



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1397

Sampled: 05/20/05

Received: 05/20/05

**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: IOE1397-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Naphthalene	EPA 625	5E21037	4.5	10	13	0.976	05/21/05	05/25/05	
N-Nitrosodimethylamine	EPA 625	5E21037	3.7	20	ND	0.976	05/21/05	05/25/05	
Surrogate: 2-Fluorophenol (30-120%)					53 %				
Surrogate: Phenol-d6 (35-120%)					58 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					61 %				
Surrogate: Nitrobenzene-d5 (45-120%)					64 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					64 %				
Surrogate: Terphenyl-d14 (45-120%)					65 %				

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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: IOE1397-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E24106	0.30	0.50	1.7	1	05/24/05	05/24/05	
Biochemical Oxygen Demand	EPA 405.1	5E20084	0.59	2.0	5.5	1	05/20/05	05/25/05	
Oil & Grease	EPA 413.1	5E23055	0.94	5.0	1.5	1	05/23/05	05/23/05	J
Total Dissolved Solids	SM2540C	5E23076	10	10	290	1	05/23/05	05/23/05	
Total Suspended Solids	EPA 160.2	5E25110	10	10	13	1	05/25/05	05/25/05	
<b>Sample ID: IOE1397-01 (Outfall 012 - Water)</b>									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5E21052	0.10	0.10	ND	1	05/21/05	05/21/05	
<b>Sample ID: IOE1397-01 (Outfall 012 - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	5E21054	0.040	1.0	14	1	05/21/05	05/21/05	
<b>Sample ID: IOE1397-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5E29001	0.80	4.0	ND	1	05/29/05	05/29/05	

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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
<b>Sample ID: IOE1397-01 (Outfall 012 - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
1,4-Dioxane	EPA 8260B	P5E2712	0.49	1.0	ND	1	05/27/05	05/27/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					<i>101 %</i>				

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**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 012 (IOE1397-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	05/20/2005 14:07	05/20/2005 17:30	05/21/2005 10:00	05/21/2005 11:00
EPA 180.1	2	05/20/2005 14:07	05/20/2005 17:30	05/21/2005 16:00	05/21/2005 17:00
EPA 405.1	2	05/20/2005 14:07	05/20/2005 17:30	05/20/2005 21:12	05/25/2005 16:00

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**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: 5E25081 Extracted: 05/25/05</b>											
<b>Blank Analyzed: 05/25/2005 (5E25081-BLK1)</b>											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
<b>LCS Analyzed: 05/25/2005 (5E25081-BS1)</b>											
Total Recoverable Hydrocarbons	4.77	1.0	0.31	mg/l	5.00		95	65-120			M-NR1
<b>LCS Dup Analyzed: 05/25/2005 (5E25081-BSD1)</b>											
Total Recoverable Hydrocarbons	4.54	1.0	0.31	mg/l	5.00		91	65-120	5	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	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E21048 Extracted: 05/21/05</b>										
<b>Blank Analyzed: 05/21/2005 (5E21048-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.0891			mg/l	0.200		45		40-125	
<b>LCS Analyzed: 05/21/2005 (5E21048-BS1)</b>										
EFH (C13 - C40)	0.404	0.50	0.082	mg/l	0.775		52		40-120	M-NR1 J
Surrogate: n-Octacosane	0.168			mg/l	0.200		84		40-125	
<b>LCS Dup Analyzed: 05/21/2005 (5E21048-BSD1)</b>										
EFH (C13 - C40)	0.468	0.50	0.082	mg/l	0.775		60	15	40-120	25 J
Surrogate: n-Octacosane	0.159			mg/l	0.200		79		40-125	

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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	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E27034 Extracted: 05/27/05</b>											
<b>Blank Analyzed: 05/27/2005 (5E27034-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00806			mg/l	0.0100		81	65-140			
<b>LCS Analyzed: 05/27/2005 (5E27034-BS1)</b>											
GRO (C4 - C12)	0.804	0.10	0.050	mg/l	0.800		100	70-140			
Surrogate: 4-BFB (FID)	0.0268			mg/l	0.0300		89	65-140			
<b>Matrix Spike Analyzed: 05/27/2005 (5E27034-MS1)</b>											
<b>Source: IOE1101-01</b>											
GRO (C4 - C12)	0.538	0.10	0.050	mg/l	0.220	0.35	85	60-140			
Surrogate: 4-BFB (FID)	0.00923			mg/l	0.0100		92	65-140			
<b>Matrix Spike Dup Analyzed: 05/27/2005 (5E27034-MSD1)</b>											
<b>Source: IOE1101-01</b>											
GRO (C4 - C12)	0.529	0.10	0.050	mg/l	0.220	0.35	81	60-140	2	20	
Surrogate: 4-BFB (FID)	0.00937			mg/l	0.0100		94	65-140			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E24011 Extracted: 05/24/05</b>											
<b>Blank Analyzed: 05/24/2005 (5E24011-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	0.85	ug/l							
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l							
tert-Butanol (TBA)	ND	25	3.1	ug/l							
Surrogate: Dibromofluoromethane	24.5			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	25.6			ug/l	25.0		102	80-120			
<b>LCS Analyzed: 05/24/2005 (5E24011-BS1)</b>											
1,2-Dibromoethane (EDB)	24.4	2.0	0.32	ug/l	25.0		98	70-125			
Methyl-tert-butyl Ether (MTBE)	22.6	5.0	0.32	ug/l	25.0		90	55-140			
1,2,3-Trichloropropane	19.5	10	0.85	ug/l	25.0		78	55-130			
Di-isopropyl Ether (DIPE)	20.6	5.0	0.25	ug/l	25.0		82	60-135			
tert-Butanol (TBA)	99.7	25	3.1	ug/l	125		80	65-135			
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120			
Surrogate: Toluene-d8	25.6			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	26.3			ug/l	25.0		105	80-120			
<b>Matrix Spike Analyzed: 05/24/2005 (5E24011-MS1)</b>						<b>Source: IOE1382-11</b>					
1,2-Dibromoethane (EDB)	27.9	2.0	0.32	ug/l	25.0	ND	112	65-130			
Methyl-tert-butyl Ether (MTBE)	27.9	5.0	0.32	ug/l	25.0	ND	112	50-150			
1,2,3-Trichloropropane	24.8	10	0.85	ug/l	25.0	ND	99	50-135			
Di-isopropyl Ether (DIPE)	23.6	5.0	0.25	ug/l	25.0	ND	94	60-140			
tert-Butanol (TBA)	251	25	3.1	ug/l	125	ND	201	60-145			MI
Surrogate: Dibromofluoromethane	25.3			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.6			ug/l	25.0		106	80-120			

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**PURGEABLES BY GC/MS (EPA 624)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E24011 Extracted: 05/24/05</b>											
<b>Matrix Spike Dup Analyzed: 05/24/2005 (5E24011-MSD1)</b>						<b>Source: IOE1382-11</b>					
1,2-Dibromoethane (EDB)	25.4	2.0	0.32	ug/l	25.0	ND	102	65-130	9	25	
Methyl-tert-butyl Ether (MTBE)	24.1	5.0	0.32	ug/l	25.0	ND	96	50-150	15	25	
1,2,3-Trichloropropane	21.9	10	0.85	ug/l	25.0	ND	88	50-135	12	30	
Di-isopropyl Ether (DIPE)	22.5	5.0	0.25	ug/l	25.0	ND	90	60-140	5	25	
tert-Butanol (TBA)	290	25	3.1	ug/l	125	ND	232	60-145	14	25	MI
Surrogate: Dibromofluoromethane	24.9			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	80-120			

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD RPD	Limit	Data Qualifiers
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Batch: 5E21037 Extracted: 05/21/05

Blank Analyzed: 05/25/2005 (5E21037-BLK1)

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	118			ug/l	200		59	35-120			
Surrogate: 2,4,6-Tribromophenol	118			ug/l	200		59	45-120			
Surrogate: Nitrobenzene-d5	61.4			ug/l	100		61	45-120			
Surrogate: 2-Fluorobiphenyl	68.3			ug/l	100		68	45-120			
Surrogate: Terphenyl-d14	72.5			ug/l	100		72	45-120			

LCS Analyzed: 05/25/2005 (5E21037-BS1)

M-NRI

Naphthalene	73.5	10	4.5	ug/l	100		74	50-120			
N-Nitrosodimethylamine	64.4	20	3.7	ug/l	100		64	40-120			
Surrogate: 2-Fluorophenol	116			ug/l	200		58	30-120			
Surrogate: Phenol-d6	129			ug/l	200		64	35-120			
Surrogate: 2,4,6-Tribromophenol	157			ug/l	200		78	45-120			
Surrogate: Nitrobenzene-d5	69.2			ug/l	100		69	45-120			
Surrogate: 2-Fluorobiphenyl	74.6			ug/l	100		75	45-120			
Surrogate: Terphenyl-d14	85.0			ug/l	100		85	45-120			

LCS Dup Analyzed: 05/25/2005 (5E21037-BSD1)

Naphthalene	75.2	10	4.5	ug/l	100		75	50-120	2	20	
N-Nitrosodimethylamine	65.1	20	3.7	ug/l	100		65	40-120	1	20	
Surrogate: 2-Fluorophenol	116			ug/l	200		58	30-120			
Surrogate: Phenol-d6	134			ug/l	200		67	35-120			
Surrogate: 2,4,6-Tribromophenol	162			ug/l	200		81	45-120			
Surrogate: Nitrobenzene-d5	71.7			ug/l	100		72	45-120			
Surrogate: 2-Fluorobiphenyl	76.4			ug/l	100		76	45-120			
Surrogate: Terphenyl-d14	87.8			ug/l	100		88	45-120			

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**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E20084 Extracted: 05/20/05</b>											
<b>Blank Analyzed: 05/25/2005 (5E20084-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 05/25/2005 (5E20084-BS1)</b>											
Biochemical Oxygen Demand	202	100	30	mg/l	198		102	85-115			
<b>LCS Dup Analyzed: 05/25/2005 (5E20084-BSD1)</b>											
Biochemical Oxygen Demand	204	100	30	mg/l	198		103	85-115	1	20	
<b>Batch: 5E21054 Extracted: 05/21/05</b>											
<b>Blank Analyzed: 05/21/2005 (5E21054-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 05/21/2005 (5E21054-DUP1)</b>											
Turbidity	23.1	1.0	0.040	NTU		Source: IOE1410-01 24			4	20	
<b>Batch: 5E23055 Extracted: 05/23/05</b>											
<b>Blank Analyzed: 05/23/2005 (5E23055-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 05/23/2005 (5E23055-BS1)</b>											
Oil & Grease	17.7	5.0	0.94	mg/l	20.0		88	65-120			M-NR1
<b>LCS Dup Analyzed: 05/23/2005 (5E23055-BSD1)</b>											
Oil & Grease	17.0	5.0	0.94	mg/l	20.0		85	65-120	4	20	

