

Section I: Sample Inventory Report

Date Received: 4/30/2005

Alta Lab. ID

Client Sample ID

26116-001

IOD2058-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001			
Matrix: Aqueous		QC Batch No.: 6789	Date Analyzed DB-225: NA		
Sample Size: 1.000 L		Date Extracted: 17-May-05	Date Analyzed DB-5: 19-May-05		
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.00000124		69.9	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000166		84.1	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000186		72.5	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000179		75.3	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000186		65.8	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.00000303		58.4	17 - 157
OCDD	ND	0.00000677		81.1	24 - 169
2,3,7,8-TCDF	ND	0.00000924		79.5	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000226		82.4	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000193		72.6	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000785		75.4	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000731		92.3	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000672		68.4	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000158		63.5	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.000000969		52.9	26 - 138
OCDF	ND	0.00000192		49.2	17 - 157
		0.00000476		89.9	35 - 197
Totals					
Total TCDD	ND	0.00000124			
Total PeCDD	ND	0.00000166			
Total HxCDD	ND	0.00000183			
Total HpCDD	ND	0.00000303			
Total TCDF	ND	0.000000924			
Total PeCDF	ND	0.00000209			
Total HxCDF	ND	0.000000872			
Total HpCDF	ND	0.00000132			
Footnotes					
a. Sample specific estimated detection limit.					
b. Estimated maximum possible concentration.					
c. Method detection limit.					
d. Lower control limit - upper control limit.					

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:07



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 19-May-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6789	Date Analyzed DB-5:	19-May-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	17-May-05				
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.3	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	66.3	25 - 164	
1,2,3,7,8-PeCDD	50.0	51.8	35 - 71	13C-1,2,3,7,8-PeCDD	82.1	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	50.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	69.4	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	52.2	38 - 67	13C-1,2,3,6,7,8-HxCDD	74.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	54.3	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	64.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	40.2	17 - 157	
OCDD	100	99.1	78 - 144	13C-2,3,7,8-TCDF	71.3	24 - 169	
2,3,7,8-TCDF	10.0	10.1	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	78.8	24 - 185	
1,2,3,7,8-PeCDF	50.0	49.0	40 - 67	13C-2,3,4,7,8-PeCDF	85.0	21 - 178	
2,3,4,7,8-PeCDF	50.0	49.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	72.8	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	48.2	36 - 67	13C-1,2,3,6,7,8-HxCDF	78.4	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	48.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	82.5	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	48.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	69.8	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	49.7	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	58.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	49.7	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	45.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	50.6	39 - 69	13C-OCDF	36.3	17 - 157	
OCDF	100	93.6	63 - 170	CRS 37Cl-2,3,7,8-TCDD	85.6	35 - 197	

Analyst: RAS
 Approved By: William J. Luksemburg 20-May-2005 11:07



Sample ID: IOD2058-01		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26116-001		
Project:	IOD2058	Sample Size:	0.957 L	QC Batch No.:	6789		
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05		
Time Collected:	1205			Date Analyzed DB-225:	NA		
				Date Received:	30-Apr-05		
				Date Extracted:	17-May-05		
Analyte	Conc. (ng/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00139			53.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00165			53.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00301			62.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00283			63.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00298			52.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00774			29.8	17 - 157	
OCDD	0.0584			J	57.5	24 - 169	
2,3,7,8-TCDF	ND	0.00166			53.6	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00262			55.9	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00218			66.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000772			67.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000738			67.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000842			59.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00149			51.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00231			52.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00224			36.1	17 - 157	
OCDF	ND	0.00980			76.1	35 - 197	
Totals							
Total TCDD	ND	0.00139					
Total PeCDD	ND	0.00165					
Total HxCDD	ND	0.00293					
Total HpCDD	ND	0.0137					
Total TCDF	ND	0.00166					
Total PeCDF	ND	0.00239					
Total HxCDF	ND	0.000911					
Total HpCDF	ND	0.00309					
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:07

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

The control limits are “interim limits only” until in-house limits are utilized.

CURRENT CERTIFICATIONS

NELAP — (Primary AA: California, Certificate No. 02102CA)
Department of the Navy
U.S. Army Corps of Engineers
U.S. EPA Region 5
Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)
Commonwealth of Kentucky — (Certificate No. 90063)
Commonwealth of Virginia — (Certificate No. 00013)
State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)
State of Arizona — (Certificate No. AZ0639)
State of Arkansas, Department of Health — (Approval granted through CA certification)
State of Arkansas, Department of Environmental Quality
State of California — (Certificate No. 1640)
State of Colorado
State of Connecticut — (Certificate No. PH-0182)
State of Florida — (Certificate No. 87456)
State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)
State of Louisiana, Department of Environmental Quality
State of Maine
State of Michigan (Certificate No. 81178087)
State of Mississippi — (Approval granted through CA certification)
State of Nevada — (Certificate No. CA413)
State of New Jersey — (Certificate No. CA003)
State of New York, Department of Health — (Certificate No. 11411)
State of North Carolina — (Certification No. 06700)
State of North Dakota, Department of Health — (Certificate No. R-078)
State of New Mexico
State of Oklahoma – (D9919)
State of Oregon – (Certificate No. CA413)
State of Pennsylvania — (Certificate No. 68-490)
State of South Carolina — (Certificate No. 87002001)
State of Tennessee — (Certificate No. 02996)
State of Texas — (Certificate No. TX247-1000A)
State of Utah — (Certificate No. E-201)
State of Washington – (Certification No. C091)
State of Wisconsin — (Certificate No. 998036160)
State of Wyoming — (USEPA Region 8 Ref: 8TMS-Q)



17461 Derian Ave, Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228

1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046

9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689

9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3020 Fax (702) 798-3521

SUBCONTRACT ORDER - PROJECT # IOD2058

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

26116
1.1°C

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

Analysis	Expiration	Comments
Sample ID: IOD2058-01 Water	Sampled: 04/28/05 12:05	Instant Notification
1613-Dioxin-HR	05/05/05 12:05	J flags, 17 congeners, no TEQ, sub=Alta, DP to AMEC
EDD + Level 4	05/26/05 12:05	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOD2058-01C)		
1 L Amber (IOD2058-01D)		

SAMPLE INTEGRITY:

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

Released By: _____ Date: *4/29/05* Time: *17:00* Received By: *M Joller* Date: *4/30/05* Time: *09:15*

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 26116

1. Date Samples Arrived: <u>4/30/05 0915</u> Initials: <u>ACU</u> Location: <u>WM-2</u>			
2. Time / Date logged in: <u>0955 5/2/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.1</u>			
	YES	NO	NA
5. Shipping Container(s) Intact? If not, describe condition in comment section.	✓		
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.		✓	✓
7. Shipping Documentation Present? (circle) Shipping Label <u>(Airbill)</u> Tracking Number <u>7916 1353 5260</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.		✓	✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10. Chain of Custody (COC) or other Sample Documentation Present?	✓		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments: sampler's initials found on sample labels

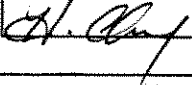
ALTA Analytical Laboratory
El Dorado Hills, CA 95762

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF48
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer H. Chang
 Analysis/Method Dioxin&Furans/1613

Date: June 1, 2005
 Reviewer's Signature


ACTION ITEMS^a	
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.,	Detects below the calibration range were qualified "J."
Holding Times	EMPCs were qualified "UJ."
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOD2043, IOD2044, IOD2049,
IOD2053, IOD2056 & IOD2058

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
Sample Delivery Group #: IOD2043, IOD2044, IOD2049, IOD2053, IOD2056 & IOD2058
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: June 1, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOD2043-01	26117-001	water	1613
Outfall 002	IOD2044-01	26112-001	water	1613
Outfall 018	IOD2049-01	26118-001	water	1613
Outfall 004	IOD2053-01	26120-001	water	1613
Outfall 010	IOD2056-01	26116-001	water	1613
Outfall 009	IOD2058-01	26115-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits of 4°C ±2°C at 0°C and 1.1°C; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, the samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The cooler received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

The samples were extracted and analyzed within a year of collection. No qualifications were required.

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was not analyzed prior to the initial calibration sequence or at the beginning of each analytical sequence; however, the first and last eluting congeners and isomer specificity compounds were added to the midpoint of the initial calibration and to the continuing calibration standards (see section 2.3.2). The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%. No qualifications were required.

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

The initial calibration was analyzed 05/09/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning and end of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

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

2.4 BLANKS

One method blank (6789-MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6789-OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

The samples in these SDGs had no associated field QC samples. No qualifications were required.

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. In five of the six SDGs, the laboratory noted that detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by an "A" laboratory qualifier. However, all results with "A" qualifier were actually below the low point of the calibration curve and should have been flagged as "J." Also, one of the detects which should have been flagged as "A" was incorrectly flagged as "J" by the laboratory. Any detects below the method minimum level were qualified as estimated, "J." If the concentration of any component of the total was below the lower method calibration level (MCL), the total detect was qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." The results and reporting limits were reported in $\mu\text{g/L}$ except for the results in sample Outfall 010 which were reported in ng/L . No further qualifications were required.



Sample ID: IOD2043-01 Duffell 001

Client Data		Sample Data		Laboratory Data		EPA Method 1613	
Name	Project	Matrix	Sample Size	Lab Sample	QC Batch No.	Date Received	
Del Mar Analytical, Irvine	IOD2043	Aqueous	0.957 L	26117-001	6789	30-Apr-05	
Date Collected: 28-Apr-05	Time Collected: 1116			Date Analyzed DB-5: 19-May-05	Date Analyzed DB-225: NA	17-May-05	
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000132		IS 13C-2,3,7,8-TCDD	60.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000179		13C-1,2,3,7,8-PeCDD	63.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000375		13C-1,2,3,4,7,8-HxCDD	61.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000354		13C-1,2,3,6,7,8-HxCDD	60.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000372		13C-1,2,3,4,6,7,8-HpCDD	53.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000517			13C-OCDD	34.9	17 - 157	
OCDD	0.000373			13C-2,3,7,8-TCDF	65.0	24 - 169	
2,3,7,8-TCDF	ND	0.00000133		13C-1,2,3,7,8-PeCDF	66.4	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000165		13C-2,3,4,7,8-PeCDF	66.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000139		13C-1,2,3,4,7,8-HxCDF	57.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000862		13C-1,2,3,6,7,8-HxCDF	60.4	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000782		13C-2,3,4,6,7,8-HxCDF	63.2	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000881		13C-1,2,3,7,8,9-HxCDF	55.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000157		13C-1,2,3,4,6,7,8-HpCDF	44.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000903			13C-1,2,3,4,7,8,9-HpCDF	43.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND			13C-OCDF	33.6	17 - 157	
OCDF	0.0000390			CRS 37Cl-2,3,7,8-TCDD	81.7	35 - 197	
Totals							
Total TCDD	ND	0.00000132					
Total PeCDD	ND	0.00000179					
Total HxCDD	0.0000114						
Total HpCDD	0.000124						
Total TCDF	ND	0.00000133					
Total PeCDF	ND	0.00000151					
Total HxCDF	0.00000540						
Total HpCDF	0.0000268						

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

AMEC VALIDATED
 LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:09

Project 26117



Sample ID: **IOD2044-01** **Dudfalk 002** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26112-001
Project:	IOD2044	Sample Size:	0.950 L	QC Batch No.:	6789
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05
Time Collected:	1406			Date Analyzed DB-225:	NA
				Date Received:	30-Apr-05
				Date Extracted:	17-May-05

Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000199			13C-2,3,7,8-TCDD	61.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000294			13C-1,2,3,7,8-PeCDD	65.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000400			13C-1,2,3,4,7,8-HxCDD	63.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000399			13C-1,2,3,6,7,8-HxCDD	65.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000409			13C-1,2,3,4,6,7,8-HpCDD	61.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000557				13C-OCDD	45.0	17 - 157	
OCDD	0.000706				13C-2,3,7,8-TCDF	66.5	24 - 169	
2,3,7,8-TCDF	ND	0.00000200			13C-1,2,3,7,8-PeCDF	63.6	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000362			13C-2,3,4,7,8-PeCDF	66.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000288			13C-1,2,3,4,7,8-HxCDF	65.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000117			13C-1,2,3,6,7,8-HxCDF	69.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000165			13C-2,3,4,6,7,8-HxCDF	70.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000118			13C-1,2,3,7,8,9-HxCDF	62.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000214			13C-1,2,3,4,6,7,8-HpCDF	58.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000968			A	13C-1,2,3,4,7,8,9-HpCDF	49.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000252			13C-OCDF	43.8	17 - 157	
OCDF	0.0000306			A	CRS 37Cl-2,3,7,8-TCDD	78.7	35 - 197	
Totals								

Totals		Footnotes	
Total TCDD	ND	a. Sample specific estimated detection limit.	
Total PeCDD	ND	b. Estimated maximum possible concentration.	
Total HxCDD	0.00000660	c. Method detection limit.	
Total HpCDD	0.000114	d. Lower control limit - upper control limit.	
Total TCDF	0.00000366		
Total PeCDF	ND		
Total HxCDF	0.00000666		
Total HpCDF	0.0000253		

AMEC VALIDATED
LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 10:57



Sample ID: IOD2049		Outfall 018		EPA Method 1613			
Client Data		Sample Data		Laboratory Data		Qualifiers	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26118-001	Date Received:	30-Apr-05
Project:	IOD2049	Sample Size:	0.910 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1516						
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0000162		IS 13C-2,3,7,8-TCDD	65.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0000180		13C-1,2,3,7,8-PeCDD	66.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0000269		13C-1,2,3,4,7,8-HxCDD	64.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0000265		13C-1,2,3,6,7,8-HxCDD	63.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0000273		13C-1,2,3,4,6,7,8-HpCDD	60.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000445			13C-OCDD	44.7	17 - 157	
OCDD	0.000477			13C-2,3,7,8-TCDF	70.2	24 - 169	
2,3,7,8-TCDF	ND	0.0000164		13C-1,2,3,7,8-PeCDF	66.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.0000218		13C-2,3,4,7,8-PeCDF	67.0	21 - 178	
2,3,4,7,8-PeCDF	ND	0.0000195		13C-1,2,3,4,7,8-HxCDF	65.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.0000105		13C-1,2,3,6,7,8-HxCDF	64.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000992		13C-2,3,4,6,7,8-HxCDF	69.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.0000107		13C-1,2,3,7,8,9-HxCDF	59.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.0000207		13C-1,2,3,4,6,7,8-HpCDF	55.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.0000505			13C-1,2,3,4,7,8,9-HpCDF	49.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.0000211		13C-OCDF	44.8	17 - 157	
OCDF	ND	0.0000145		CRS 37Cl-2,3,7,8-TCDD	87.0	35 - 197	
Totals							
Total TCDD	ND	0.0000162					
Total PeCDD	ND	0.0000180					
Total HxCDD	0.00000896						
Total HpCDD	0.00000879						
Total TCDF	0.00000379						
Total PeCDF	ND	0.00000206					
Total HxCDF	0.00000262						
Total HpCDF	0.0000122		0.00000434				

AMEC VALIDATED
LEVEL IV

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

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:10



Sample ID: IOD2053-01		Outfall 004		EPA Method 1613					
Client Data		Sample Data		Laboratory Data					
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26120-001				
Project:	IOD2053	Sample Size:	0.963 L	QC Batch No.:	6789				
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05				
Time Collected:	1140			Date Analyzed DB-225:	NA				
Rev	Qual	Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000131			70.3	25 - 164	
U		1,2,3,7,8-PeCDD	ND	0.00000171			71.3	25 - 181	
U		1,2,3,4,7,8-HxCDD	ND	0.00000161			69.9	32 - 141	
U		1,2,3,6,7,8-HxCDD	ND	0.00000164			75.4	28 - 130	
U		1,2,3,7,8,9-HxCDD	ND	0.00000166			66.2	23 - 140	
U		1,2,3,4,6,7,8-HpCDD	ND		0.0000163		45.9	17 - 157	
U		OCDD	0.000234				72.7	24 - 169	
U		2,3,7,8-TCDF	ND	0.00000135			70.7	24 - 185	
U		1,2,3,7,8-PeCDF	ND	0.00000133			71.8	21 - 178	
U		2,3,4,7,8-PeCDF	ND	0.00000119			73.2	26 - 152	
U		1,2,3,4,7,8-HxCDF	ND	0.00000591			74.6	26 - 123	
U		1,2,3,6,7,8-HxCDF	ND	0.00000518			75.6	28 - 136	
U		2,3,4,6,7,8-HxCDF	ND	0.00000586			70.0	29 - 147	
U		1,2,3,7,8,9-HxCDF	ND	0.00000105			62.5	28 - 143	
U		1,2,3,4,6,7,8-HpCDF	0.00000258			A	53.9	26 - 138	
U		1,2,3,4,7,8,9-HpCDF	ND	0.00000180			47.5	17 - 157	
U		OCDF	ND	0.00000877			87.8	35 - 197	
		Totals							
U		Total TCDD	ND	0.00000131					
U		Total PeCDD	ND	0.00000171					
U		Total HxCDD	0.0000183						
U		Total HpCDD	0.0000189		0.0000352				
U		Total TCDF	ND	0.00000135					
U		Total PeCDF	ND	0.00000126					
U		Total HxCDF	0.00000229						
U		Total HpCDF	0.00000723						

Footnotes

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

AMEC VALIDATED
 LEVEL IV

Analyst RAS

Approved By: William J. Luksemburg 20-May-2005 11:13



Sample ID: IOD2056-01 Outfall 009		EPA Method 1613	
Client Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 26115-001	Date Received: 30-Apr-05
Project: IOD2056	Sample Size: 0.960 L	QC Batch No.: 6789	Date Extracted: 17-May-05
Date Collected: 28-Apr-05		Date Analyzed DB-5: 19-May-05	Date Analyzed DB-225: NA
Time Collected: 1213			
Analyte	Conc. (ug/L)	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	13C-2,3,7,8-TCDD	66.6 25 - 164
1,2,3,7,8-PeCDD	ND	13C-1,2,3,7,8-PeCDD	70.0 25 - 181
1,2,3,4,7,8-HxCDD	ND	13C-1,2,3,4,7,8-HxCDD	71.1 32 - 141
1,2,3,6,7,8-HxCDD	ND	13C-1,2,3,6,7,8-HxCDD	71.9 28 - 130
1,2,3,7,8,9-HxCDD	ND	13C-1,2,3,4,6,7,8-HpCDD	63.5 23 - 140
1,2,3,4,6,7,8-HpCDD	0.0000129	13C-OCDD	36.0 17 - 157
OCDD	0.000119	13C-2,3,7,8-TCDF	70.2 24 - 169
2,3,7,8-TCDF	ND	13C-1,2,3,7,8-PeCDF	71.7 24 - 185
1,2,3,7,8-PeCDF	ND	13C-2,3,4,7,8-PeCDF	72.7 21 - 178
2,3,4,7,8-PeCDF	ND	13C-1,2,3,4,7,8-HxCDF	76.1 26 - 152
1,2,3,4,7,8-HxCDF	ND	13C-1,2,3,6,7,8-HxCDF	75.9 26 - 123
1,2,3,6,7,8-HxCDF	ND	13C-2,3,4,6,7,8-HxCDF	78.8 28 - 136
2,3,4,6,7,8-HxCDF	ND	13C-1,2,3,7,8,9-HxCDF	74.7 29 - 147
1,2,3,7,8,9-HxCDF	ND	13C-1,2,3,4,6,7,8-HpCDF	63.6 28 - 143
1,2,3,4,6,7,8-HpCDF	ND	13C-1,2,3,4,7,8,9-HpCDF	66.9 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	13C-OCDF	45.5 17 - 157
OCDF	ND	CRS 37Cl-2,3,7,8-TCDD	80.5 35 - 197
Totals			
Total TCDD	ND		
Total PeCDD	0.0000140		
Total HxCDD	0.0000144		
Total HpCDD	0.0000240		
Total TCDF	0.0000303		
Total PeCDF	ND		
Total HxCDF	0.00000942		
Total HpCDF	0.0000136		
Total HxCDF	0.00000890		
Total HpCDF	ND		
	0.0000194		

AMEC VALIDATED
LEVEL IV

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

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:05

Project 26115



Sample ID: IOD2058-01		Outfall 010		EPA Method 1613				
Client Data		Sample Data		Laboratory Data				
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26116-001			
Project:	IOD2058	Sample Size:	0.957 L	QC Batch No.:	6789			
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05			
Time Collected:	1205			Date Analyzed DB-225:	NA			
				Date Received:	30-Apr-05			
				Date Extracted:	17-May-05			
Analyte	Conc. (ng/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00139			IS 13C-2,3,7,8-TCDD	53.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00165			13C-1,2,3,7,8-PeCDD	53.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00301			13C-1,2,3,4,7,8-HxCDD	62.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00283			13C-1,2,3,6,7,8-HxCDD	63.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00298			13C-1,2,3,4,6,7,8-HpCDD	52.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00774			13C-OCDD	29.8	17 - 157	
OCDD	0.0584				13C-2,3,7,8-TCDF	57.5	24 - 169	
2,3,7,8-TCDF	ND	0.00166			13C-1,2,3,7,8-PeCDF	53.6	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00262			13C-2,3,4,7,8-PeCDF	55.9	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00218			13C-1,2,3,4,7,8-HxCDF	66.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000772			13C-1,2,3,6,7,8-HxCDF	67.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000738			13C-2,3,4,6,7,8-HxCDF	67.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000842			13C-1,2,3,7,8,9-HxCDF	59.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00149			13C-1,2,3,4,6,7,8-HpCDF	51.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00231			13C-1,2,3,4,7,8,9-HpCDF	52.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00224			13C-OCDF	36.1	17 - 157	
OCDF	ND	0.00980			CRS 37Cl-2,3,7,8-TCDD	76.1	35 - 197	
Totals								
Total TCDD	ND	0.00139						
Total PeCDD	ND	0.00165						
Total HxCDD	ND	0.00293						
Total HpCDD	ND	0.0137						
Total TCDF	ND	0.00166						
Total PeCDF	ND	0.00239						
Total HxCDF	ND	0.000911						
Total HpCDF	ND	0.00309						

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

AMEC VALIDATED
LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:07

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 detected 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).



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOD2043, IOD2049, IOD2054,
IOD2056, IOD2058

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#: IOD2043, IOD2049, IOD2054, IOD2056, IOD2058
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 2
Reviewer: L. Jarusewic
Date of Review: June 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the “R” data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 001	Outfall 001	IOD2043-01	water	ILM04
Outfall 001RE1	Outfall 001RE1	IOD2043-01RE1	water	ILM04
Outfall 001RE2	Outfall 001RE2	IOD2043-01RE2	water	ILM04
Outfall 005	Outfall 005	IOD2054-01	water	ILM04
Outfall 009	Outfall 009	IOD2056-01	water	ILM04
Outfall 010	Outfall 010	IOD2058-01	water	ILM04
Outfall 018	Outfall 018	IOD2049-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. The laboratory did not include the "RE1" and "RE2" client ID suffixes for the iron reanalyses on the Form I for sample Outfall 001. The reviewer appended the Form I with the correct suffixes to reflect this information. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP and ICP-MS metals and 80-120% for mercury. The 0.2 µg/L ICP-MS reporting limit check standard was not recovered for antimony; however, as the antimony MDL was raised to 0.61 µg/L, no qualifications were required (see section 2.4). The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Cadmium was reported in a bracketing ICP-MS CCB at $-0.028 \mu\text{g/L}$; therefore, cadmium detected in samples Outfall 009 and Outfall 010 was qualified as estimated, "J." Antimony was detected in a bracketing ICP-MS CCB at $0.61 \mu\text{g/L}$; however, as antimony was not detected in Outfall 009 or Outfall 010, no qualifications were required. The remaining method blank and CCB results were nondetects at the reporting limit.

