1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOD0229
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles
QC Level:	Level IV
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Reviewer:	K. Shadowlight
Date of Review:	May 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2), EPA Method 624, SW846 Method 8260B,* and the *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOD0229-01	water	624
Trip Blank	Trip Blank	IOD0229-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in EPA Method 624, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection time. The BFB summary report was verified from the raw data and no discrepancies between the summary report and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 04/01/05 was associated with this SDG. The average RRFs were ≥0.05 for the target compounds listed on the sample result summaries. The %RSDs were ≤35% for all applicable target compounds. One continuing calibration dated 04/10/05 was associated with the sample analyses in this SDG. The %D for diisopropyl ether (DIPE) exceeded 20% in the continuing calibration dated 04/10/05; therefore, the nondetect result for diisopropyl ether was qualified as estimated, "UJ," in sample Outfall 012. No qualifications were required for the Trip Blank. The RRFs were ≥0.05 for the target compounds listed on the sample result summaries. A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

One water method blank (5D10007-BLK1) was associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5D10007-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The surrogates were recovered within the QC limits of 80-120% in the samples and associated QC. A representative number of surrogate recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed for this SDG. Evaluation of method accuracy was based on blank spike results. No qualifications were required.

2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site sample. Following are findings associated with field QC samples:

2.8.1 Trip Blanks

Sample Trip Blank was the trip blank associated with this SDG. There were no target compounds detected above the MDLs in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples in this SDG were within the control limits established by the continuing calibration standards: +100%/-50% for internal standard areas and ±0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed the volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standard and by the MDL study. As there were no sample detects in this SDG, compound quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in µg/L (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not provide TICs for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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

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
9330 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0229

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

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual code
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**						
Reporting Units: ug/l											
1,2-Dibromoethane (EDB)	EPA 624	5D10007	0.32	2.0	ND	1	04/10/05	04/10/05	U	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5D10007	0.32	5.0	ND	1	04/10/05	04/10/05			
1,2,3-Trichloropropane	EPA 624	5D10007	0.85	10	ND	1	04/10/05	04/10/05			
Di-isopropyl Ether (DIPE)	EPA 624	5D10007	0.25	5.0	ND	1	04/10/05	04/10/05			
tert-Butanol (TBA)	EPA 624	5D10007	3.1	25	ND	1	04/10/05	04/10/05	UJ	UJ	C
Surrogate: Dibromofluoromethane (80-120%)					*103 %*				U	U	
Surrogate: Toluene-d8 (80-120%)					*102 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*104 %*						
Sample ID: IOD0229-02 (DRAFT: Trip Blank - Water)					**Sampled: 04/04/05**						
Reporting Units: ug/l											
1,2-Dibromoethane (EDB)	EPA 624	5D10007	0.32	2.0	ND	1	04/10/05	04/10/05	U	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5D10007	0.32	5.0	ND	1	04/10/05	04/10/05			
1,2,3-Trichloropropane	EPA 624	5D10007	0.85	10	ND	1	04/10/05	04/10/05			
Di-isopropyl Ether (DIPE)	EPA 624	5D10007	0.25	5.0	ND	1	04/10/05	04/10/05			
tert-Butanol (TBA)	EPA 624	5D10007	3.1	25	ND	1	04/10/05	04/10/05			
Surrogate: Dibromofluoromethane (80-120%)					*109 %*						
Surrogate: Toluene-d8 (80-120%)					*111 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*107 %*						

ANEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

05/06/05

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar Analytical
Reviewer K. Shadowlight
Analysis/Method 1,4-Dioxane by 8260

Package ID T711VO98
Task Order 313150010
SDG No. IOD0229
No. of Analyses 1

Date May 11, 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**	Qualification was assigned for a %D continuing calibration outlier
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 Qualifier Reference Table

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

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.
*#	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOD0229