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E23076 Extracted: 05/23/05</b>											
<b>Blank Analyzed: 05/23/2005 (5E23076-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 05/23/2005 (5E23076-BS1)</b>											
Total Dissolved Solids	1030	10	10	mg/l	1000		103	90-110			
<b>Duplicate Analyzed: 05/23/2005 (5E23076-DUP1)</b>											
						<b>Source: IOE1397-01</b>					
Total Dissolved Solids	295	10	10	mg/l		290			2	10	
<b>Batch: 5E24106 Extracted: 05/24/05</b>											
<b>Blank Analyzed: 05/24/2005 (5E24106-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 05/24/2005 (5E24106-BS1)</b>											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0		101	80-115			
<b>Matrix Spike Analyzed: 05/24/2005 (5E24106-MS1)</b>											
						<b>Source: IOE1397-01</b>					
Ammonia-N (Distilled)	12.3	0.50	0.30	mg/l	10.0	1.7	106	70-120			
<b>Matrix Spike Dup Analyzed: 05/24/2005 (5E24106-MSD1)</b>											
						<b>Source: IOE1397-01</b>					
Ammonia-N (Distilled)	12.0	0.50	0.30	mg/l	10.0	1.7	103	70-120	2	15	
<b>Batch: 5E25110 Extracted: 05/25/05</b>											
<b>Blank Analyzed: 05/25/2005 (5E25110-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E25110 Extracted: 05/25/05</b>											
<b>LCS Analyzed: 05/25/2005 (5E25110-BS1)</b>											
Total Suspended Solids	964	10	10	mg/l	1000		96	85-115			
<b>Duplicate Analyzed: 05/25/2005 (5E25110-DUP1) Source: IOE1366-01</b>											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b>Batch: 5E29001 Extracted: 05/29/05</b>											
<b>Blank Analyzed: 05/29/2005 (5E29001-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 05/29/2005 (5E29001-BS1)</b>											
Perchlorate	56.3	4.0	0.80	ug/l	50.0		113	85-115			
<b>Matrix Spike Analyzed: 05/29/2005 (5E29001-MS1) Source: IOE1586-05</b>											
Perchlorate	62.1	4.0	0.80	ug/l	50.0	5.7	113	80-120			
<b>Matrix Spike Dup Analyzed: 05/29/2005 (5E29001-MSD1) Source: IOE1586-05</b>											
Perchlorate	61.0	4.0	0.80	ug/l	50.0	5.7	111	80-120	2	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: P5E2712 Extracted: 05/27/05</b>										
<b>Blank Analyzed: 05/27/2005 (P5E2712-BLK1)</b>										
1,4-Dioxane	ND	1.0	0.49	ug/l						
Surrogate: Dibromofluoromethane	1.18			ug/l	1.00		118 80-125			
<b>LCS Analyzed: 05/27/2005 (P5E2712-BS1)</b>										
1,4-Dioxane	10.4	1.0	0.49	ug/l	10.0		104 70-130			
Surrogate: Dibromofluoromethane	1.16			ug/l	1.00		116 80-125			
<b>LCS Dup Analyzed: 05/27/2005 (P5E2712-BSD1)</b>										
1,4-Dioxane	9.83	1.0	0.49	ug/l	10.0		98 70-130	6	20	
Surrogate: Dibromofluoromethane	1.12			ug/l	1.00		112 80-125			
<b>Matrix Spike Analyzed: 05/27/2005 (P5E2712-MS1) Source: POE0712-01</b>										
1,4-Dioxane	11.1	1.0	0.49	ug/l	10.0	1.4	97 70-150			
Surrogate: Dibromofluoromethane	1.11			ug/l	1.00		111 80-125			
<b>Matrix Spike Dup Analyzed: 05/27/2005 (P5E2712-MSD1) Source: POE0712-01</b>										
1,4-Dioxane	11.2	1.0	0.49	ug/l	10.0	1.4	98 70-150	1	25	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114 80-125			

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1397

Sampled: 05/20/05  
Received: 05/20/05

### 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.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- 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

### 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 Harper  
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: IOE1397

Sampled: 05/20/05  
Received: 05/20/05

### 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
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.dmalabs.com](http://www.dmalabs.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: IOE1397-01

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager





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. Suncal Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IOE1397

**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 Harper

**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: IOE1397-01 Water</b> <b>Sampled: 05/20/05 14:07</b>			
Dioxane-8260B-out	06/03/05 14:07	06/01/05 12:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	06/17/05 14:07	06/01/05 12:00	Boeing

**Containers Supplied:**  
 40 ml VOA w/HCL (IOE1397-01H)  
 40 ml VOA w/HCL (IOE1397-01I)  
 40 ml VOA w/HCL (IOE1397-01J)

POE0639-01

**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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>2.6°C</u>

Released By	Date	Time	Received By	Date	Time
<i>[Signature]</i>	<i>5/23/05</i>	<i>17:00</i>	<i>[Signature]</i>	<i>5-27-05</i>	<i>1000</i>

407 IOE 1397 Page 1 of 1

# CHAIN OF CUSTODY FORM

**Del Mar Analytical** Version 02/17/05  
 Client Name/Address:  
**MVH-Pasadena**  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Project Manager: Bronwyn Kelly  
 Sampler:

Project:  
**Boeing-SSFL NPDES**  
**During Test -- Outfall 012**  
 Alfa Test Stand

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

Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	ANALYSIS REQUIRED													Field readings: Temp = 77.9 pH = 7.1	Comments							
						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) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids										
Outfall 012	W	1L Amber	1	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	H2504	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																						

Relinquished By: *[Signature]* Date/Time: 5-29-05  
 Relinquished By: *[Signature]* Date/Time: 5/30/05 1420  
 Relinquished By: *[Signature]* Date/Time: 5/30/05 1730  
 Received By: *[Signature]* Date/Time: 5/30/05 1420  
 Received By: *[Signature]* Date/Time: 5/30/05 1730  
 Turn around Time: (check) 24 Hours  48 Hours  72 Hours  5 Days  10 Days  15 Days  30 Days  60 Days  90 Days  180 Days  365 Days   
 Perchlorate Only 72 Hours  Normal  Per M/L   
 Metals Only 72 Hours   
 Sample Integrity: (Check) Intact  On Ice:  *ABC*



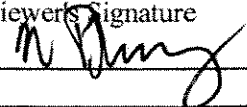
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T711SV60  
 Task Order 313150010  
 SDG No. IOE1397

No. of Analyses 1

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Semivolatiles

Date: July 6, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
1. <b>Case Narrative Deficiencies</b>	  
2. <b>Out of Scope Analyses</b>	  
3. <b>Analyses Not Conducted</b>	  
4. <b>Missing Hardcopy Deliverables</b>	  
5. <b>Incorrect Hardcopy Deliverables</b>	  
6. <b>Deviations from Analysis Protocol, e.g.,</b>	
Holding Times	 
GC/MS Tune/Inst. Perform	 
Calibrations	 
Blanks	 
Surrogates	 
Matrix Spike/Dup LCS	 
Field QC	 
Internal Standard Performance	 
Compound Identification and 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

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOE1397

Prepared by

AMEC Denver Operations  
550 South Wadsworth Boulevard, Suite 500  
Lakewood, Colorado 80226

## 1. INTRODUCTION

Task Order Title: NPDES Monitoring  
Contract Task Order #: 313150010  
SDG#: IOE1397  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Semivolatiles  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: July 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D 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 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	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE1397-01	water	625

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

#### 2.1.2 Chain of Custody

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

### 2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the sample was analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

### 2.3 CALIBRATION

The initial calibration associated with this SDG was dated 05/24/05. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for both target compounds listed on the sample summary form. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 05/25/05. The RRFs for both target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20\%$ . A representative number of RRFs,  $r^2$  values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.4 BLANKS

One method blank (5E21037-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no false negatives. No qualifications were required.

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (5E21037-BS1) was extracted and analyzed with this SDG. All percent recoveries were within the laboratory 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 sample surrogate recoveries 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.

## **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. 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 Field Blanks and Equipment Rinsates**

There were no field QC samples associated with this SDG. No qualifications were required.

### **2.8.2 Field Duplicates**

There were no field duplicate samples associated with this SDG. No qualifications were required.

## **2.9 INTERNAL STANDARDS PERFORMANCE**

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and  $\pm 30$  seconds for retention times. A representative number of 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 naphthalene and n-nitrosodimethylamine 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 level of the initial and the method detection limit study. 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9589  
 9630 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) 798-3020 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: IOE1397

Sampled: 05/20/05  
 Received: 05/20/05

**DRAFT: 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	QUAL CODE
Sample ID: IOE1397-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
Naphthalene	EPA 625	SE21037	4.5	10	13	0.976	05/21/05	05/25/05		
N-Nitrosodimethylamine	EPA 625	SE21037	3.7	20	ND	0.976	05/21/05	05/25/05	U	
Surrogate: 2-Fluorophenol (30-120%)					53 %					
Surrogate: Phenol-d6 (35-120%)					58 %					
Surrogate: 2,4,6-Tribromophenol (45-120%)					61 %					
Surrogate: Nitrobenzene-d5 (45-120%)					64 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					64 %					
Surrogate: Terphenyl-d14 (45-120%)					65 %					

**AMEC VALIDATED**

LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

*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.*

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 355 South Teller Street  
 Suite 300  
 Lakewood, CO 80226

Package ID T711TF74  
 Task Order 313150010  
 SDG No. IOE1397


No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method TFH/Extractable by Method 8015M

Date: July 6, 2005

Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
1. <b>Case Narrative Deficiencies</b>	  
2. <b>Out of Scope Analyses</b>	  
3. <b>Analyses Not Conducted</b>	  
4. <b>Missing Hardcopy Deliverables</b>	  
5. <b>Incorrect Hardcopy Deliverables</b>	  
6. <b>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

ANALYSIS: TPH/Extractable

SAMPLE DELIVERY GROUP: IOE1397

Prepared by

AMEC Denver Operations  
550 South Wadsworth Boulevard, Suite 500  
Lakewood, Colorado 80226

## 1. INTRODUCTION

Task Order Title: NPDES Monitoring  
Contract Task Order #: 313150010  
SDG#: IOE1397  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: July 6, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015B, and validation guidelines outlined in the USEPA *CLP 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	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE1397-01	water	8015B

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The 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 laboratory on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The Del Mar Analytical case narrative noted that the sample containers were received intact. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel, and accounted for the analysis presented in this SDG. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. The sample was analyzed correctly. As the site sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

#### 2.1.3 Holding Times

The sample was extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 CALIBRATION

The initial calibration associated with the sample analysis was analyzed on 04/01/05. The %RSD was within the QC limit of  $\leq 20\%$ . The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were  $\leq 15\%$ . The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

### 2.4 METHOD BLANKS

One method blank (5E21048-BLK1) was extracted and analyzed with the sample in this SDG. EFH (C13-C22) was not present above the MDL in the method blank or in the instrument blank analyzed at the beginning of the analytical sequence. Review of the chromatograms showed no false negatives. No qualifications were required.