There were antimony detects in both the bracketing ICP-MS CCBs at concentrations $\geq 3 \times \text{MDL}$. The antimony CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer, therefore, raised the MDLs for antimony to the highest level reported in the CCBs, $0.61 \mu\text{g/L}$. No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferences sulfur, phosphorus, carbon, and chloride, and titanium. Antimony and lead were not spiked into the ICSAB solution. Potassium exceeded the calibration range of the instrument in both the ICSA/AB solutions associated with the Outfall 005, Outfall 009 and Outfall 010 analyses. Sodium exceeded the calibration range of the instrument in the ICSA solution for all associated analyses, and was recovered within the control limits in the ICSAB solution associated with the Outfall 005 analysis. Copper and cadmium were detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP-MS analyses for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the levels of reported interferences were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, titanium, and chloride.

ICSA and ICSAB analyses were included in the raw data for the ICP analyses and were analyzed the same day the samples. The recoveries were within the control limits of 80-120% and no qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS sample was identified as 5D29098-BS1 and the ICP-MS LCS sample was identified as 5D29095-BS1. The mercury LCS sample was identified as 5D29061-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established control limits of 85-115% for the ICP, ICP-MS, and mercury analyses. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed in association with the ICP-MS analyses on sample Outfall 005 for lead. The RPD was within the control limits of $\leq 20\%$ and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed in association with the ICP/MS analyses on sample Outfall 005 for lead. The recoveries were within the control limits of 70-130% and no qualifications were required.

2.9 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of these samples; therefore, furnace atomic absorption QC is not applicable.

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. The laboratory reanalyzed sample Outfall 001 for iron. As the Outfall 001RE1 and Outfall 002RE2 results were similar to the original result, the Outfall 001RE1 and Outfall 002RE2 iron results were rejected, "R," in favor of the original iron analysis. Lead in Outfall 005, cadmium in Outfall 009 and Outfall 010, and mercury in Outfall 010 detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

The samples in these SDGs had no associated field QC samples. No qualifications were required.

2.13.2 Field Duplicates

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



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1036
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8296 FAX (858) 505-9039
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 787-0043 FAX (480) 787-0551
 2520 E. Sunset Rd., #5, Las Vegas, NV 89120 (702) 798-0020 FAX (702) 798-3621

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

Project ID: Routine Outfall 001
 Report Number: IOD2043

Sampled: 04/28/05
 Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2043-01 (DRAFT: Outfall 001 - Water)									
Reporting Units: mg/l									
Iron	EPA 200.7	5D29098	0.0088	0.040	0.36	1	04/29/05	05/02/05	
Sample ID: IOD2043-01RE1 (DRAFT: Outfall 001 Outfall 001RE1 - Water)									
Reporting Units: mg/l									
Iron	EPA 200.7	5E17078	0.0088	0.040	0.34	1	04/29/05	05/17/05	R D
Sample ID: IOD2043-01RE2 (DRAFT: Outfall 001 Outfall 001RE2 - Water)									
Reporting Units: mg/l									
Iron	EPA 200.7	5D29098	0.0088	0.040	0.36	1	04/29/05	05/17/05	R D

J 06/06/05

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 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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 6614 Greenwood Ave., Suite 805, San Diego, CA 92121 (619) 594-8196 FAX: (619) 594-8197
 9810 South 51st St., Suite G-120, Phoenix, AZ 85044 (480) 785-6641 FAX: (480) 785-6642
 2520 E. Sahara Blvd. #3, Las Vegas, NV 89120 (702) 798-5620 FAX: (702) 798-5622

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

Project ID: Quarterly Outfall 018

Report Number: IOD2049

Sampled: 04/28/05

Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5D29095	0.49	2.0	3.7	1	04/29/05	05/03/05	REV QUAL
Lead	EPA 200.8	5D29095	0.13	1.0	1.9	1	04/29/05	05/03/05	QUAL CODE
Mercury	EPA 245.1	5D29061	0.063	0.20	ND	1	04/29/05	04/29/05	u

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 9404 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9699
 9830 South 31st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0861
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 005

Report Number: IOD2054

Sampled: 04/28/05
 Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2054-01 (DRAFT: Outfall 005 - Water)									
Reporting Units: ug/l									
Lead	EPA 200.8	5D29095	0.13	1.0	0.24	1	04/29/05	05/03/05	J J REV QUAL QUAL CODE DNQ

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (352) 505-8596 FAX (352) 505-9669
 9850 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 795-0043 FAX (480) 795-0857
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 009

Report Number: IOD2056

Sampled: 04/28/05
 Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Data Code
Sample ID: IOD2056-01 (DRAFT: Outfall 009 - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	5D29095	0.61	2.0	ND	1	04/29/05	05/03/05	UJ	*S, \$
Cadmium	EPA 200.8	5D29095	0.015	1.0	0.024	1	04/29/05	05/03/05	J	B, DNG
Copper	EPA 200.8	5D29095	0.49	2.0	3.2	1	04/29/05	05/03/05		
Lead	EPA 200.8	5D29095	0.13	1.0	1.1	1	04/29/05	05/03/05		
Mercury	EPA 245.1	5D29061	0.063	0.20	ND	1	04/29/05	04/29/05	U	

Flow 04/05

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9820 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 010

Report Number: IOD2058

Sampled: 04/28/05
 Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2058-01 (DRAFT: Outfall 010 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5D29095	0.18 0.61	2.0	ND	1	04/29/05	05/03/05	WJ
Cadmium	EPA 200.8	5D29095	0.015	1.0	0.084	1	04/29/05	05/03/05	J
Copper	EPA 200.8	5D29095	0.49	2.0	6.0	1	04/29/05	05/03/05	J
Lead	EPA 200.8	5D29095	0.13	1.0	3.0	1	04/29/05	05/03/05	J
Mercury	EPA 245.1	5D29061	0.063	0.20	0.18	1	04/29/05	04/29/05	J

REV
QUAL
CODE

*S, \$
B, DNG
DNQ

4/26/05

AMEC VALIDATED
LEVEL IV

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APPENDIX G

Section 9

Outfall 012

Del Mar Analytical Laboratory Reports

AMEC Data Validation Reports



MWH-Pasadena/Boeing Project ID: Alfa Outfall 012 - During Test
300 North Lake Avenue, Suite 1200 Report Number: IOC2360
Pasadena, CA 91101 Sampled: 03/30/05
Attention: Bronwyn Kelly Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C31088	0.31	1.0	4.1	1	03/31/05	03/31/05	

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C31011	0.082	0.50	0.66	0.962	03/31/05	03/31/05	
Surrogate: n-Octacosane (40-125%)					94 %				

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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: IOC2360

Sampled: 03/30/05

Received: 03/30/05

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
Sample ID: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	1.4	1	03/31/05	03/31/05	
Surrogate: 4-BFB (FID) (65-140%)					112 %				
Sample ID: IOC2360-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	ND	1	03/31/05	03/31/05	
Surrogate: 4-BFB (FID) (65-140%)					91 %				

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOC2360-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	
Surrogate: Dibromofluoromethane (80-120%)					109 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: Alfa Outfall 012 - During Test
300 North Lake Avenue, Suite 1200 Report Number: IOC2360
Pasadena, CA 91101
Attention: Bronwyn Kelly
Sampled: 03/30/05
Received: 03/30/05

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
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5C31053	4.5	10	13	0.98	03/31/05	04/06/05	
N-Nitrosodimethylamine	EPA 625	5C31053	3.7	20	ND	0.98	03/31/05	04/06/05	
Surrogate: 2-Fluorophenol (30-120%)					65 %				
Surrogate: Phenol-d6 (35-120%)					68 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					72 %				
Surrogate: Nitrobenzene-d5 (45-120%)					79 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					88 %				
Surrogate: Terphenyl-d14 (45-120%)					111 %				

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C31085	0.30	0.50	0.56	1	03/31/05	03/31/05	
Biochemical Oxygen Demand	EPA 405.1	5C31066	0.59	2.0	4.2	1	03/31/05	04/05/05	
Oil & Grease	EPA 413.1	5C31087	0.94	5.0	5.8	1	03/31/05	03/31/05	B
Total Dissolved Solids	SM2540C	5C30093	10	10	180	1	03/30/05	03/30/05	
Total Suspended Solids	EPA 160.2	5C30091	10	10	14	1	03/30/05	03/30/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C31067	0.10	0.10	ND	1	03/31/05	03/31/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D01075	0.040	1.0	20	1	04/01/05	04/01/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C31059	0.80	4.0	ND	1	03/31/05	03/31/05	

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

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
Sample ID: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0201	0.49	1.0	ND	1	04/02/05	04/02/05	
Surrogate: Dibromofluoromethane (80-125%)					116 %				

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IOC2360-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/30/2005 14:45	03/30/2005 19:20	03/31/2005 09:24	03/31/2005 10:30
EPA 180.1	2	03/30/2005 14:45	03/30/2005 19:20	04/01/2005 09:00	04/01/2005 10:00
EPA 405.1	2	03/30/2005 14:45	03/30/2005 19:20	03/31/2005 16:30	04/05/2005 12:00

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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD RPD	Limit	Data Qualifiers
Batch: 5C31088 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31088-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/31/2005 (5C31088-BS1)											
Total Recoverable Hydrocarbons	4.90	1.0	0.31	mg/l	5.00		98	65-120			M-NRI
LCS Dup Analyzed: 03/31/2005 (5C31088-BSD1)											
Total Recoverable Hydrocarbons	4.94	1.0	0.31	mg/l	5.00		99	65-120	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: IOC2360

Sampled: 03/30/05
Received: 03/30/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C31011 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31011-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	0.170			mg/l	0.200		85	40-125			
LCS Analyzed: 03/31/2005 (5C31011-BS1)											
EFH (C13 - C40)	0.640	0.50	0.082	mg/l	0.775		83	40-120			M-NRI
Surrogate: n-Octacosane	0.186			mg/l	0.200		93	40-125			
LCS Dup Analyzed: 03/31/2005 (5C31011-BSD1)											
EFH (C13 - C40)	0.620	0.50	0.082	mg/l	0.775		80	40-120	3	25	
Surrogate: n-Octacosane	0.162			mg/l	0.200		81	40-125			

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Received: 03/30/05

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
Batch: 5C31001 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31001-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00918			mg/l	0.0100		92	65-140			
LCS Analyzed: 03/31/2005 (5C31001-BS1)											
GRO (C4 - C12)	0.669	0.10	0.050	mg/l	0.800		84	70-140			
Surrogate: 4-BFB (FID)	0.0256			mg/l	0.0300		85	65-140			
Matrix Spike Analyzed: 03/31/2005 (5C31001-MS1)											
						Source: IOC1878-03					
GRO (C4 - C12)	0.939	0.10	0.050	mg/l	0.220	0.80	63	60-140			
Surrogate: 4-BFB (FID)	0.00984			mg/l	0.0100		98	65-140			
Matrix Spike Dup Analyzed: 03/31/2005 (5C31001-MSD1)											
						Source: IOC1878-03					
GRO (C4 - C12)	0.998	0.10	0.050	mg/l	0.220	0.80	90	60-140	6	20	
Surrogate: 4-BFB (FID)	0.0105			mg/l	0.0100		105	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	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C31014 Extracted: 03/31/05										
Blank Analyzed: 03/31/2005 (5C31014-BLK1)										
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	27.1			ug/l	25.0		108		80-120	
Surrogate: Toluene-d8	25.0			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99		80-120	
LCS Analyzed: 03/31/2005 (5C31014-BS1)										
1,2-Dibromoethane (EDB)	24.5	2.0	0.32	ug/l	25.0		98		75-125	
Methyl-tert-butyl Ether (MTBE)	24.6	5.0	0.32	ug/l	25.0		98		55-145	
1,2,3-Trichloropropane	22.8	10	0.85	ug/l	25.0		91		60-130	
Di-isopropyl Ether (DIPE)	24.9	5.0	0.25	ug/l	25.0		100		65-135	
tert-Butanol (TBA)	130	25	3.1	ug/l	125		104		70-140	
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106		80-120	
Surrogate: Toluene-d8	25.1			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	25.6			ug/l	25.0		102		80-120	
Matrix Spike Analyzed: 03/31/2005 (5C31014-MS1)										
						Source: IOC2248-03				
1,2-Dibromoethane (EDB)	25.8	2.0	0.32	ug/l	25.0	ND	103		70-130	
Methyl-tert-butyl Ether (MTBE)	25.9	5.0	0.32	ug/l	25.0	ND	104		50-155	
1,2,3-Trichloropropane	23.9	10	0.85	ug/l	25.0	ND	96		55-140	
Di-isopropyl Ether (DIPE)	26.9	5.0	0.25	ug/l	25.0	ND	108		65-140	
tert-Butanol (TBA)	150	25	3.1	ug/l	125	ND	120		65-145	
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106		80-120	
Surrogate: Toluene-d8	25.0			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101		80-120	