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 #:	IOD0229
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles (1,4-dioxane)
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	K. Shadowlight
Date of Review:	May 8, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in *the AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2), EPA Method SW-846 8260B* and the *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No. Del Mar, CA	Lab No. Del Mar, AZ	Matrix	Method
Outfall 012	Outfall 012	IOD0229-01	POD0176-01	water	8260B

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the Del Mar within the temperature limits of 4°C ±2°C. The sample was subcontracted to Del Mar (Phoenix) for 1,4-dioxane analysis. The sample was properly preserved. The COC and transfer COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

One initial calibration, dated 03/19/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥0.05 and the r^2 value was ≥0.995. The laboratory reported the continuing calibration and the blank spike (P5D1317-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer reported P5D1317-BS1 as the continuing calibration. The RRF for 1,4-dioxane was ≥0.05 and the %D was ≤20%. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (P5D1317-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5D1317-BS1/BS1D) with this SDG; however, P5D1317-BS1 was reported as the CCV (see section 2.3); therefore, P5D1317-BS1D was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the QC limits of 70-130%. The recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site sample. Following are findings associated with field QC samples:

2.8.1 Trip Blanks

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

2.8.1.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC142
Task Order 313150010
SDG No. IOD0229
No. of Analyses 1

Laboratory Del Mar Analytical
Reviewer L. Jarusewic
Analysis/Method General Minerals

Date: 05/10/05
Reviewer's Signature L Jarusewic

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.,**	Qualifications were applied for:
Holding Times	1) Analyses exceeding holding times
GC/MS Tune/Inst. Performance	
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 Qualifier Reference Table

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

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
S	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: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOD0229

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 #:	IOD0229
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	General Minerals
QC Level:	Level IV
No. of Samples:	1
Reviewer:	L. Jarusewic
Date of Review:	May 10, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 413.1, 418.1, 160.2, 160.5, and 180.1, Standard Methods for the Examination of Water and Wastewater Method SM2540C,* and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94).* Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form 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 012	Outfall 012	IOD0229-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ± 2°C. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 48-hour holding time for turbidity was exceeded; therefore, turbidity detected was qualified as estimated, "J." The 28-day analytical holding time for ammonia, oil and grease, and total recoverable hydrocarbons, the 7-day holding time for total dissolved solids and total suspended solids, and the 48-hour holding time for total settleable solids and BOD were met. No further qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥0.995. The initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. Calibration is not applicable to total suspended solids, total settleable solids, or oil and grease. No qualifications were required.

2.3 BLANKS

Turbidity was detected in a bracketing CCB at 0.040 NTU; however, the turbidity CCB result was insufficient to qualify Outfall 012. The remaining method blank and CCB results reported on the summary forms and in the raw data for the blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control sample duplicate (total recoverable hydrocarbons, BOD, and oil and grease only) recoveries were within the laboratory-established control limits. The LCS is not applicable to total settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analyses presented in this SDG.

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

ICP serial dilution is not applicable to the analyses presented in this data validation report.

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.

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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0229

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

DRAFT: 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: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5D07088	0.31	1.0	7.7	1	04/07/05	04/07/05	

REV QUAL | QUAL CODE

AMEC VALIDATED

LEVEL I

DRAFT REPORT
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300 North Lake Avenue, Suite 1200
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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0229

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

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL	QUAL CODE
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 04/04/05**					
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5D08083	0.30	0.50	ND	1	04/08/05	04/08/05	U	
Biochemical Oxygen Demand	EPA 405.1	5D06055	0.59	2.0	**3.6**	1	04/06/05	04/11/05		
Oil & Grease	EPA 413.1	5D11073	0.94	5.0	**5.5**	1	04/11/05	04/11/05		
Total Dissolved Solids	SM2540C	5D07121	10	10	**220**	1	04/07/05	04/07/05		
Total Suspended Solids	EPA 160.2	5D07079	10	10	**20**	1	04/07/05	04/07/05		
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**					
Reporting Units: ml/l/hr										
Total Settleable Solids	EPA 160.5	5D06057	0.10	0.10	ND	1	04/06/05	04/06/05	U	
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**					
Reporting Units: NTU										
Turbidity	EPA 180.1	5D07071	0.040	1.0	**32**	1	04/07/05	04/07/05	J	H H
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5D06050	0.80	4.0	ND	1	04/06/05	04/06/05	*	