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike/blank spike duplicate pair (5E21048-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%.



and the RPD was within the QC limit of  $\leq 25\%$ . The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC limits of 40-125%. 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

There were no MS/MSD analyses associated with the sample of this SDG. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

## 2.8 FIELD QC SAMPLES

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

### 2.9.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples associated with the site sample in this SDG. No qualifications were required.

### 2.9.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by EPA SW-846 Method 8015B. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detect, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. Results were reported in mg/L (ppm). No qualifications were required.



# Del Mar Analytical

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 9481 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8706 FAX (619) 505-9609  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0943 FAX (480) 785-0551  
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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: IOE1397

Sampled: 05/20/05  
 Received: 05/20/05

## DRAFT: 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: IOE1397-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E21043	0.082	0.50	0.59	0.971	05/21/05	05/21/05	val qual qual code
Surrogate: n-Octacosane (40-125%)					49 %				

**AMEC VALIDATED  
 LEVEL IV**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 355 South Teller Street  
 Suite 300  
 Lakewood, CO 80226

Package ID T711TF75  
 Task Order 313150010  
 SDG No. IOE1397

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method TFH/Purgeable by Method 8015M

Date: July 6, 2005
Reviewer's Signature <i>L. Calvin</i>

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	_____
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

ANALYSIS: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOE1397

Prepared by

AMEC Denver Operations  
550 South Wadsworth Boulevard, Suite 500  
Lakewood, Colorado 80226

## 1. INTRODUCTION

Task Order Title: NPDES Monitoring  
Contract Task Order #: 313150010  
SDG#: IOE1397  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: July 1, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP 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	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE1397-01	water	8015M/GRO
Trip Blank	Trip Blank	IOE1397-02	water	8015M/GRO

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

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

The samples in this SDG were received at Del Mar Analytical on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $6^{\circ}\text{C}$ . The Del Mar Analytical case narrative noted that the samples were received intact, and the COC indicated the samples were properly preserved. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. The sample was analyzed correctly. 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 CALIBRATION

One gasoline standard initial calibration dated 08/20/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) was within the QC limit of  $\leq 20\%$ . An initial calibration verification (ICV) was not provided in the data package. The %Ds for all CCVs bracketing the sample analyses were within the Method QC limit of  $\leq 15\%$ . The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

### 2.4 METHOD BLANKS

One water method blank (5E23004-BLK1) was associated with the sample analyses. GRO (C4-C12) was not detected above the MDL in the method blank. Review of the raw data indicated no false negative result. No qualifications were required.

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5E23004-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140%. The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC limits of 65-140%. 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 not performed on the site sample in this SDG. Evaluation of method accuracy was based on the blank spike results. No qualifications were required.

## 2.8 FIELD QC SAMPLES

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

### 2.9.1 Trip Blanks, Field Blanks, and Equipment Rinsates

Sample Trip Blank was the trip blank associated with site sample Outfall 012. GRO (C4-C12) was not detected above the MDL in the trip blank. Review of the raw data indicated no false negative result. There were no field blank or equipment rinsate samples associated with this SDG. No qualifications were required.

### 2.9.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for GRO (C4-C12) by Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the samples in this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detects, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. The results were reported in mg/L (ppm). No qualifications were required.





# 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: IOE1397

Sampled: 05/20/05  
 Received: 05/20/05

## DRAFT: 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
Sample ID: IOE1397-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E27034	0.050	0.10	1.5 71 %	1	05/27/05	05/27/05	new qual qual D code
Surrogate: 4-BFB (FID) (65-140%)									
Sample ID: IOE1397-02 (DRAFT: Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E27034	0.050	0.10	ND 74 %	1	05/27/05	05/27/05	u
Surrogate: 4-BFB (FID) (65-140%)									

**AMEC VALIDATED**  
**LEVEL IV**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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.

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 355 South Teller Street  
 Suite 300  
 Lakewood, CO 80226


Package ID T711VO113  
 Task Order 313150010  
 SDG No. IOE1397

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: July 8, 2005  
 Reviewer's Signature  


<b>ACTION ITEMS*</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. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and 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 Qualifier Reference Table

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

## Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.

\*#

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (\*) will indicate the subsection where a description of the problem can be found (eg. \*1 would indicate a sample was not within temperature limits).

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (\*) will indicate the subsection where a description of the problem can be found (eg. \*1 would indicate a sample was not within temperature limits).

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# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOE1397

Prepared by

AMEC—Denver Operations  
355 South Teller Street, Suite 300  
Lakewood, Colorado 80226

## 1. INTRODUCTION

Task Order Title: NPDES Monitoring  
Contract Task Order #: 313150010  
Sample Delivery Group #: IOE1397  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: July 8, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method SW-846 8260B* 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	EPA ID	Lab No. Del Mar, CA	Matrix	Method
Outfall 012	Outfall 012	IOE1397-01	water	8260B



## 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 Del Mar within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was subcontracted to Del Mar (Phoenix) for 1,4-dioxane analysis, and the sample was received within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was properly preserved. The COC and transfer COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by field and laboratory personnel. As the sample was couriered directly to the laboratory from the field, custody seals were not required. According to the transfer COC, there were no custody seals present on the cooler received by Del Mar Analytical in Arizona. No qualifications were required.

#### 2.1.3 Holding Times

The sample was analyzed within 14 days of collection. No qualifications were required.

### 2.2 GC/MS TUNING

The ion abundance windows were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 03/19/05, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the  $r^2$  value was  $\geq 0.995$ . The laboratory reported the continuing calibration and the blank spike (P5E2712-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer evaluated P5E2712-BS1 as the continuing calibration. The RRF for 1,4-dioxane was  $\geq 0.05$ ; and, the %D was  $\leq 20\%$ . The  $r^2$  value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

## 2.4 BLANKS

One water method blank (P5E2712-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected above the MDL in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5E2712-BS1/BS1D) with this SDG; however, P5E2712-BS1 was reported as the CCV (see section 2.3); therefore, P5E2712-BS1D was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the QC limits of 70-130%. The recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample and QC were fortified with dibromofluoromethane. The surrogate was recovered within the laboratory QC limits of 80-125%. The surrogate recovery for the sample was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy was based on blank spike results. 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

The sample in this SDG had no associated trip blank. No qualifications were required.

#### 2.8.1.1 Field Blanks and Equipment Rinsates

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

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the sample were within the control limits established by the continuing calibration standard: +100%/-50% for internal standard areas and  $\pm 0.50$  minutes for retention times. Internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 1,4-dioxane by Method 8260B/SIM. Chromatograms, retention times, and spectra for the sample and QC were examined and no target compound identification problems were noted. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limit was supported by the lowest concentration of the initial calibration standards and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

## 2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

## 2.13 SYSTEM PERFORMANCE

A review of the chromatograms and other raw data showed no identifiable problems with system performance. No qualifications were required.





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: 05/24/05  
Received: 05/24/05  
Issued: 07/15/05 16:08

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	CLIENT ID	MATRIX
IOE1590-01	Outfall 012	Water
IOE1590-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590	Sampled: 05/24/05 Received: 05/24/05
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**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: IOE1590-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5E25081	0.31	1.0	1.1	1	05/25/05	05/25/05	

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05

Received: 05/24/05

**EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOE1590-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E31021	0.082	0.50	0.22	0.971	05/31/05	05/31/05	J
Surrogate: n-Octacosane (40-125%)					59 %				

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05

Received: 05/24/05

**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: IOE1590-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E29007	0.050	0.10	<b>0.14</b>	1	05/29/05	05/30/05	
Surrogate: 4-BFB (FID) (65-140%)					82 %				
<b>Sample ID: IOE1590-02 (Trip Blank - Water)</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E25037	0.050	0.10	ND	1	05/25/05	05/25/05	
Surrogate: 4-BFB (FID) (65-140%)					71 %				

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05

Received: 05/24/05

**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: IOE1590-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E25015	0.32	2.0	ND	1	05/25/05	05/25/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E25015	0.32	5.0	ND	1	05/25/05	05/25/05	
1,2,3-Trichloropropane	EPA 624	5E25015	0.85	10	ND	1	05/25/05	05/25/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E25015	0.25	5.0	ND	1	05/25/05	05/25/05	
tert-Butanol (TBA)	EPA 624	5E25015	3.1	25	ND	1	05/25/05	05/25/05	
Surrogate: Dibromofluoromethane (80-120%)									103 %
Surrogate: Toluene-d8 (80-120%)									100 %
Surrogate: 4-Bromofluorobenzene (80-120%)									100 %
<b>Sample ID: IOE1590-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E25015	0.32	2.0	ND	1	05/25/05	05/25/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E25015	0.32	5.0	ND	1	05/25/05	05/25/05	
1,2,3-Trichloropropane	EPA 624	5E25015	0.85	10	ND	1	05/25/05	05/25/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E25015	0.25	5.0	ND	1	05/25/05	05/25/05	
tert-Butanol (TBA)	EPA 624	5E25015	3.1	25	ND	1	05/25/05	05/25/05	
Surrogate: Dibromofluoromethane (80-120%)									102 %
Surrogate: Toluene-d8 (80-120%)									99 %
Surrogate: 4-Bromofluorobenzene (80-120%)									99 %

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05  
Received: 05/24/05

**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: IOE1590-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Naphthalene	EPA 625	5E25047	4.5	10	8.7	0.99	05/25/05	06/01/05	J
N-Nitrosodimethylamine	EPA 625	5E25047	3.7	20	ND	0.99	05/25/05	06/01/05	
Surrogate: 2-Fluorophenol (30-120%)					53 %				
Surrogate: Phenol-d6 (35-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					71 %				
Surrogate: Nitrobenzene-d5 (45-120%)					68 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					71 %				
Surrogate: Terphenyl-d14 (45-120%)					83 %				

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300 North Lake Avenue, Suite 1200  
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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1590

Sampled: 05/24/05  
Received: 05/24/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOE1590-01 (Outfall 012 - Water) - cont.</b>									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E24106	0.30	0.50	<b>0.56</b>	1	05/24/05	05/24/05	
Biochemical Oxygen Demand	EPA 405.1	5E25056	0.59	2.0	<b>0.86</b>	1	05/25/05	05/30/05	J
Oil & Grease	EPA 413.1	5E26079	0.94	5.0	ND	1	05/26/05	05/26/05	
Total Dissolved Solids	SM2540C	5E24085	10	10	<b>260</b>	1	05/24/05	05/24/05	
Total Suspended Solids	EPA 160.2	5E27091	10	10	ND	1	05/27/05	05/27/05	
<b>Sample ID: IOE1590-01 (Outfall 012 - Water)</b>									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5E25060	0.10	0.10	ND	1	05/25/05	05/25/05	
<b>Sample ID: IOE1590-01 (Outfall 012 - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	5E25106	0.040	1.0	<b>25</b>	1	05/25/05	05/25/05	
<b>Sample ID: IOE1590-01 (Outfall 012 - Water)</b>									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5E29002	0.80	4.0	ND	1	05/29/05	05/29/05	