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C31014 Extracted: 03/31/05											
Matrix Spike Dup Analyzed: 03/31/2005 (5C31014-MSD1)						Source: IOC2248-03					
1,2-Dibromoethane (EDB)	27.2	2.0	0.32	ug/l	25.0	ND	109	70-130	5	25	
Methyl-tert-butyl Ether (MTBE)	27.5	5.0	0.32	ug/l	25.0	ND	110	50-155	6	25	
1,2,3-Trichloropropane	25.9	10	0.85	ug/l	25.0	ND	104	55-140	8	30	
Di-isopropyl Ether (DIPE)	26.4	5.0	0.25	ug/l	25.0	ND	106	65-140	2	25	
tert-Butanol (TBA)	144	25	3.1	ug/l	125	ND	115	65-145	4	25	
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			

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Project Manager



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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	RPD RPD	Limit	Data Qualifiers
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Batch: 5C31053 Extracted: 03/31/05

Blank Analyzed: 04/05/2005 (5C31053-BLK1)

Naphthalene	ND	10	4.5	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	118			ug/l	200		59		30-120	
Surrogate: Phenol-d6	127			ug/l	200		64		35-120	
Surrogate: 2,4,6-Tribromophenol	124			ug/l	200		62		45-120	
Surrogate: Nitrobenzene-d5	69.9			ug/l	100		70		45-120	
Surrogate: 2-Fluorobiphenyl	79.3			ug/l	100		79		45-120	
Surrogate: Terphenyl-d14	112			ug/l	100		112		45-120	

LCS Analyzed: 04/06/2005 (5C31053-BS1)

Naphthalene	82.0	10	4.5	ug/l	100		82		50-120	M-NRI
N-Nitrosodimethylamine	58.5	20	3.7	ug/l	100		58		40-120	
Surrogate: 2-Fluorophenol	131			ug/l	200		66		30-120	
Surrogate: Phenol-d6	143			ug/l	200		72		35-120	
Surrogate: 2,4,6-Tribromophenol	143			ug/l	200		72		45-120	
Surrogate: Nitrobenzene-d5	77.6			ug/l	100		78		45-120	
Surrogate: 2-Fluorobiphenyl	88.0			ug/l	100		88		45-120	
Surrogate: Terphenyl-d14	118			ug/l	100		118		45-120	

LCS Dup Analyzed: 04/06/2005 (5C31053-BSD1)

Naphthalene	75.6	10	4.5	ug/l	100		76		50-120	8 20
N-Nitrosodimethylamine	54.0	20	3.7	ug/l	100		54		40-120	8 20
Surrogate: 2-Fluorophenol	118			ug/l	200		59		30-120	
Surrogate: Phenol-d6	129			ug/l	200		64		35-120	
Surrogate: 2,4,6-Tribromophenol	137			ug/l	200		68		45-120	
Surrogate: Nitrobenzene-d5	70.1			ug/l	100		70		45-120	
Surrogate: 2-Fluorobiphenyl	80.7			ug/l	100		81		45-120	
Surrogate: Terphenyl-d14	111			ug/l	100		111		45-120	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C30091 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (5C30091-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/30/2005 (5C30091-BS1)											
Total Suspended Solids	935	10	10	mg/l	1000		94	85-115			
Duplicate Analyzed: 03/30/2005 (5C30091-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Source: IOC2203-01											
Batch: 5C30093 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (5C30093-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/30/2005 (5C30093-BS1)											
Total Dissolved Solids	1010	10	10	mg/l	1000		101	90-110			
Duplicate Analyzed: 03/30/2005 (5C30093-DUP1)											
Total Dissolved Solids	480	10	10	mg/l		470			2	10	
Source: IOC2323-04											
Batch: 5C31059 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31059-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/31/2005 (5C31059-BS1)											
Perchlorate	48.6	4.0	0.80	ug/l	50.0		97	85-115			

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Michele Harper
Project Manager



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C31059 Extracted: 03/31/05											
Matrix Spike Analyzed: 03/31/2005 (5C31059-MS1)											
Perchlorate	52.6	4.0	0.80	ug/l	50.0	4.3	97	80-120			
Matrix Spike Dup Analyzed: 03/31/2005 (5C31059-MSD1)											
Perchlorate	53.1	4.0	0.80	ug/l	50.0	4.3	98	80-120	1	20	
Batch: 5C31066 Extracted: 03/31/05											
Blank Analyzed: 04/05/2005 (5C31066-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 04/05/2005 (5C31066-BS1)											
Biochemical Oxygen Demand	210	100	30	mg/l	198		106	85-115			
LCS Dup Analyzed: 04/05/2005 (5C31066-BSD1)											
Biochemical Oxygen Demand	206	100	30	mg/l	198		104	85-115	2	20	
Batch: 5C31085 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31085-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/31/2005 (5C31085-BS1)											
Ammonia-N (Distilled)	10.6	0.50	0.30	mg/l	10.0		106	80-115			
Matrix Spike Analyzed: 03/31/2005 (5C31085-MS1)											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120			

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C31085 Extracted: 03/31/05											
Matrix Spike Dup Analyzed: 03/31/2005 (5C31085-MSD1)						Source: IOC2377-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120	0	15	
Batch: 5C31087 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31087-BLK1)											
Oil & Grease	1.10	5.0	0.94	mg/l							J
LCS Analyzed: 03/31/2005 (5C31087-BS1)											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120			M-NR1
LCS Dup Analyzed: 03/31/2005 (5C31087-BSD1)											
Oil & Grease	21.2	5.0	0.94	mg/l	20.0		106	65-120	1	20	
Batch: 5D01075 Extracted: 04/01/05											
Blank Analyzed: 04/01/2005 (5D01075-BLK1)											
Turbidity	ND	1.0	0.040	NTU							
Duplicate Analyzed: 04/01/2005 (5D01075-DUP1)											
Turbidity	0.110	1.0	0.040	NTU					9	20	J

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
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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	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: P5D0201 Extracted: 04/02/05											
Blank Analyzed: 04/02/2005 (P5D0201-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.13			ug/l	1.00		113	80-125			
LCS Analyzed: 04/02/2005 (P5D0201-BS1)											
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0		86	70-130			
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
LCS Dup Analyzed: 04/02/2005 (P5D0201-BSD1)											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130	5	20	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
Matrix Spike Analyzed: 04/02/2005 (P5D0201-MS1)											
						Source: POC0786-06					
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0	ND	86	70-150			
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	80-125			
Matrix Spike Dup Analyzed: 04/02/2005 (P5D0201-MSD1)											
						Source: POC0786-06					
1,4-Dioxane	8.91	1.0	0.49	ug/l	10.0	ND	89	70-150	4	25	
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			

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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- 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.

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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	X	X
EPA 350.2	Water	X	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.dmlabs.com.

Subcontracted Laboratories

Del Mar Analytical - Phoenix *NELAC Cert #01109CA, California Cert #2446*

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

Samples: IOC2360-01

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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) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2360

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
Sample ID: IOC2360-01 Water Sampled: 03/30/05 14:45			
Dioxane-8260B-out	04/13/05 14:45	04/01/05 15:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	04/27/05 14:45	04/01/05 15:00	Boeing
Containers Supplied:			
40 ml VOA w/HCL (IOC2360-01H)			
40 ml VOA w/HCL (IOC2360-01I)			
40 ml VOA w/HCL (IOC2360-01J)			

POD0005-01

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>5.1°C</u>

Released By	Date	Time	Received By	Date	Time
	3-31-05	1700	JH	4/1/05	09:50
Released By	Date	Time	Received By	Date	Time
			Jude Hilli	4-1-05	17:00 JH

1002360

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

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 = 64.4 pH = 7.2				
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec	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	Field readings:	
Outfall 012	W	1L Amber	1	3-30-05 17:45	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		H2S04	9A										X					
Outfall 012	W	1L Poly	1		None	10A												X			
Outfall 012	W	1L Poly	1	3-30-05 17:45	None	11A												X			
Trip Blank	W	VOAS	3		HCl	12A, 12B, 12C, 12D, 12E, 12F			X												
Relinquished By	Date/Time: 3-30-05 15:00			Received By: [Signature] Date/Time: 3/30/05 15:00												Turn around Time: (check) 24 Hours 5 Days 48 Hours 72 Hours Perchlorate Only 72 Hours Metals Only 72 Hours					
Relinquished By	Date/Time: 3-30-05 19:20			Received By: [Signature] Date/Time: 3/30/05 19:20												Turn around Time: (check) 24 Hours 5 Days 48 Hours 72 Hours Perchlorate Only 72 Hours Metals Only 72 Hours					
Relinquished By	Date/Time: 3-30-05 19:20			Received By: [Signature] Date/Time: 3/30/05 19:20												Turn around Time: (check) 24 Hours 5 Days 48 Hours 72 Hours Perchlorate Only 72 Hours Metals Only 72 Hours					

* BUBBLES IN THREE TRIP BLENDS

BIOLOGICAL OXYGEN DEMAND DATA SHEET

Lab Number: 100 2360-01
 Batch Number: 5031066
 Date Sampled: 3/31/05
 Date Received: 3/31/05
 Temperature: 20.00C
 Original pH: 7.0
 Chlorine: ND
 Chlorine Removal: N/A

Dilution Water: 5030623
 Seed Solution: 5030490
 Seed Used: Natural Seed
 Amount: 1.5 ml
 Client: LXX
 Sample Location:
 Seed Correction Factor: 1.13
 pH Correction:

Sample Amount	Bottle Number	Initial D.O.	5 Day D.O.	D.O. Used	Corrected D.O.	Dilution Factor	5 Day B.O.D
1 20 ml	356	3.64	AV 6.92	1.62	1.14	15	17.10
2 50	A1A	3.68	6.92	AV 1.48 1.96	1.28	6	7.68
3 100	A1AC	3.8A	6.68	2.16	1.68	3	5.04
4 300	AG	9.88 10.02 AV 3/31/05	6.13	3.5A	3.36	1	3.36
5							
6							
7							
LCS							
LCSD							
SEED							
SEED DUP							
BLANK							

5 DAY BOD AVERAGE: A.90
 ANALYST: AV
 DATE: IN: 3/31/05 16:30
 OUT: 4/5/05



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: IOC2360

Sampled: 03/30/05
Received: 04/01/05
Issued: 04/05/05 09:34

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
POD0005-01	IOC2360-01	Water
SAMPLE RECEIPT:	Samples were received intact, at 5°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
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2360

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
Sample ID: IOC2360-01 Water Sampled: 03/30/05 14:45			
Dioxane-8260B-out	04/13/05 14:45	04/01/05 15:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	04/27/05 14:45	04/01/05 15:00	Boeing
Containers Supplied:			
40 ml VOA w/HCL (IOC2360-01H)			
40 ml VOA w/HCL (IOC2360-01I)			
40 ml VOA w/HCL (IOC2360-01J)			

POD0005-01

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): 5.1°C

Released By: [Signature] Date: 3-31-05 Time: 1700 Received By: JH 4/1/5 Date: Time: 09:50

Released By: Date: Time: Received By: [Signature] Date: 4-1-5 Time: 17:00 JH

WORK ORDER

POD0005



Client: Del Mar Analytical - Irvine / Client Code: DMAI Project Manager: Karen Maxwell	Project Name: Alfa Outfall 012 - During Test Project Number: IOC2360 Printed: 4/1/2005 11:28:36AM
---	--

Report Information	Sample Receipt Information	Invoice Information
Client Name: Del Mar Analytical - Irvine	Samples Received at: 5.1°C /	Del Mar Analytical - Irvine
Client PM: Michele Harper /	All containers intact: Yes	Michele Harper /
Address: 17461 Derian Ave. Suite 100 Irvine, CA 92614	Sample labels/COC agree: Yes	17461 Derian Ave. Suite 100 Irvine, CA 92614
Phone: (949) 261-1022	Samples Preserved Properly: Yes	Phone (949) 261-1022
Fax: (949) 261-1228	Custody Seals Present: Yes	Fax: (949) 261-1228
Due Date: 04/04/05 18:00 (1 day TAT)	Samples received on ice: Yes	Pricing Information:
	Samples Received By: Jennifer Hojnacki 04/01/05 09:50	Acct Mgr.: Julie Slocum Hoskin
	Samples Logged By: Jennifer Hojnacki 04/01/05 11:26	

Work Order Comments

IOC2360 Autolog from DMAI 04/01/05 11:26

EDD Information:	No EDD information has been stored in the system for this client. If you would like to have EDD default information show up here for this client, please contact the IT Department
-------------------------	--

Analysis	Due	TAT	Expires	Price	Comments
POD0005-01 IOC2360-01 / *8260B (1,4-Dioxane)	04/04/05 17:00	1	04/13/05 14:45	\$155.00+100%	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
*Level IV QC Package	04/06/05 17:00	3	03/25/06 15:45	\$0.00	Boeing

*The Total Price listed above for Work Order POD0005 includes the surcharge listed next to the analysis for the upper level QC packet requested.