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar Analytical
Reviewer L. Jarusewic
Analysis/Method Perchlorate

Package ID T711WC143
Task Order 313150010
SDG No. IOD0229
No. of Analyses 1

Date: 05/10/05
Reviewer's Signature L Jarusewic

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.,**	
Holding Times	
GC/MS Tune/Inst. Performance	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS[b]	Acceptable as reviewed.

[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 Qualifier Reference Table

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

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
$	Reported result or other informatiou 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: PERCHLORATE

SAMPLE DELIVERY GROUP: IOD0229

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 #:	IOD0229
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Perchlorate
QC Level:	Level IV
No. of Samples:	1
Reviewer:	L. Jarusewic
Date of Review:	May 10, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0,* and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94).* Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form 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 012	Outfall 012	IOD0229-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥0.995. The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank result reported on the summary form and in the raw data for the blank analysis associated with the sample was a nondetect at the reporting limit. Perchlorate was detected in a bracketing CCB at 0.85 µg/L; however, as perchlorate was not detected in the sample, no qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analysis presented in this SDG.

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

ICP serial dilution is not applicable to the analysis presented in this data validation report.

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.

Del Mar Analytical

17461Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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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
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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0229

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

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 04/04/05**				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5D08083	0.30	0.50	ND	1	04/08/05	04/08/05	*
Biochemical Oxygen Demand	EPA 405.1	5D06055	0.59	2.0	**3.6**	1	04/06/05	04/11/05	
Oil & Grease	EPA 413.1	5D11073	0.94	5.0	**5.5**	1	04/11/05	04/11/05	
Total Dissolved Solids	SM2540C	5D07121	10	10	**220**	1	04/07/05	04/07/05	
Total Suspended Solids	EPA 160.2	5D07079	10	10	**20**	1	04/07/05	04/07/05	
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**				
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5D06057	0.10	0.10	ND	1	04/06/05	04/06/05	
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**				
Reporting Units: NTU									
Turbidity	EPA 180.1	5D07071	0.040	1.0	**32**	1	04/07/05	04/07/05	H
Sample ID: IOD0229-01 (DRAFT: Outfall 012 - Water)					**Sampled: 04/04/05**				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5D06050	0.80	4.0	ND	1	04/06/05	04/06/05	U

REV QUAL QUAL CODE

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

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

LABORATORY REPORT

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

Project: Alfa Outfall 012 - During Test

Sampled: 04/13/05
Received: 04/13/05
Issued: 05/20/05 11:30

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOD0948-01	Outfall 012	Water
IOD0948-02	Trip Blank	Water

Reviewed By:

Michele Harper

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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
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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5D21036	0.31	1.0	**9.8**	1	04/21/05	04/21/05	

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5D15050	0.082	0.50	1.7	0.99	04/15/05	04/16/05	
Surrogate: n-Octacosane (40-125%)					*67 %*				

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

Project ID: Alfa Outfall 012 - During Test
Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5D21046	1.0	2.0	**2.5**	20	04/21/05	04/21/05	
Surrogate: 4-BFB (FID) (65-140%)					*100 %*				
Sample ID: IOD0948-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5D21046	0.050	0.10	ND	1	04/21/05	04/21/05	
Surrogate: 4-BFB (FID) (65-140%)					*79 %*				

