenzene-d5 (45-120%)					52 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					64 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0941-01 (Outfall 012 - Water) - cont.					Sampled: 03/08/06				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	6C13117	0.30	0.50	0.56	1	03/13/06	03/13/06	
Biochemical Oxygen Demand	EPA 405.1	6C09125	0.59	2.0	1.1	1	03/09/06	03/14/06	J
Oil & Grease	EPA 413.1	6C17049	0.90	4.8	ND	1	03/17/06	03/17/06	
Total Dissolved Solids	SM2540C	6C14070	10	10	270	1	03/14/06	03/14/06	
Total Suspended Solids	EPA 160.2	6C13121	10	10	11	1	03/13/06	03/13/06	
Sample ID: IPC0941-01 (Outfall 012 - Water)					Sampled: 03/08/06				
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	6C08147	0.10	0.10	ND	1	03/08/06	03/08/06	
Sample ID: IPC0941-01 (Outfall 012 - Water)					Sampled: 03/08/06				
Reporting Units: NTU									
Turbidity	EPA 180.1	6C09070	0.040	1.0	21	1	03/09/06	03/09/06	
Sample ID: IPC0941-01 (Outfall 012 - Water)					Sampled: 03/08/06				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	6C10128	0.80	4.0	ND	1	03/10/06	03/11/06	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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## 1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC0941-01 (Outfall 012 - Water) - cont.					Sampled: 03/08/06				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P6C1707	0.49	1.0	ND	1	03/17/06	03/17/06	
Surrogate: Dibromofluoromethane (70-130%)					108 %				

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
Received: 03/08/06

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IPC0941-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/08/2006 13:48	03/08/2006 18:20	03/08/2006 22:00	03/08/2006 23:00
EPA 180.1	2	03/08/2006 13:48	03/08/2006 18:20	03/09/2006 07:00	03/09/2006 07:30
EPA 405.1	2	03/08/2006 13:48	03/08/2006 18:20	03/09/2006 16:00	03/14/2006 19:00

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
--	--	---

**METHOD BLANK/QC DATA**

**TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C17052 Extracted: 03/17/06</b>											
<b>Blank Analyzed: 03/17/2006 (6C17052-BLK1)</b>											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
<b>LCS Analyzed: 03/17/2006 (6C17052-BS1)</b>											
Total Recoverable Hydrocarbons	4.22	1.0	0.31	mg/l	5.00		84	65-120			M-NR1
<b>LCS Dup Analyzed: 03/17/2006 (6C17052-BSD1)</b>											
Total Recoverable Hydrocarbons	4.16	1.0	0.31	mg/l	5.00		83	65-120	1	20	

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## METHOD BLANK/QC DATA

### EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C14067 Extracted: 03/14/06</b>											
<b>Blank Analyzed: 03/14/2006 (6C14067-BLK1)</b>											
EFH (C13 - C22)	ND	0.50	0.045	mg/l							
EFH (C13 - C40)	ND	0.50	0.045	mg/l							
Surrogate: n-Octacosane	0.161			mg/l	0.200		80	40-125			
<b>LCS Analyzed: 03/14/2006 (6C14067-BS1)</b>											
EFH (C13 - C40)	0.676	0.50	0.045	mg/l	0.750		90	40-120			M-NR1
Surrogate: n-Octacosane	0.157			mg/l	0.200		78	40-125			
<b>LCS Dup Analyzed: 03/14/2006 (6C14067-BSD1)</b>											
EFH (C13 - C40)	0.712	0.50	0.045	mg/l	0.750		95	40-120	5	25	
Surrogate: n-Octacosane	0.166			mg/l	0.200		83	40-125			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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## METHOD BLANK/QC DATA

### VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C15044 Extracted: 03/15/06</b>											
<b>Blank Analyzed: 03/15/2006 (6C15044-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00866			mg/l	0.0100		87	65-140			
<b>LCS Analyzed: 03/15/2006 (6C15044-BS1)</b>											
GRO (C4 - C12)	0.800	0.10	0.050	mg/l	0.800		100	65-140			
Surrogate: 4-BFB (FID)	0.0269			mg/l	0.0300		90	65-140			
<b>Matrix Spike Analyzed: 03/15/2006 (6C15044-MS1)</b>											
						<b>Source: IPC0813-16</b>					
GRO (C4 - C12)	0.783	0.10	0.050	mg/l	0.220	0.48	138	60-145			
Surrogate: 4-BFB (FID)	0.00872			mg/l	0.0100		87	65-140			
<b>Matrix Spike Dup Analyzed: 03/15/2006 (6C15044-MSD1)</b>											
						<b>Source: IPC0813-16</b>					
GRO (C4 - C12)	0.626	0.10	0.050	mg/l	0.220	0.48	66	60-145	22	20	R
Surrogate: 4-BFB (FID)	0.0115			mg/l	0.0100		115	65-140			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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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
<b>Batch: 6C10013 Extracted: 03/10/06</b>											
<b>Blank Analyzed: 03/10/2006 (6C10013-BLK1)</b>											
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l							
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l							
1,2,3-Trichloropropane	ND	10	0.40	ug/l							
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l							
tert-Butanol (TBA)	ND	25	3.1	ug/l							
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120			
<b>LCS Analyzed: 03/10/2006 (6C10013-BS1)</b>											
1,2-Dibromoethane (EDB)	24.7	2.0	0.32	ug/l	25.0		99	70-125			
Methyl-tert-butyl Ether (MTBE)	26.6	5.0	0.32	ug/l	25.0		106	55-140			
1,2,3-Trichloropropane	21.6	10	0.40	ug/l	25.0		86	55-130			
Di-isopropyl Ether (DIPE)	24.9	5.0	0.25	ug/l	25.0		100	60-135			
tert-Butanol (TBA)	113	25	3.1	ug/l	125		90	65-135			
Surrogate: Dibromofluoromethane	28.3			ug/l	25.0		113	80-120			
Surrogate: Toluene-d8	26.0			ug/l	25.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	27.2			ug/l	25.0		109	80-120			
<b>Matrix Spike Analyzed: 03/10/2006 (6C10013-MS1)</b>					<b>Source: IPC0873-01</b>						
1,2-Dibromoethane (EDB)	27.2	2.0	0.32	ug/l	25.0	ND	109	65-130			
Methyl-tert-butyl Ether (MTBE)	32.0	5.0	0.32	ug/l	25.0	1.5	122	50-150			
1,2,3-Trichloropropane	26.0	10	0.40	ug/l	25.0	ND	104	50-135			
Di-isopropyl Ether (DIPE)	27.2	5.0	0.25	ug/l	25.0	ND	109	60-140			
tert-Butanol (TBA)	129	25	3.1	ug/l	125	ND	103	60-145			
Surrogate: Dibromofluoromethane	29.2			ug/l	25.0		117	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	27.4			ug/l	25.0		110	80-120			

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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06

Received: 03/08/06

## 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
<b>Batch: 6C10013 Extracted: 03/10/06</b>											
<b>Matrix Spike Dup Analyzed: 03/10/2006 (6C10013-MSD1)</b>						<b>Source: IPC0873-01</b>					
1,2-Dibromoethane (EDB)	27.2	2.0	0.32	ug/l	25.0	ND	109	65-130	0	25	
Methyl-tert-butyl Ether (MTBE)	31.2	5.0	0.32	ug/l	25.0	1.5	119	50-150	3	25	
1,2,3-Trichloropropane	25.2	10	0.40	ug/l	25.0	ND	101	50-135	3	30	
Di-isopropyl Ether (DIPE)	27.4	5.0	0.25	ug/l	25.0	ND	110	60-140	1	25	
tert-Butanol (TBA)	132	25	3.1	ug/l	125	ND	106	60-145	2	25	
Surrogate: Dibromofluoromethane	27.2			ug/l	25.0		109	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	26.5			ug/l	25.0		106	80-120			