SAMPLE RECEIPT FORM

 Date/Time: 4/1/2005 11:28:36AM

 Client Code: DMAI

 DMA Project Number: POD0005

 Received By: Jennifer Hojnacki

 Logged By: Jennifer Hojnacki

 Sample Temperature: 5.1°C

 Samples Received: On Ice On Blue Ice Unchilled

Check All that Apply:				
Analysis	N/A	pH Verified	Additional Preservative Added?	Sample Numbers Needing Adjustment
500ml Amber w/HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HCL	_____
1L Amber w/HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HCL	_____
Poly w/HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HNO3	_____
Poly w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
500ml Amber w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
1L Amber w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
Poly w/NaOH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NaOH	_____
Poly w/ NaOH + Zinc Acetate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NaOH + Zinc Acetate	_____

 Volatile Soil Samples Received in: N/A Brass Sleeves Glass Jars Encore Field Methanol
 Other: _____

Date	Initials	Sample Number	Comments
4/1/2005		POD0005-01	

Reviewed By _____ Date _____ Time _____

4/1/2005 11:28:37AM

Page 1 of 1



QC DATA PACKAGE: LEVEL IV

ANALYTICAL REPORTS



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
 Received: 04/01/05

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
Sample ID: POD0005-01 (IOC2360-01 - Water)									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0201	0.49	1.0	ND	1	04/02/05	04/02/05	
Surrogate: Dibromofluoromethane (80-125%)					116 %				

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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QA/QC DATA PACKAGE: LEVEL IV

QUALITY CONTROL SUMMARIES



Del Mar Analytical

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
 Received: 04/01/05

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
Batch: PSD0201 Extracted: 04/02/05											
Blank Analyzed: 04/02/2005 (P5D0201-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.13			ug/l	1.00		113	80-125			
LCS Analyzed: 04/02/2005 (P5D0201-BS1)											
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0		86	70-130			
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
LCS Dup Analyzed: 04/02/2005 (P5D0201-BSD1)											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130	5	20	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
Matrix Spike Analyzed: 04/02/2005 (P5D0201-MS1)											
						Source: POC0786-06					
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0	ND	86	70-150			
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	80-125			
Matrix Spike Dup Analyzed: 04/02/2005 (P5D0201-MSD1)											
						Source: POC0786-06					
1,4-Dioxane	8.91	1.0	0.49	ug/l	10.0	ND	89	70-150	4	25	
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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Del Mar Analytical

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

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
Received: 04/01/05

DATA QUALIFIERS AND DEFINITIONS

- 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

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Del Mar Analytical

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

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

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
 Received: 04/01/05

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.

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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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

Calibration Status Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration

*3/21/05
 JY*

#	ID	Conc	ISTD Conc	Path\File
1	1	0	1	D:\HPCHEM\1\DATA\031905\PO319018.D
2	2	0	1	D:\HPCHEM\1\DATA\031905\PO319010.D
3	5	1	1	D:\HPCHEM\1\DATA\031905\PO319011.D
4	10	1	1	D:\HPCHEM\1\DATA\031905\PO319012.D
5	20	2	1	D:\HPCHEM\1\DATA\031905\PO319013.D
6	50	5	1	D:\HPCHEM\1\DATA\031905\PO319014.D
7	100	10	1	D:\HPCHEM\1\DATA\031905\PO319015.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Mar 21 07:49 2005	Mar 21 07:48 19105	19 Mar 2005 3:54 pm
2	2	Mar 19 14:55 2005	Mar 19 13:43 19105	19 Mar 2005 11:26 am
3	5	Mar 19 14:55 2005	Mar 19 13:43 19105	19 Mar 2005 11:59 am
4	10	Mar 19 14:55 2005	Mar 19 13:37 19105	19 Mar 2005 12:32 pm
5	20	Mar 19 14:55 2005	Mar 19 13:37 19105	19 Mar 2005 1:05 pm
6	50	Mar 19 14:55 2005	Mar 19 14:18 19105	19 Mar 2005 1:38 pm
7	100	Mar 19 14:55 2005	Mar 19 14:54 19105	19 Mar 2005 2:11 pm

DX031905.M

Mon Mar 21 12:55:30 2005

GCMS1

*3/22/05
 [Signature]*

Compound List Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration
 Total Cpnds : 6

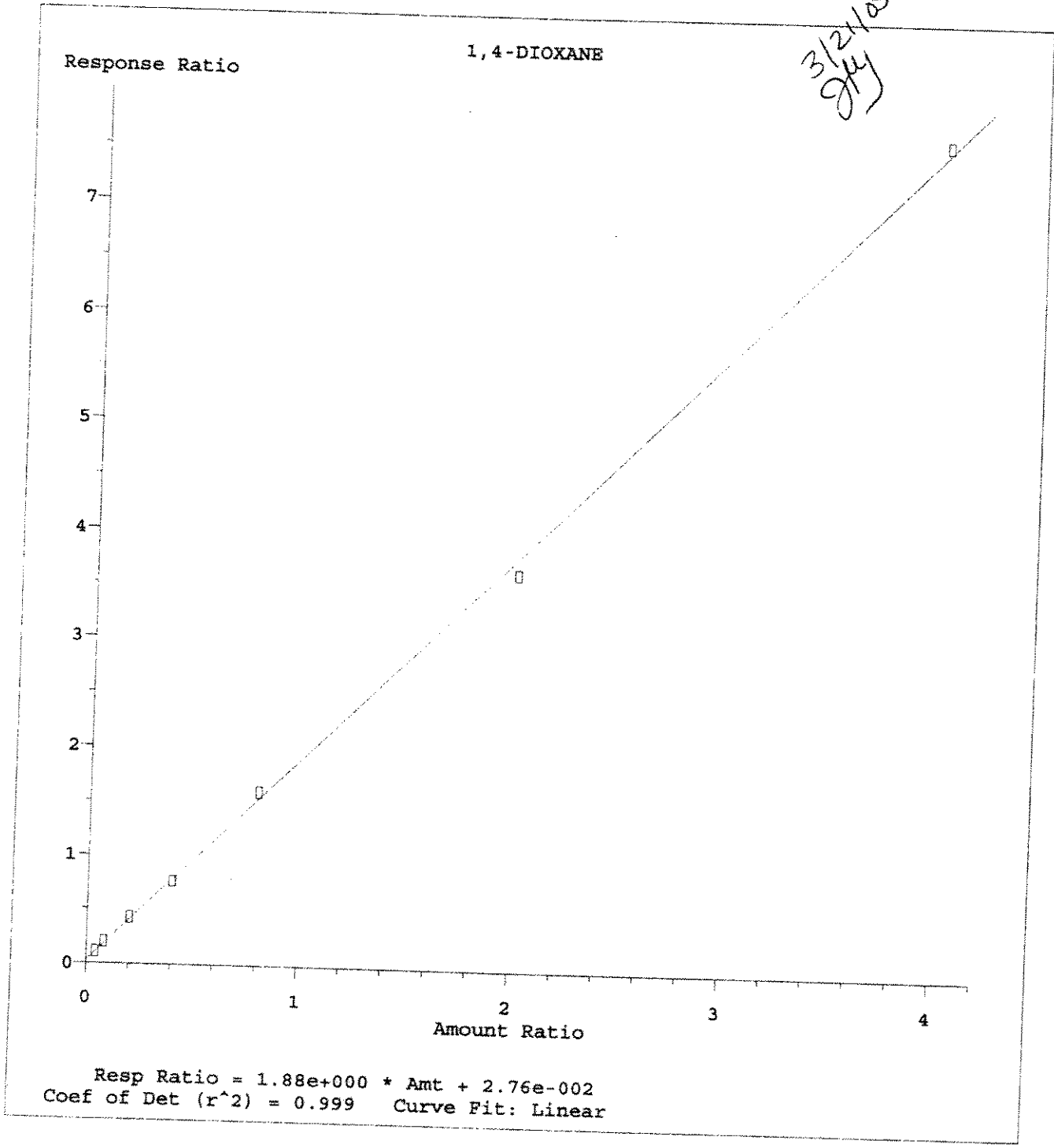
3/21/05
 Jky

PK#	Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I Pentafluorobenzene (IS)	99	10.57	1.000	A	1	A	B
2	S Dibromofluoromethane (SU1)	113	10.07	0.953	A	0	A	B
3	I 1,4-DIOXANE-d8	64	12.35	1.000	A	1	A	B
4	T 1,4-DIOXANE	88	12.43	1.007	L	2	A	B
5	I 1,2,3-Trichloropropane-d5	79	15.08	1.000	A	2	A	B
6	T 1,2,3-Trichloropropane	75	15.08	1.000	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
 #Qual = number of qualifiers
 A/H = Area or Height
 ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

 DX031905.M Mon Mar 21 12:55:24 2005 GCMS1

3/22/05
 Jky



Method Name: D:\HPCHEM\1\METHODS\DX031905.M
 Calibration Table Last Updated: Mon Mar 21 12:54:07 2005

3/22/05

Response Factor Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration

3/21/05
 Jly

Calibration File

1 =P0319018.D 2 =P0319010.D 5 =P0319011.D 10 =P0319012.D
 20 =P0319013.D 50 =P0319014.D 100 =P0319015.D

Compound	1	2	5	10	20	50	100	Avg	%RSD
1) I Pentafluorobenzene (IS)									
2) S Dibromofluoromethane (SU1)									
3) I 1,4-DIOXANE-d8									
4) T 1,4-DIOXANE									
5) I 1,2,3-Trichloropropane-d5									
6) T 1,2,3-Trichloropropane									
(#) = Out of Range								0.000#	-1.00

DX031905.M

Tue Mar 22 12:15:58 2005 GCMS1

3/21/05

Injection Log

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0319001.D	1.	TUNE/BLANK	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.	LCS DUP 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.	CCV 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.	1.0 PPB CAL 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.	CLEAN OUT BLANK/TUNE 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
JW

DMAP GC/MS 1 DAILY LOG SUMMARY

CAL CURVE

DATE: 3/19/05

QC BATCH # (s):

2501902J6 3/21/05

ANALYST: gyl/ms

SEQUENCE FILE: C:\GCMS1\DATA\

CALIBRATION METHOD(S): DX021005.M/W072903.M

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
✓	P0319001	TUNE	1ul	NA	82100	H2O	
1	2	CCV	1x10ML				
2	3	LCS DUP					-DNV IS LOW
3	4	LCS DUP					-DNV IS LOW -> Rep + xp
✓	5	TUNE					
1	6	CCV					
2	7	CCV					-DNV, IS's still low ↓ will re-calibrate
3	8	Blank					
4	9	1.0 ppb Cal					DNV's Grubbs PPH outlier
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 up blank / Tune					
12	17	MS CCV Blank					
13	18	1.0 ppb Cal					
14	19	SS/CCV					