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5D24007	0.32	2.0	ND	1	04/24/05	04/24/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5D24007	0.32	5.0	ND	1	04/24/05	04/24/05	
1,2,3-Trichloropropane	EPA 624	5D24007	0.85	10	ND	1	04/24/05	04/24/05	
Di-isopropyl Ether (DIPE)	EPA 624	5D24007	0.25	5.0	ND	1	04/24/05	04/24/05	
tert-Butanol (TBA)	EPA 624	5D24007	3.1	25	ND	1	04/24/05	04/24/05	
Surrogate: Dibromofluoromethane (80-120%)					*113 %*				
Surrogate: Toluene-d8 (80-120%)					*106 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*106 %*				
Sample ID: IOD0948-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5D24007	0.32	2.0	ND	1	04/24/05	04/24/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5D24007	0.32	5.0	ND	1	04/24/05	04/24/05	
1,2,3-Trichloropropane	EPA 624	5D24007	0.85	10	ND	1	04/24/05	04/24/05	
Di-isopropyl Ether (DIPE)	EPA 624	5D24007	0.25	5.0	ND	1	04/24/05	04/24/05	
tert-Butanol (TBA)	EPA 624	5D24007	3.1	25	ND	1	04/24/05	04/24/05	
Surrogate: Dibromofluoromethane (80-120%)					*107 %*				
Surrogate: Toluene-d8 (80-120%)					*106 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*104 %*				

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5D14041	4.5	10	**37**	0.966	04/14/05	04/19/05	
N-Nitrosodimethylamine	EPA 625	5D14041	3.7	20	ND	0.966	04/14/05	04/19/05	
Surrogate: 2-Fluorophenol (30-120%)					*57 %*				
Surrogate: Phenol-d6 (35-120%)					*60 %*				
Surrogate: 2,4,6-Tribromophenol (45-120%)					*69 %*				
Surrogate: Nitrobenzene-d5 (45-120%)					*73 %*				
Surrogate: 2-Fluorobiphenyl (45-120%)					*69 %*				
Surrogate: Terphenyl-d14 (45-120%)					*98 %*				

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Michele Harper
Project Manager

Del Mar Analytical

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

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

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Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD0948-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5D14077	0.30	0.50	ND	1	04/14/05	04/14/05	
Biochemical Oxygen Demand	EPA 405.1	5D14060	0.59	2.0	**3.8**	1	04/14/05	04/19/05	
Oil & Grease	EPA 413.1	5D14081	0.94	5.0	**4.2**	1	04/14/05	04/14/05	J
Total Dissolved Solids	SM2540C	5D18095	10	10	**240**	1	04/18/05	04/18/05	
Total Suspended Solids	EPA 160.2	5D18089	10	10	**12**	1	04/18/05	04/18/05	
Sample ID: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5D15069	0.10	0.10	ND	1	04/15/05	04/15/05	
Sample ID: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D15076	0.040	1.0	**25**	1	04/15/05	04/15/05	
Sample ID: IOD0948-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5D14043	0.80	4.0	ND	1	04/14/05	04/14/05	

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Michele Harper
Project Manager

Del Mar Analytical

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

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
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Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: IOD0948-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D1803	0.49	1.0	ND	1	04/18/05	04/18/05	
Surrogate: Dibromofluoromethane (80-125%)					*117 %*				

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Michele Harper
Project Manager

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 012 (IOD0948-01) - Water					
EPA 160.5	2	04/13/2005 13:00	04/13/2005 19:00	04/15/2005 07:20	04/15/2005 08:20
EPA 180.1	2	04/13/2005 13:00	04/13/2005 19:00	04/15/2005 08:00	04/15/2005 10:30
EPA 405.1	2	04/13/2005 13:00	04/13/2005 19:00	04/14/2005 18:15	04/19/2005 10:30

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Michele Harper
Project Manager