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Sampled: 05/24/05

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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
<b>Sample ID: IOE1590-01 (Outfall 012 - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
I,4-Dioxane	EPA 8260B	P5F0311	0.49	1.0	ND	1	06/02/05	06/02/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					98 %				

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Report Number: IOE1590

Sampled: 05/24/05  
Received: 05/24/05

**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 012 (IOE1590-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	05/24/2005 14:13	05/24/2005 18:40	05/25/2005 09:39	05/25/2005 11:00
EPA 180.1	2	05/24/2005 14:13	05/24/2005 18:40	05/25/2005 15:00	05/25/2005 16:00
EPA 405.1	2	05/24/2005 14:13	05/24/2005 18:40	05/25/2005 11:22	05/30/2005 12:00

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**METHOD BLANK/QC DATA**

**TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E25081 Extracted: 05/25/05</b>										
<b>Blank Analyzed: 05/25/2005 (5E25081-BLK1)</b>										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
<b>LCS Analyzed: 05/25/2005 (5E25081-BS1)</b>										
Total Recoverable Hydrocarbons	4.77	1.0	0.31	mg/l	5.00		95 65-120			M-NRI
<b>LCS Dup Analyzed: 05/25/2005 (5E25081-BSD1)</b>										
Total Recoverable Hydrocarbons	4.54	1.0	0.31	mg/l	5.00		91 65-120	5	20	

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 Received: 05/24/05

**METHOD BLANK/QC DATA**
**EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E31021 Extracted: 05/31/05</b>										
<b>Blank Analyzed: 05/31/2005 (5E31021-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: <i>n-Octacosane</i>	0.115			mg/l	0.200		58 40-125			
<b>LCS Analyzed: 05/31/2005 (5E31021-BS1)</b>										
EFH (C13 - C40)	0.469	0.50	0.082	mg/l	0.775		61 40-120			J
Surrogate: <i>n-Octacosane</i>	0.132			mg/l	0.200		66 40-125			
<b>Matrix Spike Analyzed: 05/31/2005 (5E31021-MS1) Source: IOE1640-08</b>										
EFH (C13 - C40)	0.464	0.50	0.082	mg/l	0.752	ND	62 40-120			J
Surrogate: <i>n-Octacosane</i>	0.117			mg/l	0.194		60 40-125			
<b>Matrix Spike Dup Analyzed: 05/31/2005 (5E31021-MSD1) Source: IOE1640-08</b>										
EFH (C13 - C40)	0.447	0.50	0.082	mg/l	0.745	ND	60 40-120	4	30	J
Surrogate: <i>n-Octacosane</i>	0.116			mg/l	0.192		60 40-125			

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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: 5E25037 Extracted: 05/25/05</b>										
<b>Blank Analyzed: 05/25/2005 (5E25037-BLK1)</b>										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00809			mg/l	0.0100		81 65-140			
<b>LCS Analyzed: 05/25/2005 (5E25037-BS1)</b>										
GRO (C4 - C12)	0.668	0.10	0.050	mg/l	0.800		84 70-140			
Surrogate: 4-BFB (FID)	0.0259			mg/l	0.0300		86 65-140			
<b>Matrix Spike Analyzed: 05/25/2005 (5E25037-MS1) Source: IOE1167-02</b>										
GRO (C4 - C12)	0.220	0.10	0.050	mg/l	0.220	ND	100 60-140			
Surrogate: 4-BFB (FID)	0.00937			mg/l	0.0100		94 65-140			
<b>Matrix Spike Dup Analyzed: 05/25/2005 (5E25037-MSD1) Source: IOE1167-02</b>										
GRO (C4 - C12)	0.230	0.10	0.050	mg/l	0.220	ND	105 60-140	4	20	
Surrogate: 4-BFB (FID)	0.00879			mg/l	0.0100		88 65-140			
<b>Batch: 5E29007 Extracted: 05/29/05</b>										
<b>Blank Analyzed: 05/29/2005 (5E29007-BLK1)</b>										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00824			mg/l	0.0100		82 65-140			
<b>LCS Analyzed: 05/29/2005 (5E29007-BS1)</b>										
GRO (C4 - C12)	0.721	0.10	0.050	mg/l	0.800		90 70-140			
Surrogate: 4-BFB (FID)	0.0280			mg/l	0.0300		93 65-140			
<b>Matrix Spike Analyzed: 05/30/2005 (5E29007-MS1) Source: IOE1587-05</b>										
GRO (C4 - C12)	0.209	0.10	0.050	mg/l	0.220	ND	95 60-140			
Surrogate: 4-BFB (FID)	0.00847			mg/l	0.0100		85 65-140			

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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	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E29007 Extracted: 05/29/05</b>											
<b>Matrix Spike Dup Analyzed: 05/30/2005 (5E29007-MSD1)</b>						<b>Source: IOE1587-05</b>					
GRO (C4 - C12)	0.205	0.10	0.050	mg/l	0.220	ND	93	60-140	2	20	
Surrogate: 4-BFB (FID)	0.00846			mg/l	0.0100		85	65-140			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E25015 Extracted: 05/25/05</b>										
<b>Blank Analyzed: 05/25/2005 (5E25015-BLK1)</b>										
I,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	0.85	ug/l						
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l						
tert-Butanol (TBA)	ND	25	3.1	ug/l						
Surrogate: Dibromofluoromethane	24.4			ug/l	25.0		98	80-120		
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120		
Surrogate: 4-Bromofluorobenzene	23.9			ug/l	25.0		96	80-120		
<b>LCS Analyzed: 05/25/2005 (5E25015-BS1)</b>										
I,2-Dibromoethane (EDB)	23.7	2.0	0.32	ug/l	25.0		95	70-125		
Methyl-tert-butyl Ether (MTBE)	21.9	5.0	0.32	ug/l	25.0		88	55-140		
1,2,3-Trichloropropane	19.8	10	0.85	ug/l	25.0		79	55-130		
Di-isopropyl Ether (DIPE)	21.9	5.0	0.25	ug/l	25.0		88	60-135		
tert-Butanol (TBA)	117	25	3.1	ug/l	125		94	65-135		
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	26.3			ug/l	25.0		105	80-120		
<b>Matrix Spike Analyzed: 05/25/2005 (5E25015-MS1)</b>					<b>Source: IOE1590-01</b>					
I,2-Dibromoethane (EDB)	25.6	2.0	0.32	ug/l	25.0	ND	102	65-130		
Methyl-tert-butyl Ether (MTBE)	25.0	5.0	0.32	ug/l	25.0	ND	100	50-150		
1,2,3-Trichloropropane	22.7	10	0.85	ug/l	25.0	ND	91	50-135		
Di-isopropyl Ether (DIPE)	22.1	5.0	0.25	ug/l	25.0	ND	88	60-140		
tert-Butanol (TBA)	121	25	3.1	ug/l	125	ND	97	60-145		
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120		
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120		
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	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: 5E25015 Extracted: 05/25/05</b>											
<b>Matrix Spike Dup Analyzed: 05/25/2005 (5E25015-MSD1)</b>						<b>Source: IOE1590-01</b>					
1,2-Dibromoethane (EDB)	22.9	2.0	0.32	ug/l	25.0	ND	92	65-130	11	25	
Methyl-tert-butyl Ether (MTBE)	21.1	5.0	0.32	ug/l	25.0	ND	84	50-150	17	25	
1,2,3-Trichloropropane	18.5	10	0.85	ug/l	25.0	ND	74	50-135	20	30	
Di-isopropyl Ether (DIPE)	21.8	5.0	0.25	ug/l	25.0	ND	87	60-140	1	25	
tert-Butanol (TBA)	129	25	3.1	ug/l	125	ND	103	60-145	6	25	
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.6			ug/l	25.0		102	80-120			

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**METHOD BLANK/QC DATA**
**ACID & BASE/NEUTRALS BY GC/MS (EPA 625)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5E25047 Extracted: 05/25/05</b>										
<b>Blank Analyzed: 05/31/2005 (5E25047-BLK1)</b>										
Naphthalene	ND	10	4.5	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	108			ug/l	200		54 30-120			
Surrogate: Phenol-d6	134			ug/l	200		67 35-120			
Surrogate: 2,4,6-Tribromophenol	147			ug/l	200		74 45-120			
Surrogate: Nitrobenzene-d5	66.6			ug/l	100		67 45-120			
Surrogate: 2-Fluorobiphenyl	75.0			ug/l	100		75 45-120			
Surrogate: Terphenyl-d14	93.9			ug/l	100		94 45-120			
<b>LCS Analyzed: 05/31/2005 (5E25047-BS1)</b>										
Naphthalene	79.0	10	4.5	ug/l	100		79 50-120			<b>M-NRI</b>
N-Nitrosodimethylamine	53.6	20	3.7	ug/l	100		54 40-120			
Surrogate: 2-Fluorophenol	119			ug/l	200		60 30-120			
Surrogate: Phenol-d6	138			ug/l	200		69 35-120			
Surrogate: 2,4,6-Tribromophenol	146			ug/l	200		73 45-120			
Surrogate: Nitrobenzene-d5	72.3			ug/l	100		72 45-120			
Surrogate: 2-Fluorobiphenyl	78.1			ug/l	100		78 45-120			
Surrogate: Terphenyl-d14	100			ug/l	100		100 45-120			
<b>LCS Dup Analyzed: 05/31/2005 (5E25047-BSD1)</b>										
Naphthalene	77.1	10	4.5	ug/l	100		77 50-120	2	20	
N-Nitrosodimethylamine	53.2	20	3.7	ug/l	100		53 40-120	1	20	
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	152			ug/l	200		76 45-120			
Surrogate: Nitrobenzene-d5	70.2			ug/l	100		70 45-120			
Surrogate: 2-Fluorobiphenyl	75.6			ug/l	100		76 45-120			
Surrogate: Terphenyl-d14	102			ug/l	100		102 45-120			