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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## 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
<b>Batch: 6C13056 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/16/2006 (6C13056-BLK1)</b>											
Naphthalene	ND	10	4.5	ug/l							
N-Nitrosodimethylamine	ND	20	3.7	ug/l							
Surrogate: 2-Fluorophenol	102			ug/l	200		51	30-120			
Surrogate: Phenol-d6	107			ug/l	200		54	35-120			
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200		77	45-120			
Surrogate: Nitrobenzene-d5	57.6			ug/l	100		58	45-120			
Surrogate: 2-Fluorobiphenyl	66.7			ug/l	100		67	45-120			
Surrogate: Terphenyl-d14	72.7			ug/l	100		73	45-120			
<b>LCS Analyzed: 03/16/2006 (6C13056-BS1)</b>											
Naphthalene	71.9	10	4.5	ug/l	100		72	50-120			M-NRI
N-Nitrosodimethylamine	56.9	20	3.7	ug/l	100		57	40-120			
Surrogate: 2-Fluorophenol	116			ug/l	200		58	30-120			
Surrogate: Phenol-d6	136			ug/l	200		68	35-120			
Surrogate: 2,4,6-Tribromophenol	179			ug/l	200		90	45-120			
Surrogate: Nitrobenzene-d5	71.0			ug/l	100		71	45-120			
Surrogate: 2-Fluorobiphenyl	86.7			ug/l	100		87	45-120			
Surrogate: Terphenyl-d14	89.6			ug/l	100		90	45-120			
<b>LCS Dup Analyzed: 03/17/2006 (6C13056-BSD1)</b>											
Naphthalene	69.9	10	4.5	ug/l	100		70	50-120	3	20	
N-Nitrosodimethylamine	61.1	20	3.7	ug/l	100		61	40-120	7	20	
Surrogate: 2-Fluorophenol	117			ug/l	200		58	30-120			
Surrogate: Phenol-d6	122			ug/l	200		61	35-120			
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200		77	45-120			
Surrogate: Nitrobenzene-d5	64.7			ug/l	100		65	45-120			
Surrogate: 2-Fluorobiphenyl	76.4			ug/l	100		76	45-120			
Surrogate: Terphenyl-d14	88.9			ug/l	100		89	45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
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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: 6C09070 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/09/2006 (6C09070-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 03/09/2006 (6C09070-DUP1)</b>											
Turbidity	ND	1.0	0.040	NTU		Source: IPC0785-03 ND				20	
<b>Duplicate Analyzed: 03/09/2006 (6C09070-DUP2)</b>											
Turbidity	ND	1.0	0.040	NTU		Source: IPC1005-01 ND				20	
<b>Batch: 6C09125 Extracted: 03/09/06</b>											
<b>Blank Analyzed: 03/14/2006 (6C09125-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 03/14/2006 (6C09125-BS1)</b>											
Biochemical Oxygen Demand	199	100	30	mg/l	198		101	85-115			
<b>LCS Dup Analyzed: 03/14/2006 (6C09125-BSD1)</b>											
Biochemical Oxygen Demand	200	100	30	mg/l	198		101	85-115	1	20	
<b>Batch: 6C10128 Extracted: 03/10/06</b>											
<b>Blank Analyzed: 03/11/2006 (6C10128-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 03/11/2006 (6C10128-BS1)</b>											
Perchlorate	52.1	4.0	0.80	ug/l	50.0		104	85-115			

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C10128 Extracted: 03/10/06</b>											
<b>Matrix Spike Analyzed: 03/11/2006 (6C10128-MS1)</b>						<b>Source: IPC0825-02</b>					
Perchlorate	50.2	4.0	0.80	ug/l	50.0	1.7	97	80-120			
<b>Matrix Spike Dup Analyzed: 03/11/2006 (6C10128-MSD1)</b>						<b>Source: IPC0825-02</b>					
Perchlorate	50.9	4.0	0.80	ug/l	50.0	1.7	98	80-120	1	20	
<b>Batch: 6C13117 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/13/2006 (6C13117-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 03/13/2006 (6C13117-BS1)</b>											
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0		115	80-115			
<b>Matrix Spike Analyzed: 03/13/2006 (6C13117-MS1)</b>						<b>Source: IPC1159-01</b>					
Ammonia-N (Distilled)	10.9	0.50	0.30	mg/l	10.0	ND	109	70-120			
<b>Matrix Spike Dup Analyzed: 03/13/2006 (6C13117-MSD1)</b>						<b>Source: IPC1159-01</b>					
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	ND	112	70-120	3	15	
<b>Batch: 6C13121 Extracted: 03/13/06</b>											
<b>Blank Analyzed: 03/13/2006 (6C13121-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/13/2006 (6C13121-BS1)</b>											
Total Suspended Solids	912	10	10	mg/l	1000		91	85-115			