Del Mar Analytical

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Pasadena, CA 91101
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Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D21036 Extracted: 04/21/05											
Blank Analyzed: 04/21/2005 (5D21036-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 04/21/2005 (5D21036-BS1)											**M-NR1**
Total Recoverable Hydrocarbons	4.48	1.0	0.31	mg/l	5.00		90	65-120			
LCS Dup Analyzed: 04/21/2005 (5D21036-BSD1)											
Total Recoverable Hydrocarbons	4.60	1.0	0.31	mg/l	5.00		92	65-120	3	20	

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Michele Harper
Project Manager

Del Mar Analytical

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300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
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Sampled: 04/13/05
Received: 04/13/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D15050 Extracted: 04/15/05											
Blank Analyzed: 04/15/2005 (5D15050-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	*0.0878*			*mg/l*	*0.200*		*44*	*40-125*			
LCS Analyzed: 04/16/2005 (5D15050-BS1)											**M-NR1**
EFH (C13 - C40)	0.513	0.50	0.082	mg/l	0.775		66	40-120			
Surrogate: n-Octacosane	*0.105*			*mg/l*	*0.200*		*52*	*40-125*			
LCS Dup Analyzed: 04/15/2005 (5D15050-BSD1)											
EFH (C13 - C40)	0.511	0.50	0.082	mg/l	0.775		66	40-120	0	25	
Surrogate: n-Octacosane	*0.0853*			*mg/l*	*0.200*		*43*	*40-125*			

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Michele Harper
Project Manager

Del Mar Analytical

17461Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
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METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D21046 Extracted: 04/21/05											
Blank Analyzed: 04/21/2005 (5D21046-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	*0.00961*			*mg/l*	*0.0100*		*96*	*65-140*			
LCS Analyzed: 04/21/2005 (5D21046-BS1)											
GRO (C4 - C12)	0.797	0.10	0.050	mg/l	0.800		100	70-140			
Surrogate: 4-BFB (FID)	*0.0308*			*mg/l*	*0.0300*		*103*	*65-140*			
Matrix Spike Analyzed: 04/21/2005 (5D21046-MS1)						**Source: IOD0931-07**					
GRO (C4 - C12)	0.291	0.10	0.050	mg/l	0.220	ND	132	60-140			
Surrogate: 4-BFB (FID)	*0.0117*			*mg/l*	*0.0100*		*117*	*65-140*			
Matrix Spike Dup Analyzed: 04/21/2005 (5D21046-MSD1)						**Source: IOD0931-07**					
GRO (C4 - C12)	0.213	0.10	0.050	mg/l	0.220	ND	97	60-140	31	20	*R*
Surrogate: 4-BFB (FID)	*0.00938*			*mg/l*	*0.0100*		*94*	*65-140*			

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Michele Harper
Project Manager

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

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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: 5D24007 Extracted: 04/24/05											
Blank Analyzed: 04/24/2005 (5D24007-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	*26.4*			*ug/l*	*25.0*		*106*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.3*			*ug/l*	*25.0*		*101*	*80-120*			
LCS Analyzed: 04/24/2005 (5D24007-BS1)											
1,2-Dibromoethane (EDB)	26.4	2.0	0.32	ug/l	25.0		106	70-125			
Methyl-tert-butyl Ether (MTBE)	29.0	5.0	0.32	ug/l	25.0		116	55-140			
1,2,3-Trichloropropane	27.9	10	0.85	ug/l	25.0		112	55-130			
Di-isopropyl Ether (DIPE)	29.6	5.0	0.25	ug/l	25.0		118	60-135			
tert-Butanol (TBA)	131	25	3.1	ug/l	125		105	65-135			
Surrogate: Dibromofluoromethane	*27.3*			*ug/l*	*25.0*		*109*	*80-120*			
Surrogate: Toluene-d8	*26.2*			*ug/l*	*25.0*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.0*			*ug/l*	*25.0*		*104*	*80-120*			
Matrix Spike Analyzed: 04/24/2005 (5D24007-MS1)						**Source: IOD0931-05**					
1,2-Dibromoethane (EDB)	21.0	2.0	0.32	ug/l	25.0	ND	84	65-130			
Methyl-tert-butyl Ether (MTBE)	24.3	5.0	0.32	ug/l	25.0	ND	97	50-150			
1,2,3-Trichloropropane	21.7	10	0.85	ug/l	25.0	ND	87	50-135			
Di-isopropyl Ether (DIPE)	27.2	5.0	0.25	ug/l	25.0	ND	109	60-140			
tert-Butanol (TBA)	128	25	3.1	ug/l	125	ND	102	60-145			
Surrogate: Dibromofluoromethane	*27.2*			*ug/l*	*25.0*		*109*	*80-120*			
Surrogate: Toluene-d8	*26.3*			*ug/l*	*25.0*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.0*			*ug/l*	*25.0*		*104*	*80-120*			