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Received: 05/24/05

**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: 5E24085 Extracted: 05/24/05</b>										
<b>Blank Analyzed: 05/24/2005 (5E24085-BLK1)</b>										
Total Dissolved Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 05/24/2005 (5E24085-BS1)</b>										
Total Dissolved Solids	1020	10	10	mg/l	1000		102 90-110			
<b>Duplicate Analyzed: 05/24/2005 (5E24085-DUP1)</b>										
						<b>Source: IOE1586-05</b>				
Total Dissolved Solids	553	10	10	mg/l		560		1	10	
<b>Batch: 5E24106 Extracted: 05/24/05</b>										
<b>Blank Analyzed: 05/24/2005 (5E24106-BLK1)</b>										
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l						
<b>LCS Analyzed: 05/24/2005 (5E24106-BS1)</b>										
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0		101 80-115			
<b>Matrix Spike Analyzed: 05/24/2005 (5E24106-MS1)</b>										
						<b>Source: IOE1397-01</b>				
Ammonia-N (Distilled)	12.3	0.50	0.30	mg/l	10.0	1.7	106 70-120			
<b>Matrix Spike Dup Analyzed: 05/24/2005 (5E24106-MSD1)</b>										
						<b>Source: IOE1397-01</b>				
Ammonia-N (Distilled)	12.0	0.50	0.30	mg/l	10.0	1.7	103 70-120	2	15	
<b>Batch: 5E25056 Extracted: 05/25/05</b>										
<b>Blank Analyzed: 05/30/2005 (5E25056-BLK1)</b>										
Biochemical Oxygen Demand	ND	2.0	0.59	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: 5E25056 Extracted: 05/25/05</b>											
<b>LCS Analyzed: 05/30/2005 (5E25056-BS1)</b>											
Biochemical Oxygen Demand	210	100	30	mg/l	198		106	85-115			
<b>LCS Dup Analyzed: 05/30/2005 (5E25056-BSD1)</b>											
Biochemical Oxygen Demand	211	100	30	mg/l	198		107	85-115	1	20	
<b>Batch: 5E25106 Extracted: 05/25/05</b>											
<b>Blank Analyzed: 05/25/2005 (5E25106-BLK1)</b>											
Turbidity	0.0600	1.0	0.040	NTU							J
<b>Duplicate Analyzed: 05/25/2005 (5E25106-DUP1)</b>											
Turbidity	0.690	1.0	0.040	NTU		Source: IOE1596-01	0.63		9	20	J
<b>Batch: 5E26079 Extracted: 05/26/05</b>											
<b>Blank Analyzed: 05/26/2005 (5E26079-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 05/26/2005 (5E26079-BS1)</b>											
Oil & Grease	17.0	5.0	0.94	mg/l	20.0		85	65-120			M-NR1
<b>LCS Dup Analyzed: 05/26/2005 (5E26079-BSD1)</b>											
Oil & Grease	19.2	5.0	0.94	mg/l	20.0		96	65-120	12	20	
<b>Batch: 5E27091 Extracted: 05/27/05</b>											
<b>Blank Analyzed: 05/27/2005 (5E27091-BLK1)</b>											
Total Suspended 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	RPD Limit	Data Qualifiers
<b>Batch: 5E27091 Extracted: 05/27/05</b>										
<b>LCS Analyzed: 05/27/2005 (5E27091-BS1)</b>										
Total Suspended Solids	1010	10	10	mg/l	1000		101 85-115			
<b>Duplicate Analyzed: 05/27/2005 (5E27091-DUP1)</b>										
Total Suspended Solids	15.0	10	10	mg/l		Source: IOE1523-01 17		12	10	R-4
<b>Batch: 5E29002 Extracted: 05/29/05</b>										
<b>Blank Analyzed: 05/29/2005 (5E29002-BLK1)</b>										
Perchlorate	ND	4.0	0.80	ug/l						
<b>LCS Analyzed: 05/29/2005 (5E29002-BS1)</b>										
Perchlorate	45.6	4.0	0.80	ug/l	50.0		91 85-115			
<b>Matrix Spike Analyzed: 05/29/2005 (5E29002-MS1)</b>										
Perchlorate	46.7	4.0	0.80	ug/l	50.0	Source: IOE1494-01 ND	93 80-120			
<b>Matrix Spike Dup Analyzed: 05/29/2005 (5E29002-MSD1)</b>										
Perchlorate	47.3	4.0	0.80	ug/l	50.0	Source: IOE1494-01 ND	95 80-120	1	20	

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05  
Received: 05/24/05

**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: P5F0311 Extracted: 06/02/05</b>											
<b>Blank Analyzed: 06/02/2005 (P5F0311-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			
<b>LCS Analyzed: 06/02/2005 (P5F0311-BS1)</b>											
1,4-Dioxane	10.9	1.0	0.49	ug/l	10.0		109	70-130			
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			
<b>LCS Dup Analyzed: 06/02/2005 (P5F0311-BSD1)</b>											
1,4-Dioxane	10.4	1.0	0.49	ug/l	10.0		104	70-130	5	20	
Surrogate: Dibromofluoromethane	0.990			ug/l	1.00		99	80-125			
<b>Matrix Spike Analyzed: 06/02/2005 (P5F0311-MS1) Source: POF0007-04</b>											
1,4-Dioxane	89.0	1.0	0.49	ug/l	10.0	57	320	70-150			M-HA
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 06/02/2005 (P5F0311-MSD1) Source: POF0007-04</b>											
1,4-Dioxane	99.1	1.0	0.49	ug/l	10.0	57	421	70-150	11	25	M-HA
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			

Del Mar Analytical, Irvine  
Michele Harper  
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: IOE1590

Sampled: 05/24/05  
Received: 05/24/05

### 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-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- M-NRI** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- R-4** Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- 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.

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1590

Sampled: 05/24/05  
 Received: 05/24/05

### 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
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.dmalabs.com](http://www.dmalabs.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: IOE1590-01

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager



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) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IOE1590

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 Harper	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: IOE1590-01 Water      Sampled: 05/24/05 14:13</b>			
Dioxane-8260B-out	06/07/05 14:13	06/03/05 12:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
Level 4 Data Package - Out	06/21/05 14:13	06/03/05 12:00	Boeing
<b>Containers Supplied:</b>			<i>POE0715-01</i>
40 ml VOA w/HCL (IOE1590-01H)			
40 ml VOA w/HCL (IOE1590-01I)			
40 ml VOA w/HCL (IOE1590-01J)			

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
Custody Seals Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Samples Received On Ice::	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Samples Received at (temp):	<u>4.0°C</u>

<i>[Signature]</i>	<i>5/25/05</i>	<i>17:00</i>	<i>[Signature]</i>	<i>5/26/05</i>	<i>ES</i>
Released By	Date	Time	Received By	Date	Time
<i>FEDER</i>	<i>5/26/05</i>		<i>[Signature]</i>	<i>5/26/05</i>	<i>09:20</i>
Released By	Date	Time	Received By	Date	Time

1061590

**CHAIN OF CUSTODY FORM**

Del Mar Analytical Version 02/17/05

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		Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec. Petroleum Hydrocarbons (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) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Temp = 76.6	pH = 7.1		
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec. Petroleum Hydrocarbons (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) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Comments	
Outfall 012	W	1L Amber	1	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: 5-24-05 1440	Received By	Date/Time: 5/24/05 1440
Relinquished By	Date/Time: 5/24/05 1840	Received By	Date/Time: 5/24/05 1840
Relinquished By	Date/Time:	Received By	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)	Intact	On ice	10°C			



QA/QC DATA PACKAGE: LEVEL IV



QA/QC DATA PACKAGE LEVEL IV

TABLE SUMMARY

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LABORATORY REPORT

Prepared For: Del Mar Analytical - Irvine  
17461 Derian Ave. Suite 100  
Irvine, CA 92614  
Attention: Michele Harper

Project: IOE1590

Sampled: 05/24/05  
Received: 05/26/05  
Issued: 06/06/05 16:54

NELAP #01109CA California ELAP#2446

*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.*

CASE NARRATIVE

LABORATORY ID	CLIENT ID	MATRIX
POE0715-01	IOE1590-01	Water

SAMPLE RECEIPT: Samples were received intact, at 4°C, on ice and with chain of custody documentation.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: Results that fall between the MDL and RL are 'J' flagged.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

Reviewed By:

Del Mar Analytical - Phoenix  
Karen Maxwell  
Project Manager



QA/QC DATA PACKAGE: LEVEL IV

CHAIN OF CUSTODY FORMS





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 # IOE1590

**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 Harper

**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: IOE1590-01 Water      Sampled: 05/24/05 14:13</b>			
Dioxane-8260B-out	06/07/05 14:13	06/03/05 12:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
Level 4 Data Package - Out	06/21/05 14:13	06/03/05 12:00	Boeing
<b>Containers Supplied:</b>			<i>POE0715-01</i>
40 ml VOA w/HCL (IOE1590-01H)			
40 ml VOA w/HCL (IOE1590-01I)			
40 ml VOA w/HCL (IOE1590-01J)			

**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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>4.0°C</u>

Released By: [Signature] Date: 5/25/05 Time: 17:00 Received By: [Signature] Date: 5/26/05 Time: 09:20

Released By: FEDEC Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: [Signature] Date: 5/26/05 Time: 09:20



QC DATA PACKAGE: LEVEL IV

ANALYTICAL REPORTS

Del Mar Analytical - Irvine  
 17461 Derian Ave. Suite 100  
 Irvine, CA 92614  
 Attention: Michele Harper

Project ID: IOE1590

Report Number: POE0715

Sampled: 05/24/05  
 Received: 05/26/05

### 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
<b>Sample ID: POE0715-01 (IOE1590-01 - Water)</b>									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5F0311	0.49	1.0	ND	1	06/02/05	06/02/05	
Surrogate: Dibromofluoromethane (80-125%)					98 %				

**Del Mar Analytical - Phoenix**  
 Karen Maxwell  
 Project Manager



QA/QC DATA PACKAGE: LEVEL IV

QUALITY CONTROL SUMMARIES



Del Mar Analytical - Irvine  
 17461 Derian Ave. Suite 100  
 Irvine, CA 92614  
 Attention: Michele Harper

Project ID: IOE1590  
 Report Number: POE0715

Sampled: 05/24/05  
 Received: 05/26/05

## 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	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: P5F0311 Extracted: 06/02/05</b>											
<b>Blank Analyzed: 06/02/2005 (P5F0311-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			
<b>LCS Analyzed: 06/02/2005 (P5F0311-BS1)</b>											
1,4-Dioxane	10.9	1.0	0.49	ug/l	10.0		109	70-130			
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			
<b>LCS Dup Analyzed: 06/02/2005 (P5F0311-BSD1)</b>											
1,4-Dioxane	10.4	1.0	0.49	ug/l	10.0		104	70-130	5	20	
Surrogate: Dibromofluoromethane	0.990			ug/l	1.00		99	80-125			
<b>Matrix Spike Analyzed: 06/02/2005 (P5F0311-MS1) Source: POF0007-04</b>											
1,4-Dioxane	89.0	1.0	0.49	ug/l	10.0	57	320	70-150			M-HA
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 06/02/2005 (P5F0311-MSD1) Source: POF0007-04</b>											
1,4-Dioxane	99.1	1.0	0.49	ug/l	10.0	57	421	70-150	11	25	M-HA
Surrogate: Dibromofluoromethane	0.970			ug/l	1.00		97	80-125			

Del Mar Analytical - Phoenix  
 Karen Maxwell  
 Project Manager



Del Mar Analytical - Irvine  
17461 Derian Ave. Suite 100  
Irvine, CA 92614  
Attention: Michele Harper

Project ID: IOE1590

Report Number: POE0715

Sampled: 05/24/05  
Received: 05/26/05

## DATA QUALIFIERS AND DEFINITIONS

- M-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

**Del Mar Analytical - Phoenix**  
Karen Maxwell  
Project Manager



Del Mar Analytical - Irvine  
 17461 Derian Ave. Suite 100  
 Irvine, CA 92614  
 Attention: Michele Harper