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 6C13121 Extracted: 03/13/06</b>											
<b>Duplicate Analyzed: 03/13/2006 (6C13121-DUP1)</b>						<b>Source: IPC0935-01</b>					
Total Suspended Solids	137	10	10	mg/l		140			2	10	
<b>Batch: 6C14070 Extracted: 03/14/06</b>											
<b>Blank Analyzed: 03/14/2006 (6C14070-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 03/14/2006 (6C14070-BS1)</b>											
Total Dissolved Solids	952	10	10	mg/l	1000		95	90-110			
<b>Duplicate Analyzed: 03/14/2006 (6C14070-DUP1)</b>						<b>Source: IPC0927-01</b>					
Total Dissolved Solids	270	10	10	mg/l		270			0	10	
<b>Batch: 6C17049 Extracted: 03/17/06</b>											
<b>Blank Analyzed: 03/17/2006 (6C17049-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 03/17/2006 (6C17049-BS1)</b>											
Oil & Grease	17.7	5.0	0.94	mg/l	20.0		88	65-120			M-NR1
<b>LCS Dup Analyzed: 03/17/2006 (6C17049-BSD1)</b>											
Oil & Grease	16.9	5.0	0.94	mg/l	20.0		84	65-120	5	20	

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## METHOD BLANK/QC DATA

### 1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: P6C1707 Extracted: 03/17/06</b>											
<b>Blank Analyzed: 03/17/2006 (P6C1707-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.04			ug/l	1.00		104	70-130			
<b>LCS Analyzed: 03/17/2006 (P6C1707-BS1)</b>											
1,4-Dioxane	8.20	1.0	0.49	ug/l	10.0		82	70-130			
Surrogate: Dibromofluoromethane	1.04			ug/l	1.00		104	70-130			
<b>LCS Dup Analyzed: 03/17/2006 (P6C1707-BSD1)</b>											
1,4-Dioxane	9.13	1.0	0.49	ug/l	10.0		91	70-130	11	20	
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	70-130			
<b>Matrix Spike Analyzed: 03/17/2006 (P6C1707-MS1) Source: IPC0941-01</b>											
1,4-Dioxane	8.35	1.0	0.49	ug/l	10.0	ND	84	65-125			
Surrogate: Dibromofluoromethane	1.08			ug/l	1.00		108	70-130			
<b>Matrix Spike Dup Analyzed: 03/17/2006 (P6C1707-MSD1) Source: IPC0941-01</b>											
1,4-Dioxane	8.24	1.0	0.49	ug/l	10.0	ND	82	65-125	1	20	
Surrogate: Dibromofluoromethane	1.10			ug/l	1.00		110	70-130			

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### DATA QUALIFIERS AND DEFINITIONS

- 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.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- R** The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

### ADDITIONAL COMMENTS

**For GRO (C4-C12):**

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

**For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :**

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.



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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046  
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test  Report Number: IPC0941	Sampled: 03/08/06 Received: 03/08/06
--	--	---

## Certification Summary

### Del Mar Analytical - Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	N/A	X
EPA 350.2	Water		X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
EPA 8260B	Water	X	X
Level 4	Water		
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)

### Subcontracted Laboratories

**Del Mar Analytical - Phoenix** NELAC Cert #01109CA, California Cert #2446, Arizona Cert #AZ0426, Nevada Cert #AZ-907

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

Samples: IPC0941-01

**Del Mar Analytical - Irvine**  
Michele Chamberlin  
Project Manager

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 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IPC0941