~~MS 3/19/05~~

STANDARD ID NUMBERS

CCV / H₂O LCS / H₂O SPIKE: 5030018

Internal Std: 5030259 ³⁵³ 3/21/05

CALIBRATION STD: 5030348 / 5030349

IS / Surrogate / BFB: 5030321

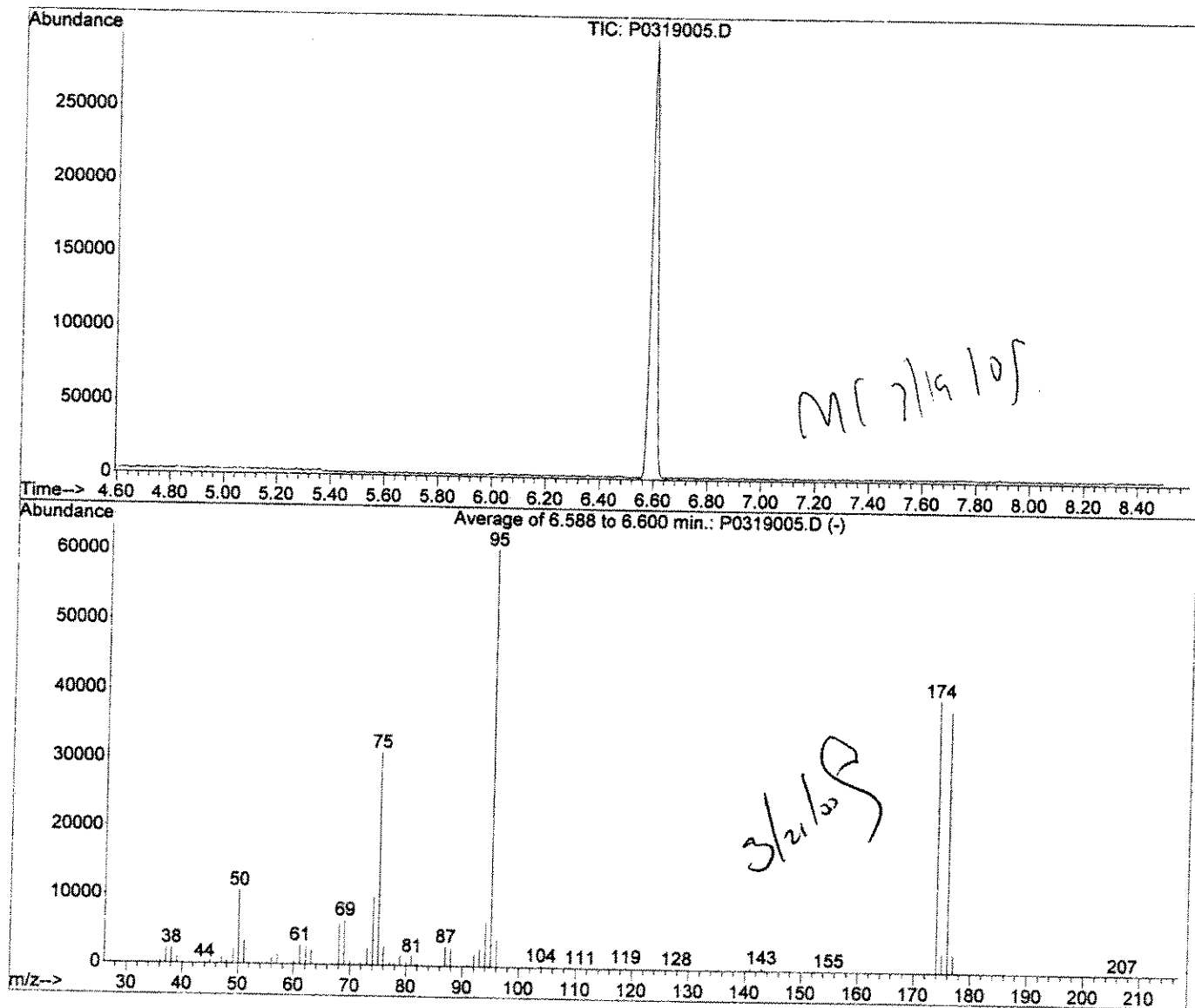
REVIEWER / DATE: Schubert

tune / 5030090

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

1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0319006.D
 Data File Path D:\HPCHEM1\DATA\031905\
 Sample Name CCV

Date Acquired 3/19/2005 9:07
 Operator JG/MS/CLS
 Acq. Method File DX021605
 GCMS1

Diox d8 low
MS 3/19/05

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F	
Pentafluorobenzene (IS)	83241	45485	41621	166482	TRUE	
1,4-DIOXANE-d8	14475	3821	7237.5	28950	FALSE	
SURROGATE	AMOUNT.	% RECOVERY	Low	High	T/F	
Dibromofluoromethane (SU1)	0.99	99.4	80	125	TRUE	
TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	15.67	10.00	156.69	70	130	FALSE

3/21/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319006.D
 Acq On : 19 Mar 2005 9:07 am
 Sample : CCV
 Misc : 1X 10ML

Vial: 6
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

MS Integration Params: DIOXANE.P

Quant Time: Mar 19 9:22 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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	45485	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	3821	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	34911	0.99	ug/L	0.00
Spiked Amount	1.000	Range	80 - 120	Recovery	=	99.00%
Target Compounds						
4) 1,4-DIOXANE	12.43	88	3845	15.67	ug/L	Qvalue 94

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

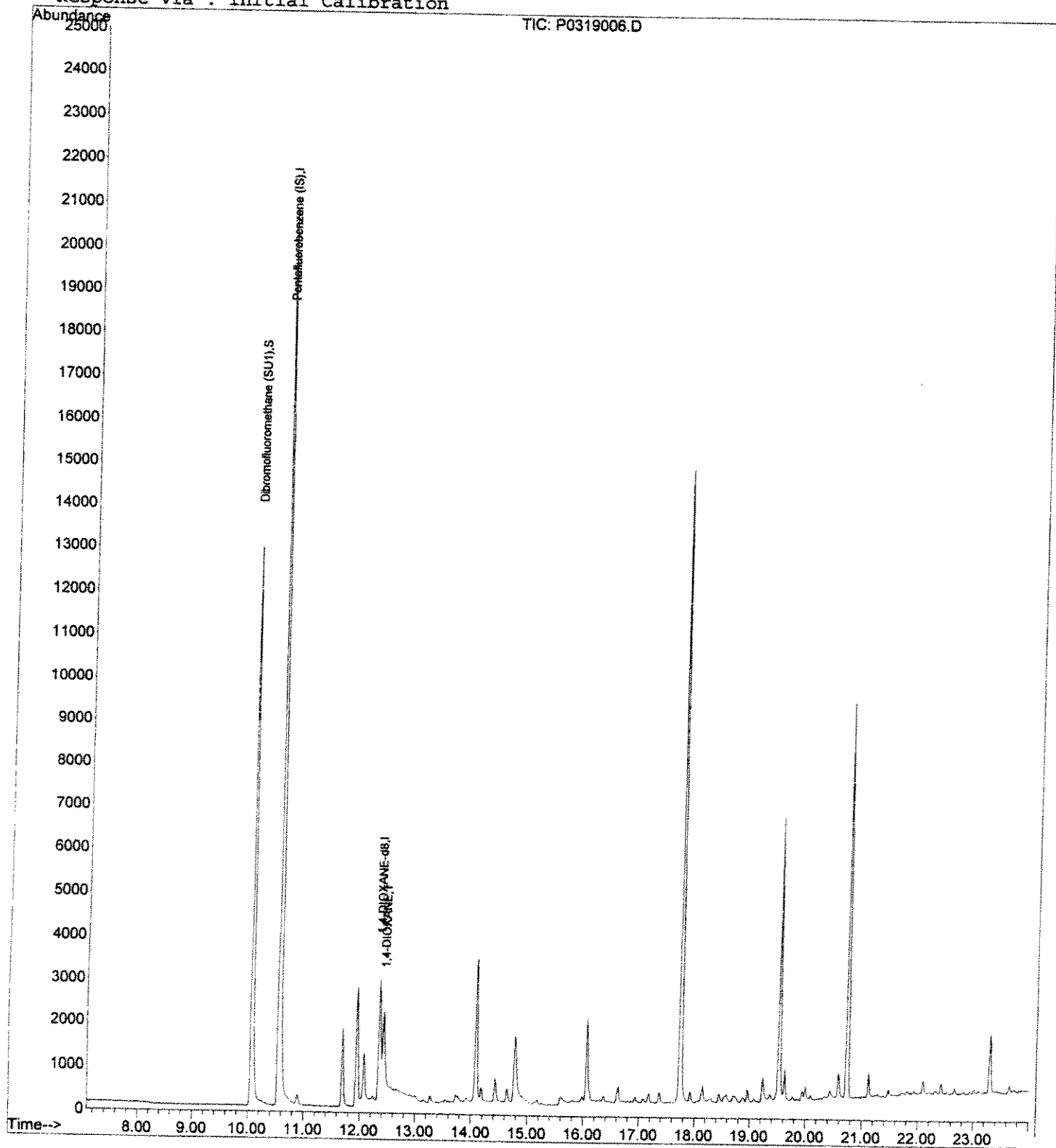
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319006.D
Acq On : 19 Mar 2005 9:07 am
Sample : CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 9:22 2005

Vial: 6
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



1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P031907.D
 Data File Path D:\HPCHEM1\DATA\031905\
 Sample Name CCV
 Date Acquired 3/19/2005 9:39
 Operator JG/MS/CLS
 Acq. Method File DX021605
 GCMS1

Diox-dp conv.
Re-calibration.
MF 3/19/05

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F	
Pentafluorobenzene (IS)	83241	44413	41621	166482	TRUE	
1,4-DIOXANE-d8	14475	5363	7237.5	28950	FALSE	
SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F	
Dibromofluoromethane (SU1)	1.01	101.4	80	125	TRUE	
TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	12.47	10.00	124.68	70	130	TRUE

DM

3/21/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319007.D
 Acq On : 19 Mar 2005 9:39 am
 Sample : CCV
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 10:14 2005

Vial: 7
 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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	44413	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5363	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 34770 1.01 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 101.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 4328 12.47 ug/L Qvalue 99