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
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Sampled: 04/13/05
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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: 5D24007 Extracted: 04/24/05											
Matrix Spike Dup Analyzed: 04/24/2005 (5D24007-MSD1)						**Source: IOD0931-05**					
1,2-Dibromoethane (EDB)	25.2	2.0	0.32	ug/l	25.0	ND	101	65-130	18	25	
Methyl-tert-butyl Ether (MTBE)	28.0	5.0	0.32	ug/l	25.0	ND	112	50-150	14	25	
1,2,3-Trichloropropane	26.8	10	0.85	ug/l	25.0	ND	107	50-135	21	30	
Di-isopropyl Ether (DIPE)	29.0	5.0	0.25	ug/l	25.0	ND	116	60-140	6	25	
tert-Butanol (TBA)	132	25	3.1	ug/l	125	ND	106	60-145	3	25	
Surrogate: Dibromofluoromethane	*27.6*			*ug/l*	*25.0*		*110*	*80-120*			
Surrogate: Toluene-d8	*26.3*			*ug/l*	*25.0*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.1*			*ug/l*	*25.0*		*104*	*80-120*			

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Project Manager

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Pasadena, CA 91101
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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D14041 Extracted: 04/14/05											
Blank Analyzed: 04/18/2005 (5D14041-BLK1)											
Naphthalene	ND	10	4.5	ug/l							
N-Nitrosodimethylamine	ND	20	3.7	ug/l							
Surrogate: 2-Fluorophenol	*104*			*ug/l*	*200*		*52*	*30-120*			
Surrogate: Phenol-d6	*119*			*ug/l*	*200*		*60*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*151*			*ug/l*	*200*		*76*	*45-120*			
Surrogate: Nitrobenzene-d5	*69.2*			*ug/l*	*100*		*69*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*71.4*			*ug/l*	*100*		*71*	*45-120*			
Surrogate: Terphenyl-d14	*76.3*			*ug/l*	*100*		*76*	*45-120*			
LCS Analyzed: 04/18/2005-04/19/2005 (5D14041-BS1)											**M-NR1**
Naphthalene	67.6	10	4.5	ug/l	100		68	50-120			
N-Nitrosodimethylamine	53.9	20	3.7	ug/l	100		54	40-120			
Surrogate: 2-Fluorophenol	*112*			*ug/l*	*200*		*56*	*30-120*			
Surrogate: Phenol-d6	*114*			*ug/l*	*200*		*57*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*147*			*ug/l*	*200*		*74*	*45-120*			
Surrogate: Nitrobenzene-d5	*70.1*			*ug/l*	*100*		*70*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*67.9*			*ug/l*	*100*		*68*	*45-120*			
Surrogate: Terphenyl-d14	*71.5*			*ug/l*	*100*		*72*	*45-120*			
LCS Dup Analyzed: 04/18/2005-04/19/2005 (5D14041-BSD1)											
Naphthalene	71.8	10	4.5	ug/l	100		72	50-120	6	20	
N-Nitrosodimethylamine	57.4	20	3.7	ug/l	100		57	40-120	6	20	
Surrogate: 2-Fluorophenol	*117*			*ug/l*	*200*		*58*	*30-120*			
Surrogate: Phenol-d6	*123*			*ug/l*	*200*		*62*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*157*			*ug/l*	*200*		*78*	*45-120*			
Surrogate: Nitrobenzene-d5	*74.3*			*ug/l*	*100*		*74*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*75.1*			*ug/l*	*100*		*75*	*45-120*			
Surrogate: Terphenyl-d14	*72.2*			*ug/l*	*100*		*72*	*45-120*			