**SENDING LABORATORY:**  
 Del Mar Analytical, Irvine  
 17461 Derian Avenue, Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 261-1228  
 Project Manager: Michele Chamberlin

**RECEIVING LABORATORY:**  
 Del Mar Analytical - Phoenix  
 9830 S. 51st Street, Suite B-120  
 Phoenix, AZ 85044  
 Phone: (480) 785-0043  
 Fax: (480) 785-0851

Analysis	Expiration	Due	Comments
<b>Sample ID: IPC0941-01</b> Water		<b>Sampled: 03/08/06 13:48</b>	
Dioxane-8260B-out	03/22/06 13:48	03/17/06 12:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
Level 4 Data Package - Phoenix-04/05/06	13:48	03/17/06 12:00	Boeing, TAT= 17 days from receipt at Phoenix
<b>Containers Supplied:</b>			
40 ml VOA w/HCL (IPC0941-01M)			
40 ml VOA w/HCL (IPC0941-01N)			
40 ml VOA w/HCL (IPC0941-01O)			

PPC0321

**SAMPLE INTEGRITY:**

All containers intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Property: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>7.6 °C</u>

<u>Cal. Ch</u>			<u>Ed. Ex</u>	<u>3-9-06</u>	
Released By	Date	Time	Received By	Date	Time
<u>[Signature]</u>			<u>[Signature]</u>	<u>3-10-6</u>	<u>9:25</u>
Released By	Date	Time	Received By	Date	Time

IPCO941

31820

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field readings:																				
MVH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Bernge &amp; Barnes</i>		Boeing-SSFL NPDES Alfg. Test Stand Outfall 012 Phone Number: (626) 588-6691 Fax Number: (626) 588-6515		Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec. (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2)	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Temp = 6.2 pH = 7.0	Comments										
Outfall 012	W	1L Amber	1	3/8/06 1346	HCl	1A	X																											
Outfall 012 duplicate	W	1L Amber	1		HCl	1B	X																											
Outfall 012	W	VOAs	1		HCl	2A					X																							
Outfall 012 duplicate	W	VOAs	2		HCl	2B, 2C					X																							
Outfall 012	W	1L Amber	1		None	3A					X																							
Outfall 012 duplicate	W	1L Amber	1		None	3B					X																							
Outfall 012	W	VOAs	1		HCl	4A						X																						
Outfall 012 duplicate	W	VOAs	2		HCl	4B, 4C					X																							
Outfall 012	W	1L Amber	1		HCl	5A						X																						
Outfall 012 duplicate	W	1L Amber	1		HCl	5B						X																						
Outfall 012	W	VOAs	1		HCl	6A							X																					
Outfall 012 duplicate	W	VOAs	2		HCl	6B, 6C							X																					
Outfall 012	W	1L Poly	1		None	7A								X																				
Outfall 012	W	1L Amber	1		None	8A									X																			
Outfall 012 duplicate	W	1L Amber	1		None	8B									X																			
Outfall 012	W	500ml Poly	1		H2SO4	9A										X																		
Outfall 012	W	1L Poly	1		None	10A											X																	
Outfall 012	W	1L Poly	1		None	11A												X																
Trip Blank	W	VOAs	6		HCl	12A, 12B, 12C, 12D, 12E, 12F					X																							
Relinquished By	Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:											
<i>Rog Bernge</i>	3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430		<i>Shurk</i> 3806 1430											
Relinquished By	Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:											
<i>Shurk</i>	3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890											
Relinquished By	Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:											
<i>Shurk</i>	3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890		<i>Shurk</i> 3805 890											
Turn around Time: (check)	24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check)		Infect		Gn. Inv.		Turn around Time: (check)		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check)		Infect		Gn. Inv.	
	5 Days		10 Days		Normal																													



**Del Mar Analytical** Version 02/17/05 **CHAIN OF CUSTODY FORM**

**Client Name/Address:**  
 MWVH-Pasadena  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
**Project:**  
 Boeing-SSFL NPDES  
~~Alfa Test Stand~~ - Outfall 012  
**Project Manager:** Bronwyn Kelly  
**Phone Number:**  
 (626) 568-6691  
**Fax Number:**  
 (626) 568-6515  
**Sampler:** *Benge & Barnes*  
**Flow Test**