Project ID: IOE1590

Report Number: POE0715

Sampled: 05/24/05  
 Received: 05/26/05

## Certification Summary

### Del Mar Analytical - Phoenix

Method	Matrix	Nelac	California
EPA 8260B	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.dmalabs.com](http://www.dmalabs.com).*

**Del Mar Analytical - Phoenix**  
 Karen Maxwell  
 Project Manager



QA/QC DATA PACKAGE: LEVEL IV

**EPA METHOD 8260B LABORATORY RAW DATA**

GCMS TUNING  
INITIAL/DAILY CALIBRATION  
RUNLOG  
CONTINUING CALBRATION  
QUANTITATION REPORTS  
CHROMATOGRAMS  
EXTRACTION LOG  
STANDARD LOG



CMS #: 1

Date Analyzed: 3/19/05

ANALYST  
REVIEW

METHOD CRITERIA

PEER  
REVIEW

1. Sequence File is printed and in the file folder?  
Standard IDs and analyst's initials are present?
2. Initial Calibration met criteria?
  - a. Print calibration as Average Response Factor  
(624: RSD ≤ 35%)  
(8260B: ≤ 30% for CCCs, ≤ 15% for all other compounds, SPCCs met Criteria)  
(524.2: RSD ≤ 20%)
  - b. If non CCC RSD > 15%, print out the curve as Linear Regression  
 $r \geq 0.995$  or  $r^2 \geq 0.99$  (do not force through zero for 8260B)
  - c. If non CCC RSD > 15%, print out the curve as Quadratic  
 $r \geq 0.995$  or  $r^2 \geq 0.99$  (do not force through zero for 8260B)
  - d. Choose option (b or c) with the least negative intercept
  - e. Requant the low (RL) standard against the curve  
must be ± 30%, file with the calibration for reference
  - f. If samples contain negative values then:  
compare the area counts with the low standard on file  
if <, then report as N.D. with no flag  
if >, then report from RSD curve and flag that curve is out  
or report at an elevated RL as compared to a curve standard
3. Initial Midpoint / LCS / BFB Tune  
(624: use Table 5) (524.2: ±30%) (8260B: see control chart)  
SPCCs met criteria? CCCs met criteria (±20%)?
4. Checked integration of all peaks in Midpoint?
5. Method Blank < Report Limit, if not is data flagged?  
(624: every 20 samples) (524.2: every 12 hours) (8260B: every 12 hours)
6. MS/MSD (every 20 samples)  
(624: use Table 5) (524.2: N/A) (8260B: see Control Chart)
7. All samples met holding time? (Soil 72hr ext, 7/14days water)
8. All water samples checked to be pH < 2? (Note this on the sequence file)
9. LCS every 20 samples  
(624: See Table 5) (524.2: ±30%) (8260B: See Control Chart)
10. Cont. Midpoint / LCS / BFB Tune done every 12 hours  
(624: use Table 5) (524.2: ±30%) (8260B: see control chart)  
SPCCs met criteria? CCCs met criteria (±20%)?
11. Surrogates within acceptance limits  
(624 / 524.2 / 8260B: See Control Chart)
12. Internal Standards within acceptance limits  
(624 / 524.2 / 8260B: response must be -50 to +100%)
13. Manual re-integration(s) performed?  
yes: \_\_\_\_\_ no: \_\_\_\_\_
14. Corrective Action Report required?  
yes: \_\_\_\_\_ (Attached) no: \_\_\_\_\_
15. Reports impacted by the Corrective Action Report

Analyst: J. Galassi 3/21/05

Reviewer / Date: [Signature] 3/22/05

# DMAP GC/MS 1 DAILY LOG SUMMARY

CAL CURVE

DATE: 3/19/05

QC BATCH # (s):

2501902J63/21/05

ANALYST: JY/MS

SEQUENCE FILE: C:\GCMS1\DATA\

CALIBRATION METHOD(S): DX021605.M / W072903.M

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
✓	P0319001	TUNE	1ul	NA	82100	H2O	
1	2	CCV	1x10ul				
2	3	LCS DUP					-DNV IS LOW
3	4	LCS DUP					-DNV IS LOW -> Repl + KAP
✓	5	TUNE					
1	6	CCV					-DNV, IS's still low ↓ will re-calibrate
2	7	CCV					
3	8	Blank					
4	9	1.0 ppb Cal					DNV's Grubby Pk outlier Re-run
5	10	2.0					
6	11	5.0					
7	12	10.0					
8	13	20.0					
9	14	50.0					
10	15	100.0					
11	16	clean blank / Tune					
12	17	MCCTV Blank					
13	18	1.0 ppb Cal					
14	19	SS/CCV					

~~WAS 3/14/05~~

**STANDARD ID NUMBERS**

CCV / H<sub>2</sub>O LCS / H<sub>2</sub>O SPIKE: 5030018

353.  
Internal Std: 5030259 3/3/21/05

CALIBRATION STD: 5030348 / 5030349

IS / Surrogate / BFB: 5030321

REVIEWER / DATE: [Signature]

tune / 5030090

# Injection Log

Directory: D:\HPCHEM\1\DATA\031905

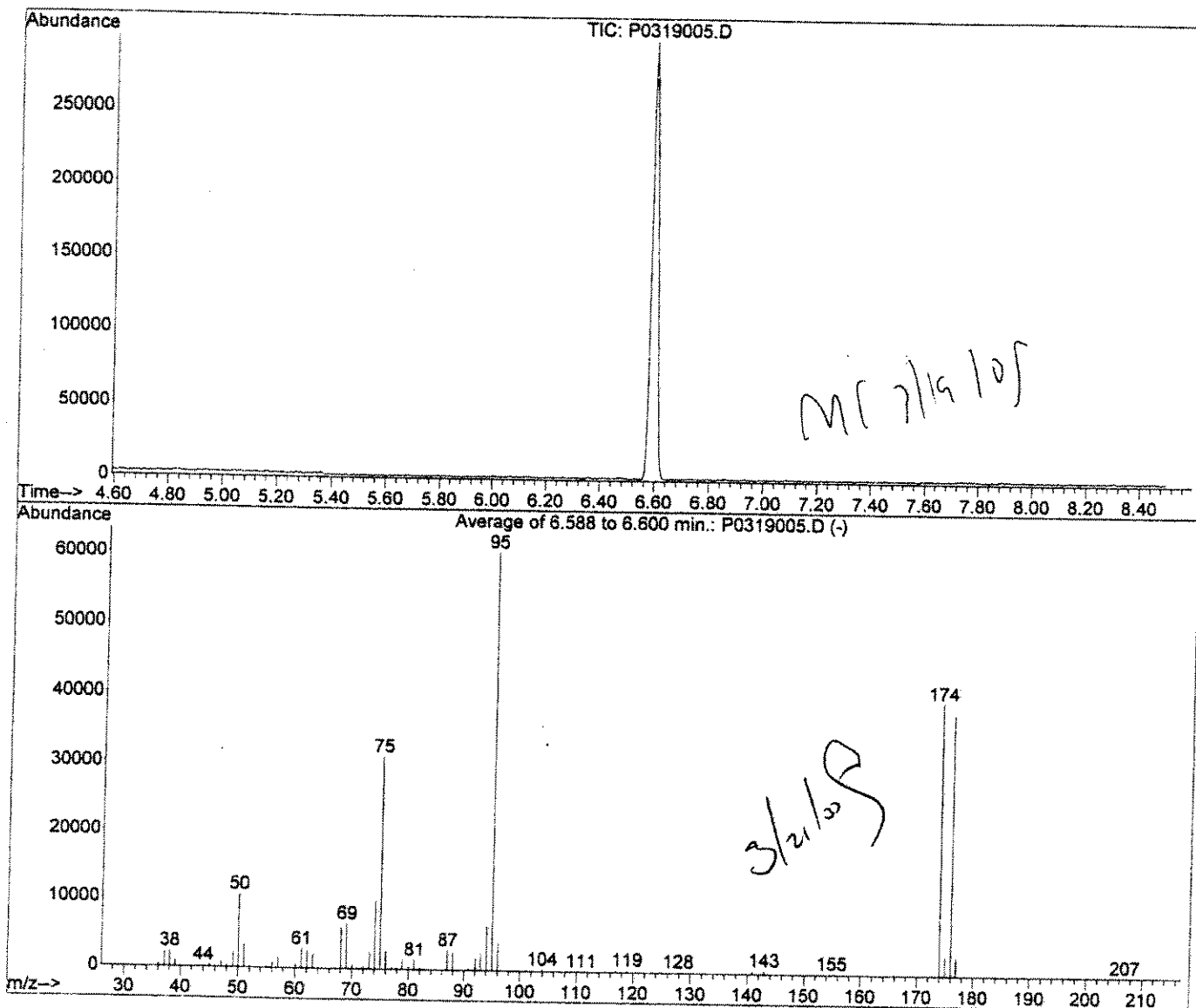
Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0319001.D	1.	<del>TUNE/BLANK</del>	1X 10ML	19 Mar 2005 06:19
2	2	P0319002.D	1.	CCV	1X 10ML	19 Mar 2005 06:32
3	3	P0319003.D	1.	LCS DUP	1X 10ML	19 Mar 2005 07:08
4	4	P0319004.D	1.	<del>LCS DUP</del> DNU	1X 10ML	19 Mar 2005 07:44
5	5	P0319005.D	1.	TUNE	1X 10ML	19 Mar 2005 08:39
6	6	P0319006.D	1.	CCV	1X 10ML	19 Mar 2005 09:07
7	7	P0319007.D	1.	<del>CCV</del> DNU	1X 10ML	19 Mar 2005 09:39
8	8	P0319008.D	1.	BLANK	1X 10ML	19 Mar 2005 10:12
9	9	P0319009.D	1.	<del>1.0 PPB CAL</del> DNU	1X 10ML	19 Mar 2005 10:54
10	10	P0319010.D	1.	2.0 PPB CAL	1X 10ML	19 Mar 2005 11:26
11	11	P0319011.D	1.	5.0 PPB CAL	1X 10ML	19 Mar 2005 11:59
12	12	P0319012.D	1.	10.0 PPB CAL	1X 10ML	19 Mar 2005 12:32
13	13	P0319013.D	1.	20.0 PPB CAL	1X 10ML	19 Mar 2005 13:05
14	14	P0319014.D	1.	50.0 PPB CAL	1X 10ML	19 Mar 2005 13:38
15	15	P0319015.D	1.	100.0 PPB CAL	1X 10ML	19 Mar 2005 14:11
16	16	P0319016.D	1.	<del>CLEAN OUT BLANK/TUNE</del> DNU	1X 10ML	19 Mar 2005 14:44
17	17	P0319017.D	1.	BLANK	1X 10ML	19 Mar 2005 15:21
18	18	P0319018.D	1.	1.0 PPB CAL	1X 10ML	19 Mar 2005 15:54
19	19	P0319019.D	1.	SS/CCV	1X 10ML	19 Mar 2005 16:27