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Project Manager

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D14043 Extracted: 04/14/05											
Blank Analyzed: 04/14/2005 (5D14043-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 04/14/2005 (5D14043-BS1)											
Perchlorate	48.3	4.0	0.80	ug/l	50.0		97	85-115			
Matrix Spike Analyzed: 04/14/2005 (5D14043-MS1)						**Source: IOD0930-02**					
Perchlorate	61.0	4.0	0.80	ug/l	50.0	1.6	119	80-120			
Matrix Spike Dup Analyzed: 04/14/2005 (5D14043-MSD1)						**Source: IOD0930-02**					
Perchlorate	50.6	4.0	0.80	ug/l	50.0	1.6	98	80-120	19	20	
Batch: 5D14060 Extracted: 04/14/05											
Blank Analyzed: 04/19/2005 (5D14060-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 04/19/2005 (5D14060-BS1)											
Biochemical Oxygen Demand	209	100	30	mg/l	198		106	85-115			
LCS Dup Analyzed: 04/19/2005 (5D14060-BSD1)											
Biochemical Oxygen Demand	207	100	30	mg/l	198		105	85-115	1	20	
Batch: 5D14077 Extracted: 04/14/05											
Blank Analyzed: 04/14/2005 (5D14077-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D14077 Extracted: 04/14/05											
LCS Analyzed: 04/14/2005 (5D14077-BS1)											
Ammonia-N (Distilled)	10.6	0.50	0.30	mg/l	10.0		106	80-115			
Matrix Spike Analyzed: 04/14/2005 (5D14077-MS1)						**Source: IOD0922-02**					
Ammonia-N (Distilled)	10.6	0.50	0.30	mg/l	10.0	0.56	100	70-120			
Matrix Spike Dup Analyzed: 04/14/2005 (5D14077-MSD1)						**Source: IOD0922-02**					
Ammonia-N (Distilled)	10.4	0.50	0.30	mg/l	10.0	0.56	98	70-120	2	15	
Batch: 5D14081 Extracted: 04/14/05											
Blank Analyzed: 04/14/2005 (5D14081-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 04/14/2005 (5D14081-BS1)											**M-NR1**
Oil & Grease	19.8	5.0	0.94	mg/l	20.0		99	65-120			
LCS Dup Analyzed: 04/14/2005 (5D14081-BSD1)											
Oil & Grease	17.5	5.0	0.94	mg/l	20.0		88	65-120	12	20	
Batch: 5D15076 Extracted: 04/15/05											
Blank Analyzed: 04/15/2005 (5D15076-BLK1)											
Turbidity	ND	1.0	0.040	NTU							
Duplicate Analyzed: 04/15/2005 (5D15076-DUP1)						**Source: IOD1013-01**					
Turbidity	0.460	1.0	0.040	NTU		0.48			4	20	*J*

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Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D18089 Extracted: 04/18/05											
Blank Analyzed: 04/18/2005 (5D18089-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 04/18/2005 (5D18089-BS1)											
Total Suspended Solids	951	10	10	mg/l	1000		95	85-115			
Duplicate Analyzed: 04/18/2005 (5D18089-DUP1)						**Source: IOD1125-01**					
Total Suspended Solids	12.0	10	10	mg/l		21			55	10	*R-4*
Batch: 5D18095 Extracted: 04/18/05											
Blank Analyzed: 04/18/2005 (5D18095-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 04/18/2005 (5D18095-BS1)											
Total Dissolved Solids	988	10	10	mg/l	1000		99	90-110			
Duplicate Analyzed: 04/18/2005 (5D18095-DUP1)						**Source: IOD0830-01**					
Total Dissolved Solids	345	10	10	mg/l		350			1	10	