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

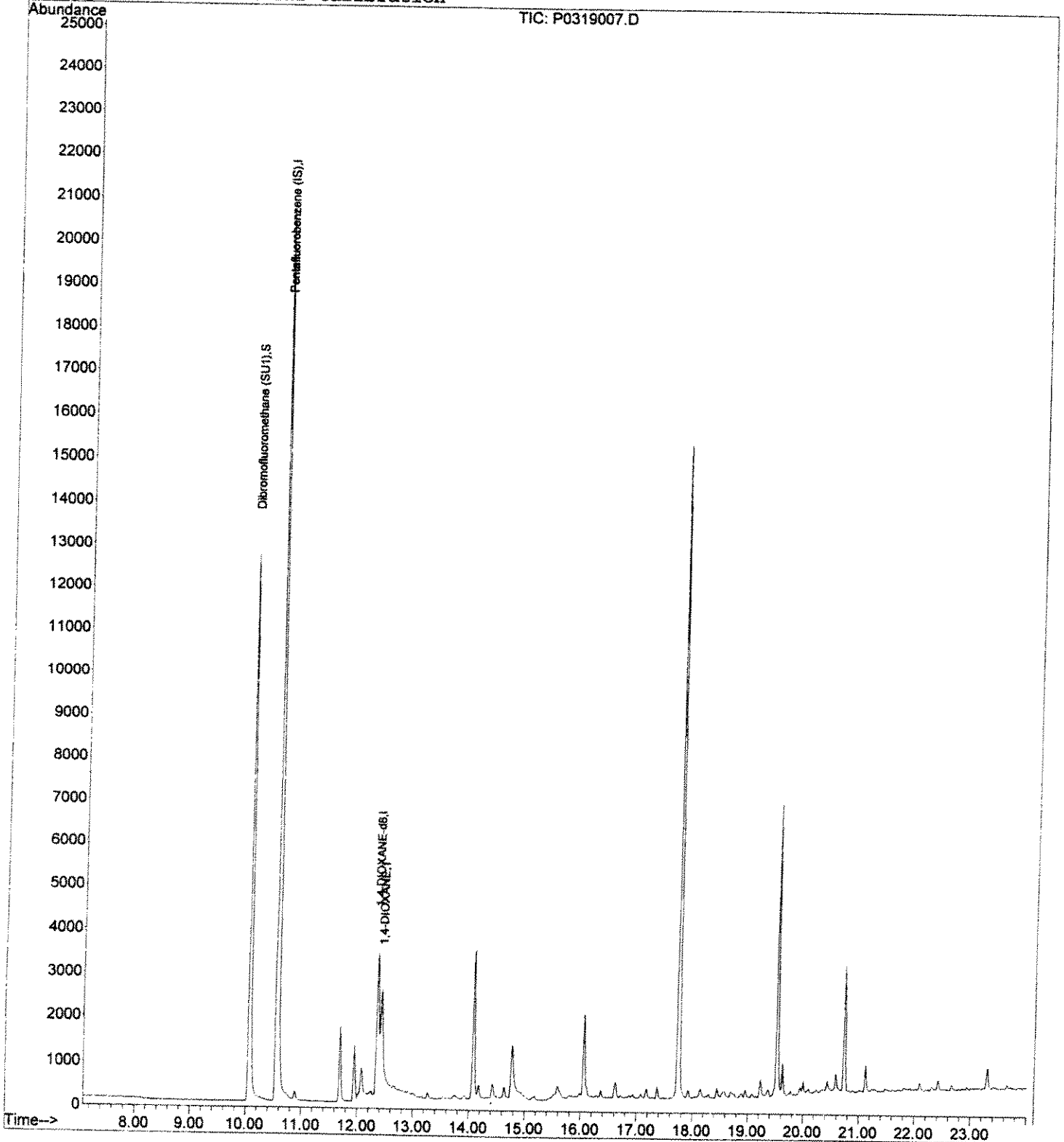
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319007.D
Acq On : 19 Mar 2005 9:39 am
Sample : CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 10:14 2005

Vial: 7
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



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

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

MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 10:34 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

ME 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 <i>NT</i>	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						Qvalue
4) 1,4-DIOXANE	12.45	88	278	0.23	ug/L	<i>ND</i> 92

3/21/05

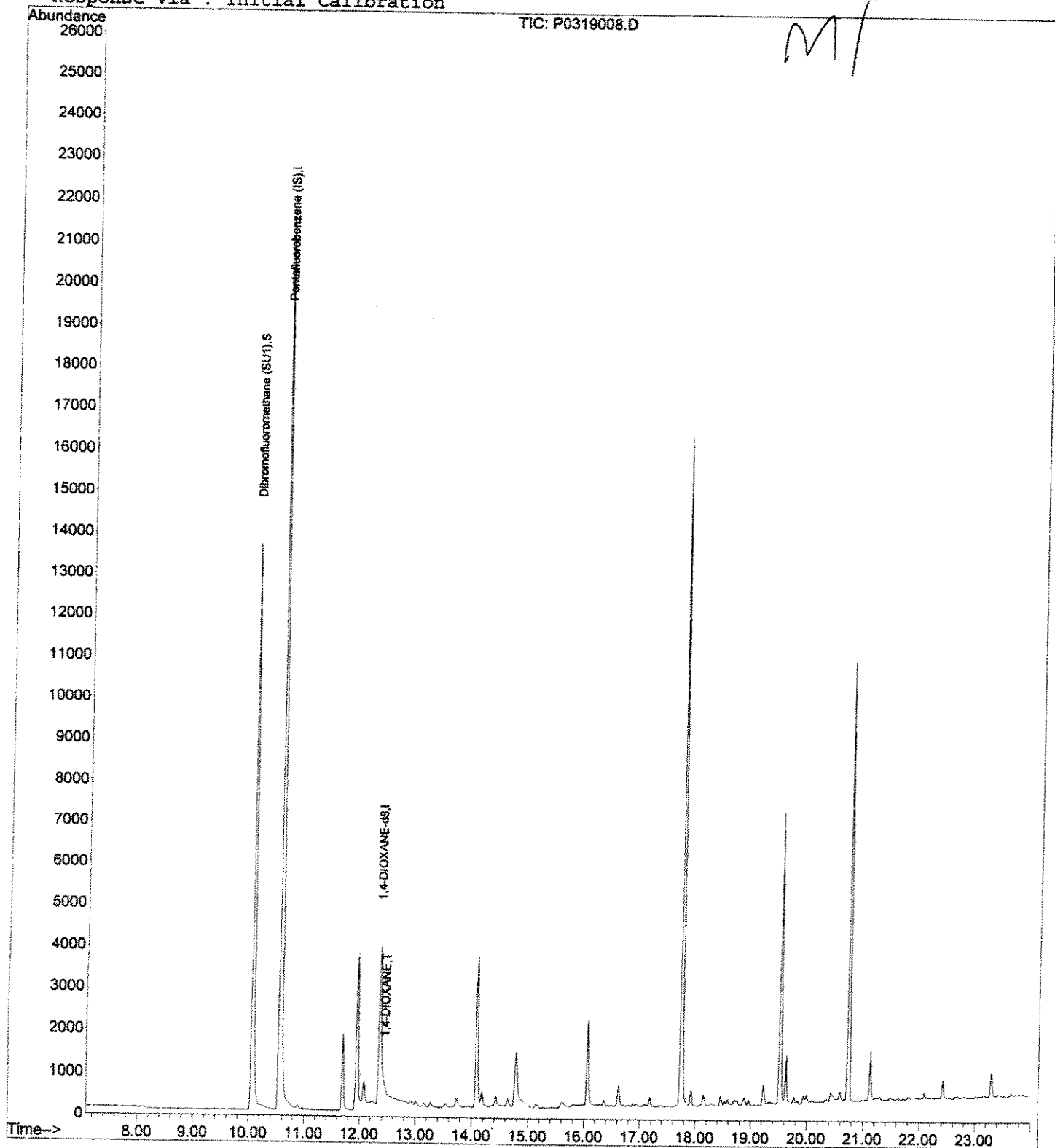
Quantitation Report

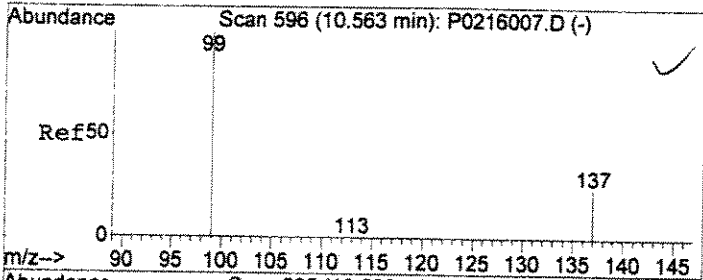
Data File : D:\HPCHEM\1\DATA\031905\P0319008.D
Acq On : 19 Mar 2005 10:12 am
Sample : BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 10:34 2005

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

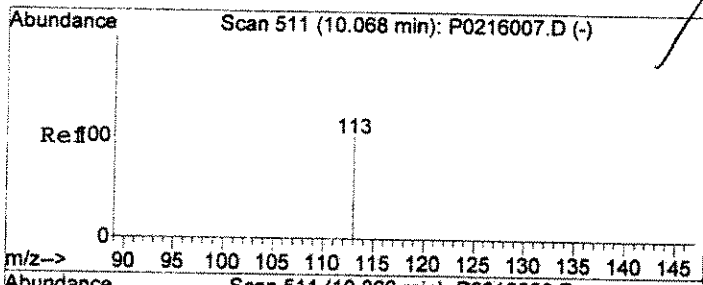
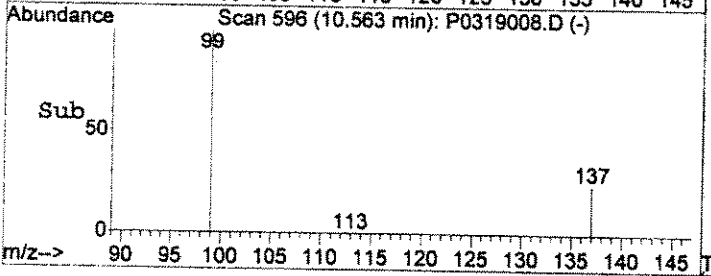
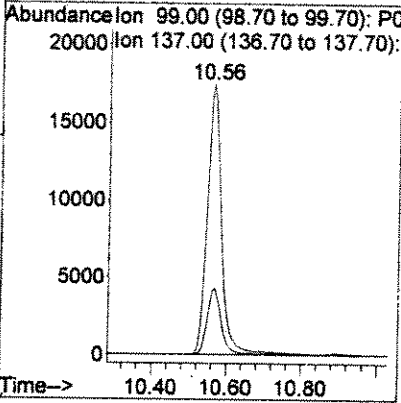
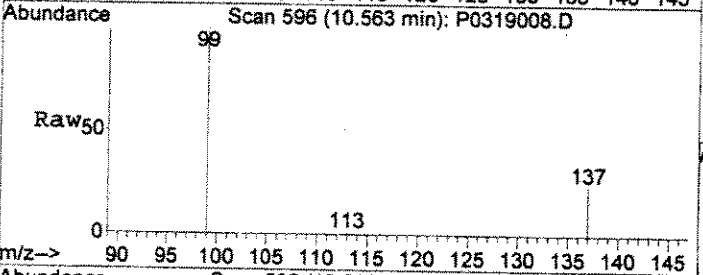




#1
 Pentafluorobenzene (IS)
 Concen: 1.00 ug/L
 RT: 10.56 min Scan# 596
 Delta R.T. 0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

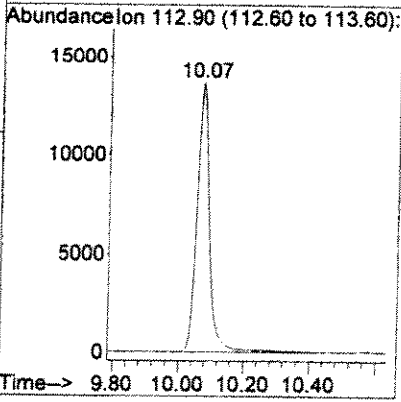
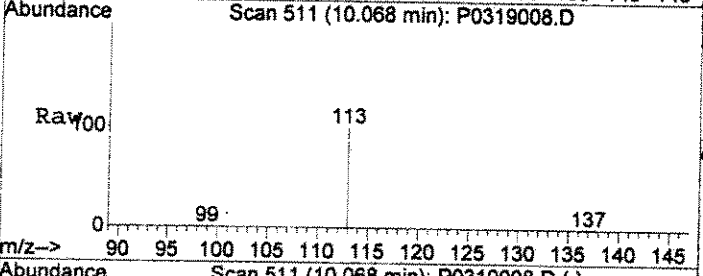
Tgt Ion: 99 Resp: 46878