3/21/05  
JH

BFB

Data File : D:\HPCHEM\1\DATA\031905\P0319005.D  
Acq On : 19 Mar 2005 8:39 am  
Sample : TUNE  
Misc : 1X 10ML  
MS Integration Params: DIOXANE.P  
Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)  
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)

Vial: 5  
Operator: JG/MS/CLS  
Inst : GCMS1  
Multiplr: 1.00



AutoFind: Scans 411, 412, 413; Background Corrected with Scan 395

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.5	10615	PASS
75	95	30	60	51.3	31037	PASS
95	95	100	100	100.0	60549	PASS
96	95	5	9	6.6	3996	PASS
173	174	0.00	2	0.6	226	PASS
174	95	50	100	65.5	39648	PASS
175	174	5	9	6.9	2752	PASS
176	174	95	101	96.0	38059	PASS
177	176	5	9	6.9	2638	PASS

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\PO319008.D  
 Acq On : 19 Mar 2005 10:12 am  
 Sample : BLANK  
 Misc : 1X 10ML  
 MS Integration Params: DIOXANE.P  
 Quant Time: Mar 19 10:34 2005

Vial: 8  
 Operator: JG/MS/CLS  
 Inst : GCMS1  
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)  
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)  
 Last Update : Wed Feb 16 15:53:54 2005  
 Response via : Initial Calibration  
 DataAcq Meth : DX021605

*MT 3/19/05*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	46878	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6171	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0 <sub>NT</sub>	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 37890 1.05 ug/L 0.00  
 Spiked Amount 1.000 Range 80 - 120 Recovery = 105.00% ✓

Target Compounds

4) 1,4-DIOXANE 12.45 88 278 0.23 ug/L Qvalue  
*ND* 92

*3/21/05*

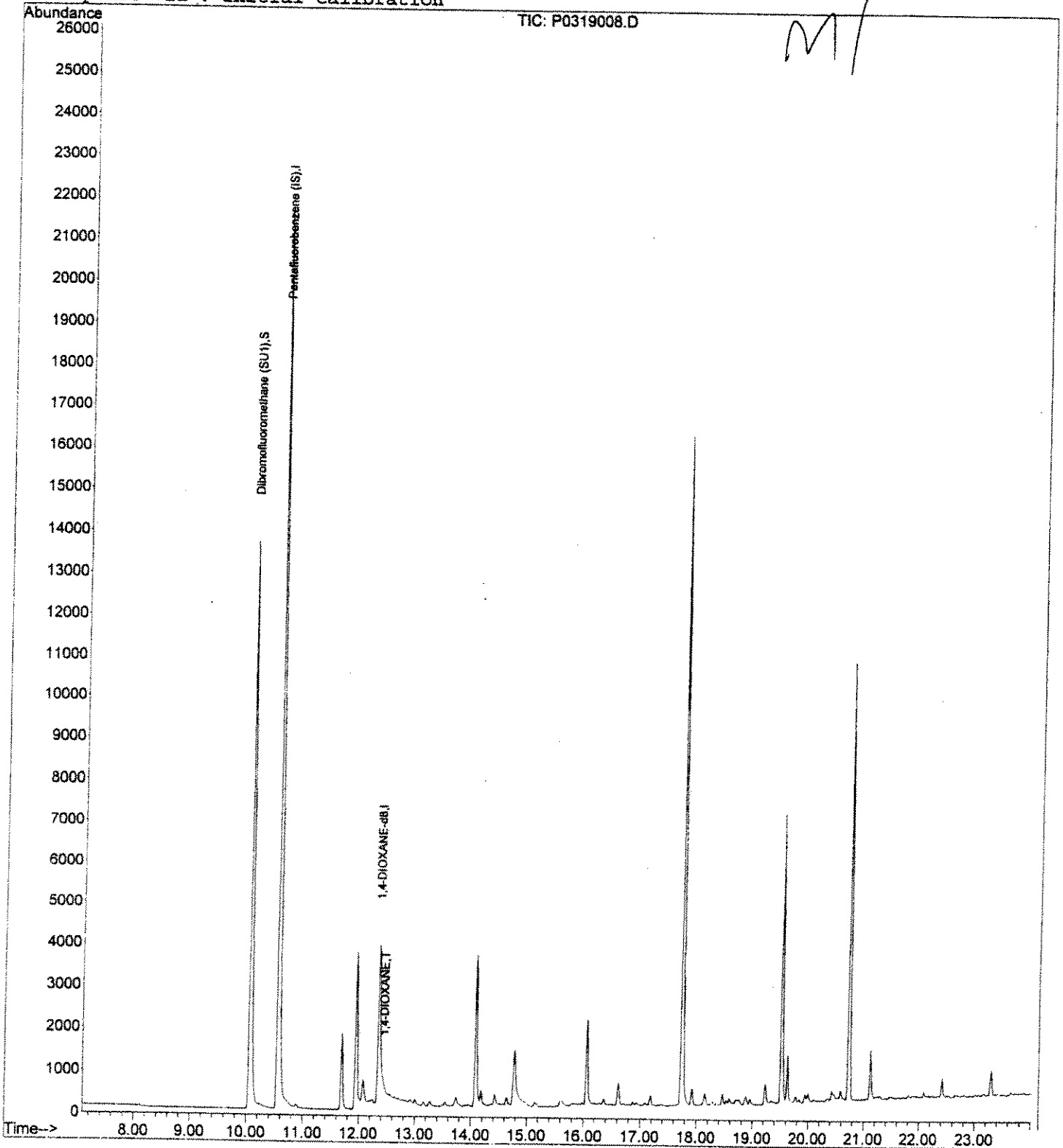
Quantitation Report

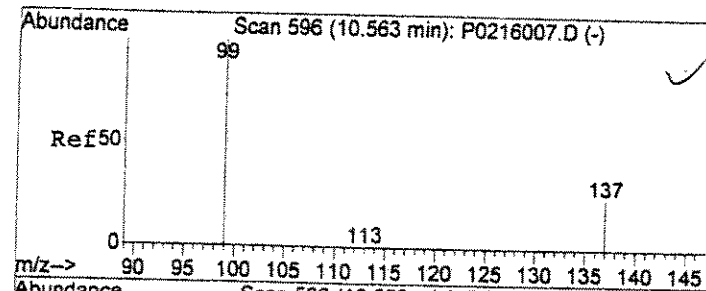
Data File : D:\HPCHEM\1\DATA\031905\P0319008.D  
Acq On : 19 Mar 2005 10:12 am  
Sample : BLANK  
Misc : 1X 10ML  
MS Integration Params: DIOXANE.P  
Quant Time: Mar 19 10:34 2005

Vial: 8  
Operator: JG/MS/CLS  
Inst : GCMS1  
Multiplr: 1.00

Quant Results File: DX021605.RES

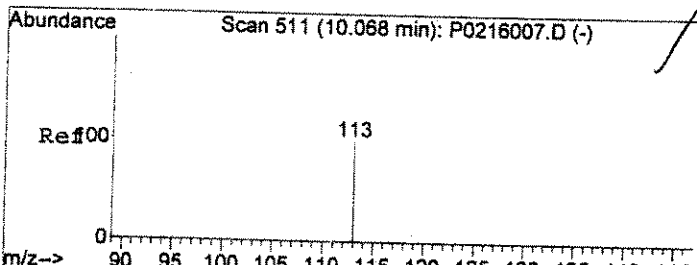
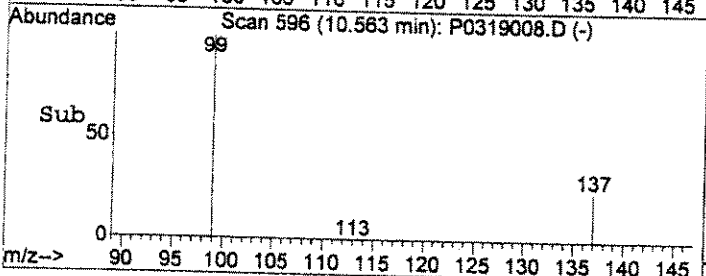
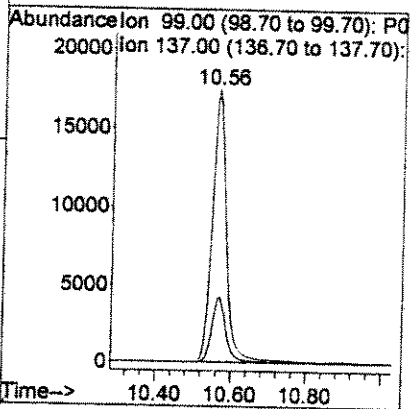
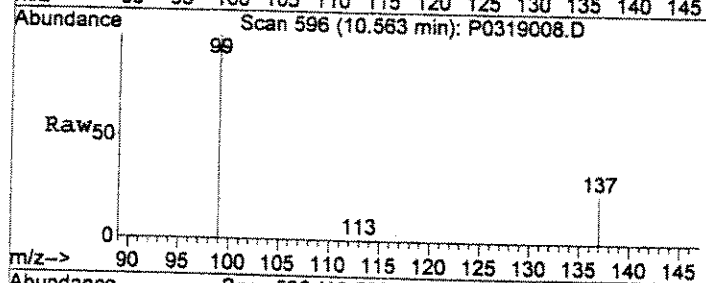
Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)  
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)  
Last Update : Wed Feb 16 15:53:54 2005  
Response via : Initial Calibration





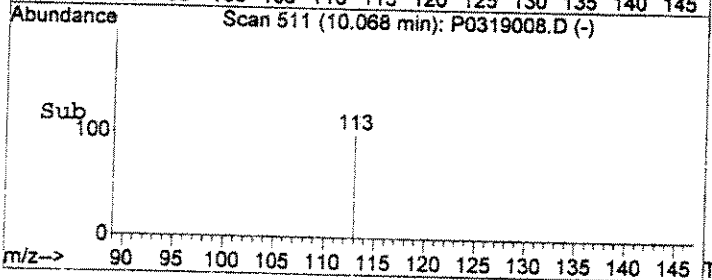
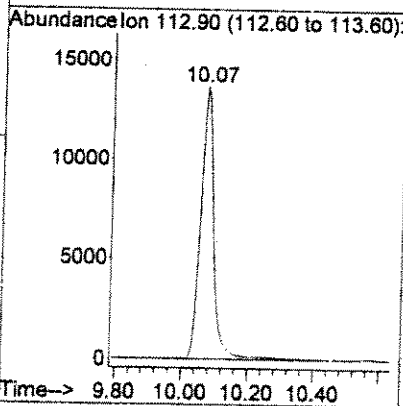
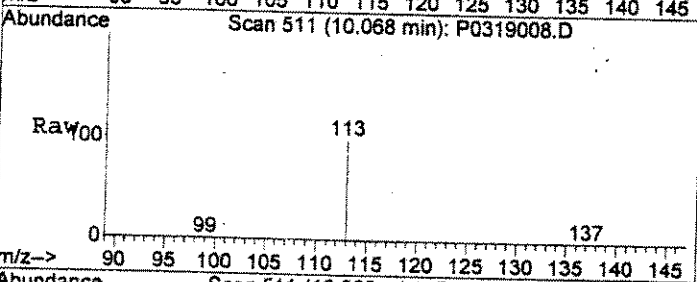
#1  
 Pentafluorobenzene (IS)  
 Concen: 1.00 ug/L  
 RT: 10.56 min Scan# 596  
 Delta R.T. 0.00 min  
 Lab File: P0319008.D  
 Acq: 19 Mar 2005 10:12 am