Sample Description	Sample Matrix	# of Container Type	Preservative	Bottle #	ANALYSIS REQUIRED												Field readings: Temp = 6.2 pH = 7.0	Comments
					Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	TRPH, =Total Rec. Petroleum Hydrocarbons (EPA 418.1)	924 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	925 Naphthalene + NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids			
Outfall 012	W	1L Amber	HCl	1A	X													
Outfall 012 duplicate	W	1L Amber	HCl	1B	X													
Outfall 012	W	VOAs	HCl	2A		X												
Outfall 012 duplicate	W	VOAs	HCl	2B, 2C		X												
Outfall 012	W	1L Amber	None	3A		X												
Outfall 012 duplicate	W	1L Amber	None	3B		X												
Outfall 012	W	VOAs	HCl	4A			X											
Outfall 012 duplicate	W	VOAs	HCl	4B, 4C			X											
Outfall 012	W	1L Amber	HCl	5A			X											
Outfall 012 duplicate	W	1L Amber	HCl	5B			X											
Outfall 012	W	VOAs	HCl	6A				X										
Outfall 012 duplicate	W	VOAs	HCl	6B, 6C				X										
Outfall 012	W	1L Poly	None	7A					X									
Outfall 012	W	1L Amber	None	8A						X								
Outfall 012 duplicate	W	1L Amber	None	8B							X							
Outfall 012	W	500ml Poly	H2SO4	9A								X						
Outfall 012	W	1L Poly	None	10A									X					
Outfall 012	W	1L Poly	None	11A										X				
Trip Blank	W	VOAs	HCl	12A, 12B, 12C, 12D, 12E, 12F											X			

**Relinquished By:** *Ray Benge* Date/Time: 3-8-06 1430  
**Received By:** *Thurber* Date/Time: 3-8-06 1430  
**Relinquished By:** *Thurber* Date/Time: 3-8-06 830  
**Received By:** *Wilson* Date/Time: 3-8-06 1820  
**Relinquished By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_  
**Received By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_

Turn around Time: (check)  
 24 Hours \_\_\_\_\_ 5 Days \_\_\_\_\_  
 48 Hours \_\_\_\_\_ 10 Days \_\_\_\_\_  
 72 Hours \_\_\_\_\_ Normal \_\_\_\_\_  
 Perchlorate Only 72 Hours \_\_\_\_\_  
 Metals Only 72 Hours \_\_\_\_\_

Sample Integrity: (Check) On lot:  *50*

**APPENDIX G**

**Section 122**

Outfall 012, March 8, 2006

AMEC Data Validation Reports


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

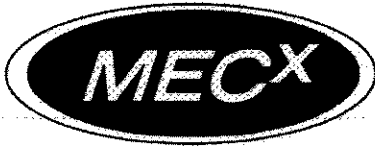
Package ID: B4SV34  
 Task Order: 1261.001D.01  
 SDG No.: IPC0941

No. of Analyses: 1

Laboratory: Del Mar Analytical  
 Reviewer: L. Calvin  
 Analysis/Method: Semivolatiles by Method 625

Date: April 11, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative Deficiencies</b>	  
<b>2. Out of Scope Analyses</b>	  
<b>3. Analyses Not Conducted</b>	  
<b>4. Missing Hardcopy Deliverables</b>	  
<b>5. Incorrect Hardcopy Deliverables</b>	  
<b>6. Deviations from Analysis Protocol, e.g.,</b>	
Holding Times	 
GC/MS Tune/Inst. Performance	 
Calibration	 
Method blanks	 
Surrogates	 
Matrix Spike/Dup LCS	 
Field QC	 
Internal Standard Performance	 
Compound Identification	 
Quantitation	 
System Performance	 
<b>COMMENTS<sup>b</sup></b>	<u>Acceptable as reviewed.</u>
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Outfall 012

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP IPC0941

Prepared by

MECX, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0941  
Project Manager: P. Costa  
Matrix: Water  
Analysis: Semivolatiles  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: April 11, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for Semivolatile Organics (DVP-3, Rev. 2), EPA Method 625, and the National Functional Guidelines For Organic Data Review (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0941-01	Water	625



## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C at 5°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for the analysis presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The water sample was extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 GC/MS TUNING

The DFTPP tunes analyzed at the beginning of each daily analytical sequence met the abundance criteria specified in EPA Method 625. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration analyzed 03/02/06 was associated with the sample in this SDG. The %RSDs for target compounds naphthalene and n-nitrosodimethylamine (NDMA) were ≤35% and the average RRFs were ≥0.05. An initial calibration verification (ICV) was analyzed following the initial calibration, with %Ds for both target compounds within the QC limit of ≤20%.

The continuing calibration associated with the sample analysis was analyzed 03/16/06. The RRFs were ≥0.05 and the %Ds were within the QC limit of ≤20% for both target compounds. No qualifications were required.



## 2.4 BLANKS

One method blank (6C13056-BLK1) was extracted and analyzed with this SDG. Target compounds naphthalene and NDMA were not detected above the MDLs in the method blank. Review of the method blank raw data indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (6C13056-BS1/BSD1) was extracted and analyzed with this SDG. All recoveries were within the laboratory-established QC limits, and the RPDs were within the QC limit of  $\leq 20\%$ . The recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the sample of this SDG. Evaluation of method accuracy and precision was based on the blank spike and blank spike/blank spike duplicate results. No qualifications were required.

## 2.6 SURROGATE RECOVERY

Surrogate recoveries for the sample were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.8 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:

### 2.8.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate samples identified for this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times for the sample were within the control limits established by the continuing calibration standard: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. The internal standard area recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for target compounds naphthalene and NDMA by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Results were reported in  $\mu\text{g/L}$  (ppb). No qualifications were required.

## 2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

## 2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851  
 2520 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06

Received: 03/08/06

**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: IPC0941-01 (Outfall 012 - Water)					Sampled: 03/08/06					<i>rel qual code</i> <hr/> <i>u</i>
Reporting Units: ug/l										
Naphthalene	EPA 625	6C13056	4.3	9.5	ND	0.952	03/13/06	03/17/06		
N-Nitrosodimethylamine	EPA 625	6C13056	3.5	19	ND	0.952	03/13/06	03/17/06		
Surrogate: 2-Fluorophenol (30-120%)					48 %					
Surrogate: Phenol-d6 (35-120%)					49 %					
Surrogate: 2,4,6-Tribromophenol (45-120%)					63 %					
Surrogate: Nitrobenzene-d5 (45-120%)					52 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					64 %					
Surrogate: Terphenyl-d14 (45-120%)					82 %					

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

*Level II*

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IPC0941 <Page 6 of 21>

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID: B4TF9  
 Task Order: 1261.001D.01  
 SDG No.: IPC0941

No. of Analyses: 2

Laboratory: Del Mar Analytical  
 Reviewer: P. Meeks  
 Analysis/Method: Total Fuel Hydrocarbons

Date: April 10, 2006  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative Deficiencies</b>	_____
<b>2. Out of Scope Analyses</b>	_____
<b>3. Analyses Not Conducted</b>	_____
<b>4. Missing Hardcopy Deliverables</b>	_____
<b>5. Incorrect Hardcopy Deliverables</b>	_____
<b>6. Deviations from Analysis Protocol, e.g.,</b>	_____
Holding Times	_____
GC/MS Tune/Inst. Performance	_____
Calibration	_____
Method blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification	_____
Quantitation	_____
System Performance	_____
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring Program  
Annual Outfall 012

ANALYSIS: TOTAL FUEL HYDROCARBONS

SAMPLE DELIVERY GROUP: IPC0941

Prepared by

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

## 1. INTRODUCTION

Task Order Title: NPDES  
MEC<sup>X</sup> Project Number: 1261.001D.01  
Sample Delivery Group: IPC0941  
Project Manager: P. Costa  
Matrix: Water  
Analysis: TFH/EFH  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: April 10, 2006

The samples listed in Table 1 were validated based on the guidelines outlined in *the MEC<sup>X</sup> Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample Identification**

Client ID	Laboratory ID	Matrix	COC Method
Outfall 012	IPC0941-01	Water	8015B & 8015M
Trip Blank	IPC0941-02	Water	8015M

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C at 5°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

#### 2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for the analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. No qualifications were required.