Ion	Ratio	Lower	Upper
99	100		
137	23.9	3.7	43.7

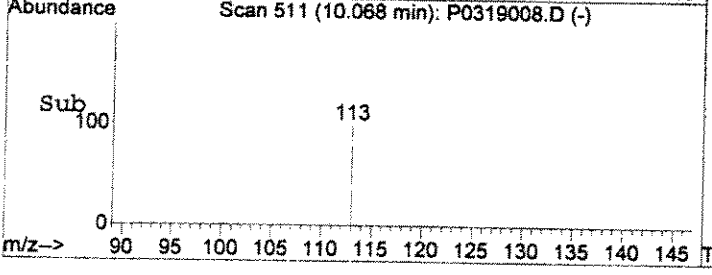


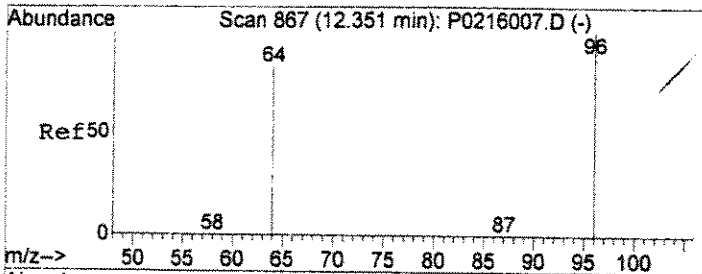
#2
 Dibromofluoromethane (SU1)
 Concen: 1.00 ug/L
 RT: 10.07 min Scan# 511
 Delta R.T. 0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 113 Resp: 37890



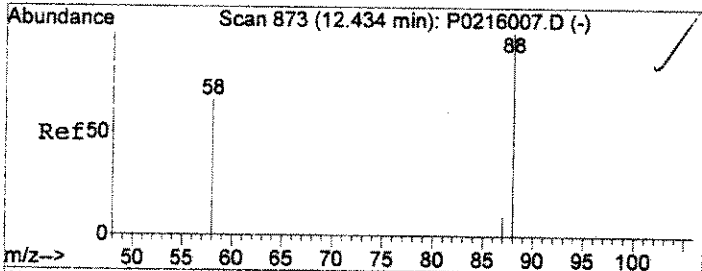
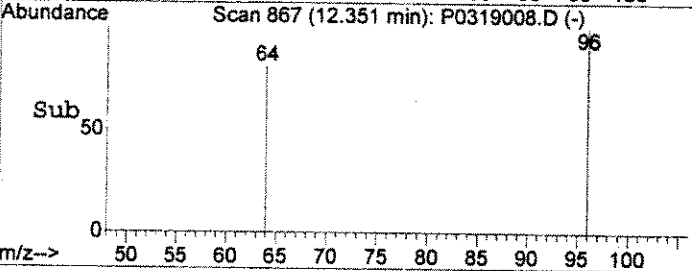
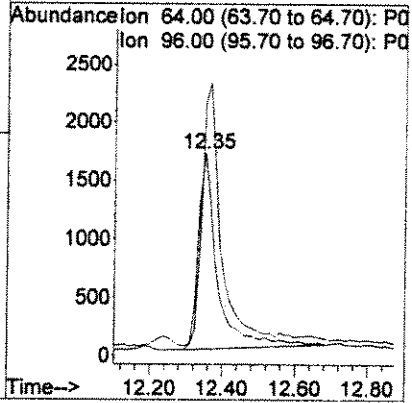
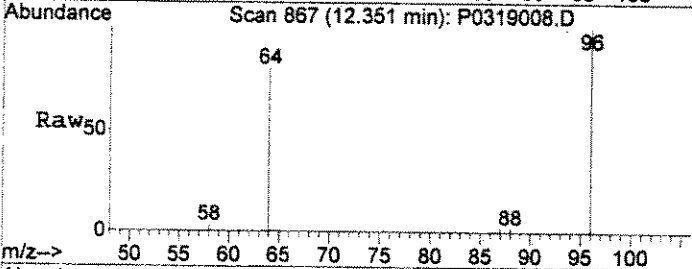
8





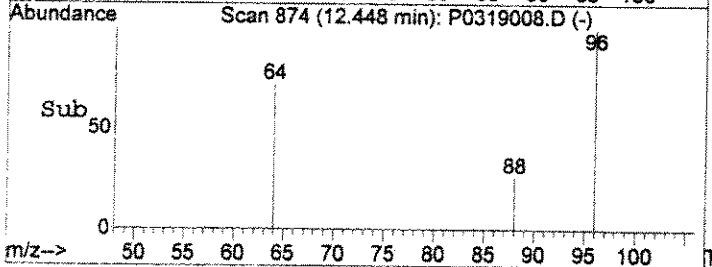
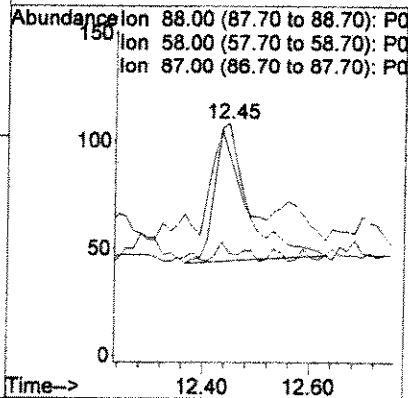
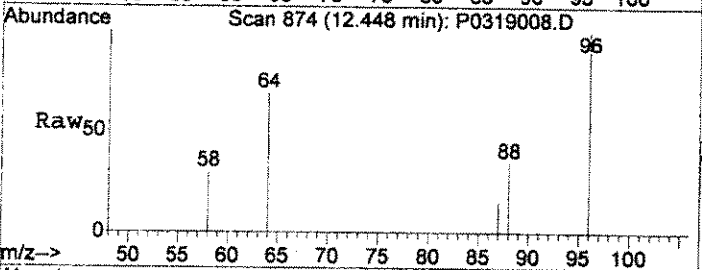
#3
 1,4-DIOXANE-d8
 Concen: 25.00 ug/L
 RT: 12.35 min Scan# 867
 Delta R.T. -0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

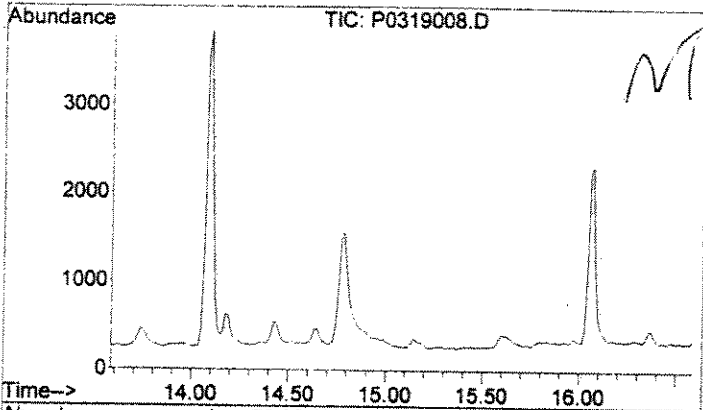
Tgt Ion: 64 Resp: 6171
 Ion Ratio Lower Upper
 64 100
 96 123.7 70.1 170.1



#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

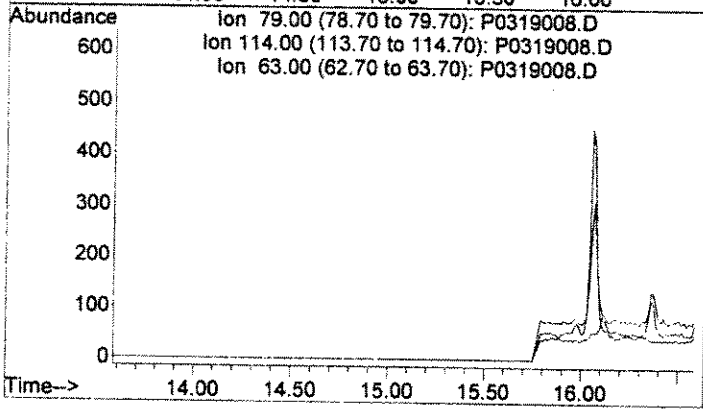




#5 *M*
 1,2,3-Trichloropropane-d5
 Concen: 0.00 ug/L
 Expected RT: 15.08 min

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



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\PO319009.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

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

MS 3/19/05

*See Grubbs
Test
JG 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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DNV

Q

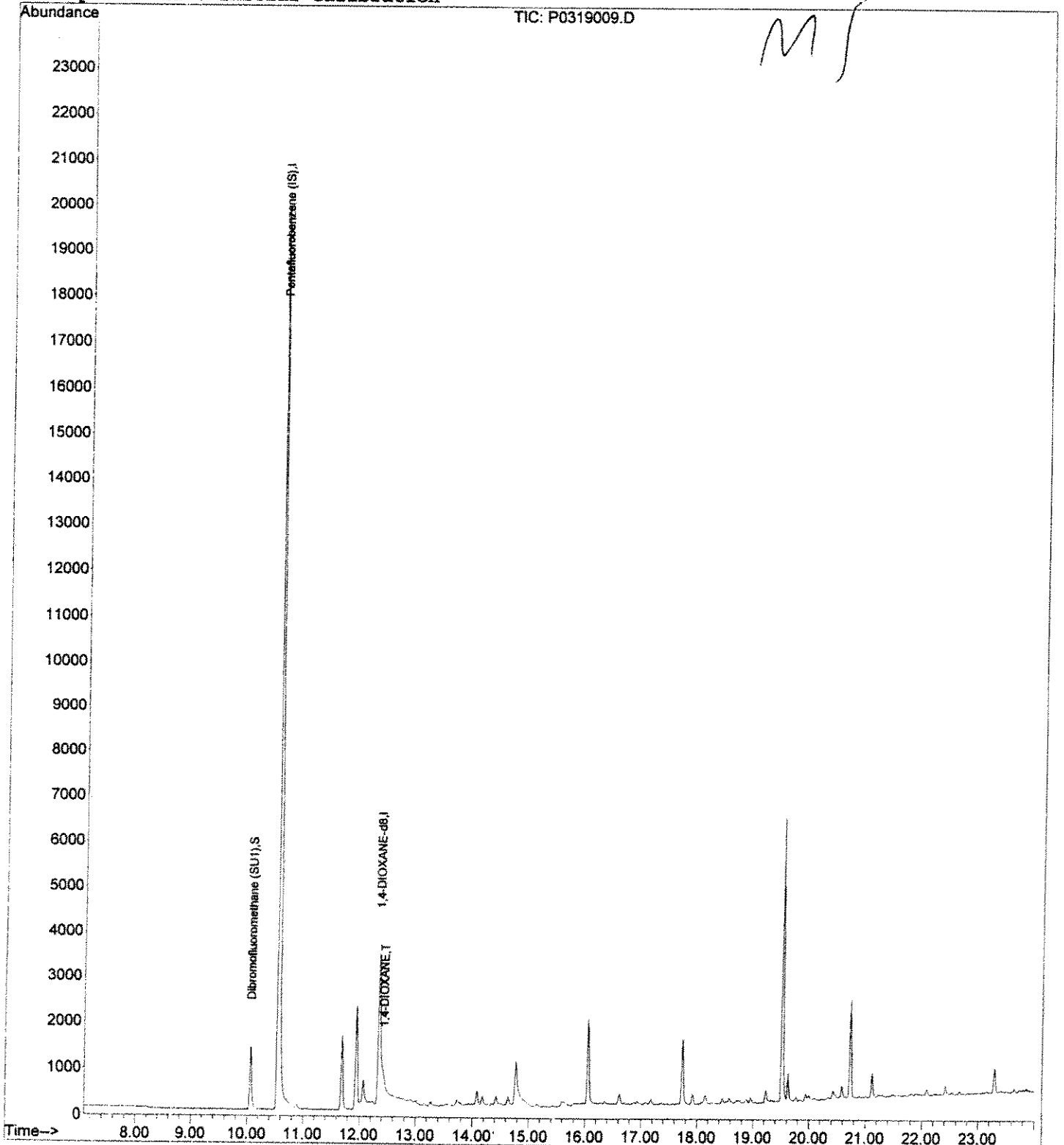
Quantitation Report

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



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

83/1/2-8

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319010.D Vial: 10
 Acq On : 19 Mar 2005 11:26 am Operator: JG/MS/CLS
 Sample : 2.0 PPB CAL Inst : GCMS1
 Misc : 1X 10ML Multiplr: 1.00
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 13:43 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

MS 3/14/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.57	99	45768	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5185	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0NT	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 7585 0.21 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 21.00%#

Target Compounds

4) 1,4-DIOXANE 12.43 88 1028 2.69 ug/L Qvalue 94

3/21/05

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319010.D
Acq On : 19 Mar 2005 11:26 am
Sample : 2.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 10
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