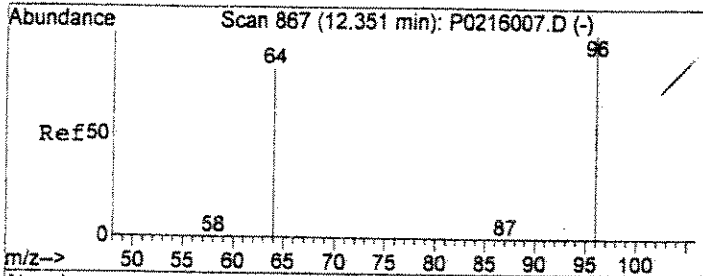
Tgt Ion: 99 Resp: 46878  
 Ion Ratio Lower Upper  
 99 100  
 137 23.9 3.7 43.7



#2  
 Dibromofluoromethane (SU1)  
 Concen: 1.00 ug/L  
 RT: 10.07 min Scan# 511  
 Delta R.T. 0.00 min  
 Lab File: P0319008.D  
 Acq: 19 Mar 2005 10:12 am

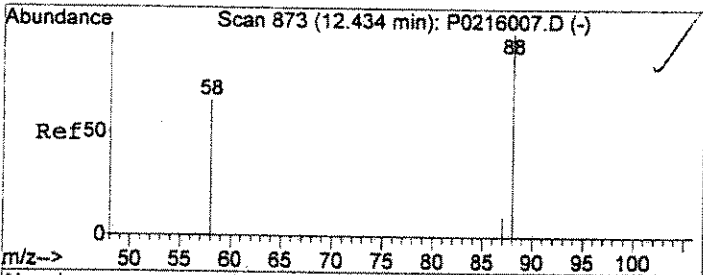
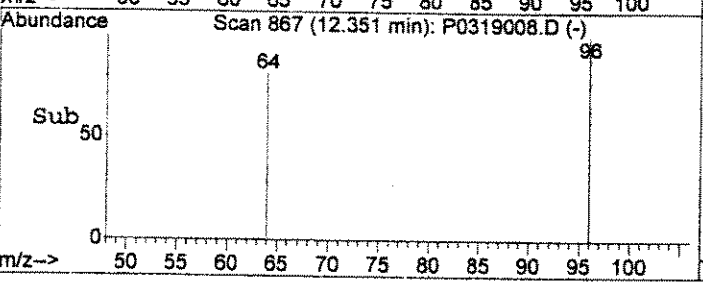
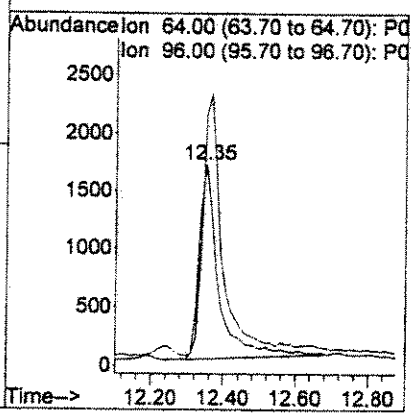
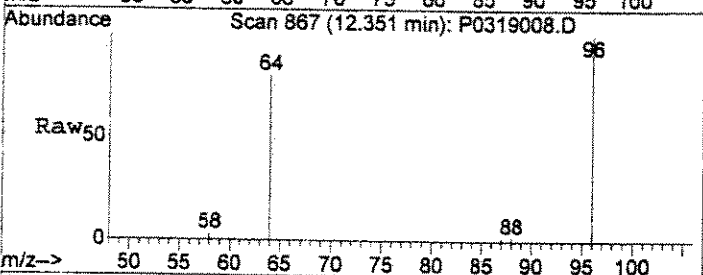
Tgt Ion: 113 Resp: 37890





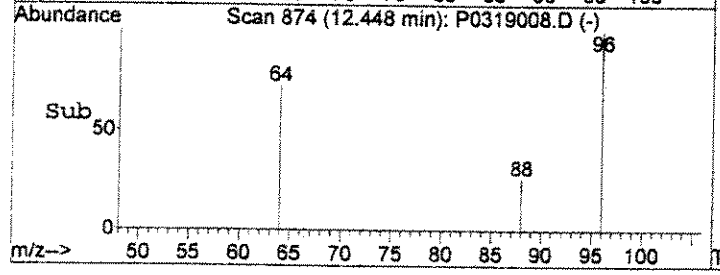
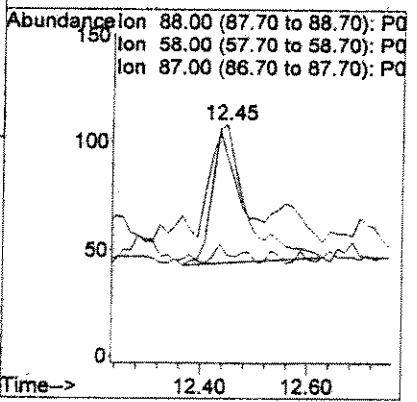
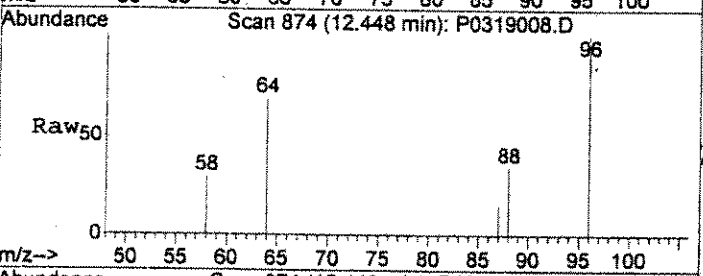
#3  
 1,4-DIOXANE-d8  
 Concen: 25.00 ug/L  
 RT: 12.35 min Scan# 867  
 Delta R.T. -0.00 min  
 Lab File: P0319008.D  
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 64 Resp: 6171  
 Ion Ratio Lower Upper  
 64 100  
 96 123.7 70.1 170.1



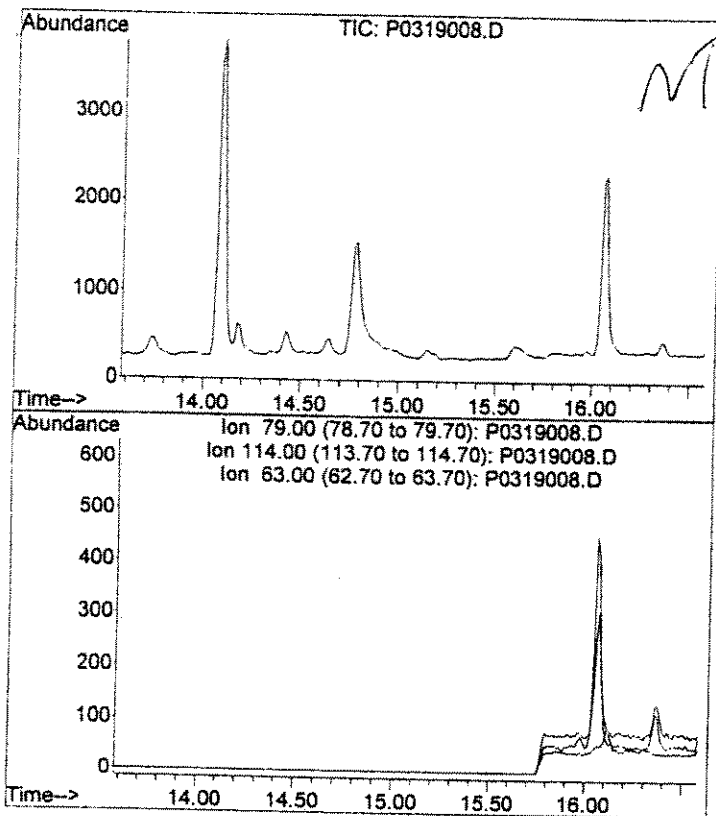
#4  
 1,4-DIOXANE  
 Concen: 0.23 ug/L  
 RT: 12.45 min Scan# 874  
 Delta R.T. 0.01 min  
 Lab File: P0319008.D  
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 88 Resp: 278  
 Ion Ratio Lower Upper  
 88 100  
 58 61.5 16.3 116.3  
 87 3.1 0.0 59.9



*S*





#5

1,2,3-Trichloropropane-d5

Concen: 0.00 ug/L

Expected RT: 15.08 min

Lab File: P0319008.D

Acq: 19 Mar 2005 10:12 am

Tgt Ion: 79

Sig	Exp Ratio
79	100
114	0.0
63	98.0

79

114

63

Grubbs Test for curve

	1.0ppb	2.0ppb	5.0ppb	10ppb	20ppb	50ppb	100ppb	MEAN	STDEV
Response factors	3.099	2.478	2.101	1.905	1.995	1.822	1.905	2.186429	0.456975
Grubbs value	1.99698	0.63805	0.186944	0.615851	0.418904	0.797481	0.615851		
5pts Grubbs values <									
6pts Grubbs values <									
7pts Grubbs values <									
8pts Grubbs values <									
9pts Grubbs values <									
10pts Grubbs values <									

outlier

MS 3/19/05

8/1/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319009.D  
 Acq On : 19 Mar 2005 10:54 am  
 Sample : 1.0 PPB CAL  
 Misc : 1X 10ML

Vial: 9  
 Operator: JG/MS/CLS  
 Inst : GCMS1  
 Multiplr: 1.00

MS Integration Params: DIOXANE.P  
 Quant Time: Mar 19 13:42 2005

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)  
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)  
 Last Update : Wed Feb 16 15:53:54 2005  
 Response via : Initial Calibration  
 DataAcq Meth : DX021605

*MT 3/19/05*

*See Grubb's Test  
 Jey 3/21/05*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42761	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4961	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0 NT	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1)	10.07	113	3531	0.11	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	11.00%#	

Target Compounds

4) 1,4-DIOXANE	12.43	88	615	1.50	ug/L	Qvalue 97
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*DNU*

*Q*

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319009.D  
Acq On : 19 Mar 2005 10:54 am  
Sample : 1.0 PPB CAL  
Misc : 1X 10ML  
MS Integration Params: DIOXANE.P  
Quant Time: Mar 19 13:42 2005

Vial: 9  
Operator: JG/MS/CLS  
Inst : GCMS1  
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)  
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)  
Last Update : Wed Feb 16 15:53:54 2005  
Response via : Initial Calibration