#### 2.1.3 Holding Times

The water samples were analyzed within 14 days of collection for the gasoline range organics analysis (GRO). The sample for extractable fuel hydrocarbons (EFH) was extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 CALIBRATION

Two initial calibrations, one for EFH analyzed 03/08/06 and one for GRO analyzed 01/10/06, were associated with the samples in this SDG. The %RSDs for target compounds GRO (C4-C12) and EFH (C13-C22) were ≤20%. An initial calibration verification (ICV) was analyzed following each initial calibration, with %Ds for the target compounds within the QC limit of ≤15%. The continuing calibrations bracketing the sample analyses had %Ds of ≤15% for both GRO and EFH analyses. No qualifications were required.

### 2.3 BLANKS

Two method blanks, one GRO (6C15044-BLK1) and one EFH (6C14067-BLK1) were associated with this SDG. Target compounds GRO (C4-C12) and EFH (C13-C22) were not detected above the MDLs in the respective method blanks. Review of the method blank raw data indicated no false negatives. No qualifications were required.



## 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One GRO blank spike (6C15044-BS1) and one EFH blank spike/blank spike duplicate pair (6C14067-BS1/BSD1) were associated with this SDG. All recoveries were within the laboratory-established QC limits and the RPD for the EFH BS/BSD pair was within the QC limit of  $\leq 25\%$ . No qualifications were required.

## 2.5 SURROGATE RECOVERY

The samples for GRO analysis were fortified with the surrogate compound 4-BFB, and for EFH analysis, n-octacosane. Surrogate recoveries were within the laboratory-established QC limits of 65-140% for 4-BFB and 40-125% for n-octacosane. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the samples of this SDG. Evaluation of method accuracy and precision was based on the blank spike and blank spike/blank spike duplicate results. No qualifications were required.

## 2.7 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 sample. Following are findings associated with field QC samples:

### 2.7.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples identified for this SDG. No qualifications were required.

### 2.7.2 Trip Blanks

GRO was not detected above the MDL in sample Trip Blank. No qualifications were required.

### 2.7.3 Field Duplicates

There were no field duplicate samples identified for this SDG.

## 2.8 COMPOUND IDENTIFICATION

The laboratory analyzed for target compounds GRO (C4-C12) and EFH (C13-C22). Review of the sample chromatograms, retention times, and patterns indicated no problems with target compound identification. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limit was supported by the low point of the initial calibrations and the laboratory MDLs. Results were reported in mg/L (ppm). No qualifications were required.



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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
Received: 03/08/06

## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IPC0941-01RE1 (Outfall 012 - Water) - cont.					Sampled: 03/08/06					Rev Qual
Reporting Units: mg/l										Code
EFH (C13 - C22)	EPA 8015B	6C14067	0.042	0.47	ND	0.943	03/14/06	03/15/06	U	
Surrogate: n-Octacosane (40-125%)										

Del Mar Analytical - Irvine  
Michele Chamberlin  
Project Manager

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LEVEL IV

IPC0941 <Page 3 of 21>



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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IPC0941

Sampled: 03/08/06  
 Received: 03/08/06

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IPC0941-01 (Outfall 012 - Water) - cont.</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C15044	0.050	0.10	ND	1	03/15/06	03/15/06	U
Surrogate: 4-BFB (FID) (65-140%)					78 %				
<b>Sample ID: IPC0941-02 (Trip Blank - Water)</b>					<b>Sampled: 03/08/06</b>				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	6C15044	0.050	0.10	ND	1	03/15/06	03/15/06	U
Surrogate: 4-BFB (FID) (65-140%)					93 %				

Raw	Qual

Del Mar Analytical - Irvine  
 Michele Chamberlin  
 Project Manager

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IPC0941 <Page 4 of 21>