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Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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
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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

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: P5D1803 Extracted: 04/18/05											
Blank Analyzed: 04/18/2005 (P5D1803-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	*1.06*			*ug/l*	*1.00*		*106*	*80-125*			
LCS Analyzed: 04/18/2005 (P5D1803-BS1)											
1,4-Dioxane	8.69	1.0	0.49	ug/l	10.0		87	70-130			
Surrogate: Dibromofluoromethane	*1.06*			*ug/l*	*1.00*		*106*	*80-125*			
LCS Dup Analyzed: 04/18/2005 (P5D1803-BSD1)											
1,4-Dioxane	8.50	1.0	0.49	ug/l	10.0		85	70-130	2	20	
Surrogate: Dibromofluoromethane	*1.07*			*ug/l*	*1.00*		*107*	*80-125*			
Matrix Spike Analyzed: 04/18/2005 (P5D1803-MS1)						**Source: POD0370-01**					
1,4-Dioxane	8.69	1.0	0.49	ug/l	10.0	ND	87	70-150			
Surrogate: Dibromofluoromethane	*1.10*			*ug/l*	*1.00*		*110*	*80-125*			
Matrix Spike Dup Analyzed: 04/18/2005 (P5D1803-MSD1)						**Source: POD0370-01**					
1,4-Dioxane	8.17	1.0	0.49	ug/l	10.0	ND	82	70-150	6	25	
Surrogate: Dibromofluoromethane	*1.13*			*ug/l*	*1.00*		*113*	*80-125*			

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

DATA QUALIFIERS AND DEFINITIONS

J	Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
M-NR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
R	The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R-4	Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

ADDITIONAL COMMENTS

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461Derian 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
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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD0948

Sampled: 04/13/05
Received: 04/13/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	N/A	X
EPA 350.2	Water		X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at www.dmalabs.com.

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: IOD0948-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOD0948

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: IOD0948-01 Water	**Sampled: 04/13/05 13:00**		
Dioxane-8260B-out	04/27/05 13:00	04/22/05 12:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	05/11/05 13:00	04/22/05 12:00	Boeing

Containers Supplied:

40 ml VOA w/HCL (IOD0948-01H)
40 ml VOA w/HCL (IOD0948-01I)
40 ml VOA w/HCL (IOD0948-01J)

PODO411-01

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): 2.6°C

Released By	Date	Time	Received By	Date	Time
	4-14-05	1700		4/15/5	
Released By	Date	Time	Received By	Date	Time
				4/15/5	9:45

281 IDD0948

Del Mar Analytical Version 5 8/12/04 CHAIN OF CUSTODY FORM

Client Name/Address:	Project:
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101	Boeing-SSFL NPDES **During Test -- Outfall 012** Alfa Test Stand
Project Manager: Bronwyn Kelly Sampler: Pollock	Phone Number: (626) 568-6691 Fax Number: (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH,=Total Rec. Petroleum Hydrocarbons (EPA 418.1)	624 (EDB, 1,2,3-TCP, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity,TDS, TSS	Settleable Solids	Comments
Outfall 012	W	1L Amber	1	4-13-05 -13:00	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	X		
Outfall 012	W	1L Poly	1		None	11A												X	
Trip Blank	W	VOAs	6		HCl	12A, 12B, 12C, 12D, 12E, 12F			X			X							

ANALYSIS REQUIRED

Field readings:
Temp = 71.8
pH = 7.4

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	4-13-05 1535	[signature]	4/13/05 1535
[signature]	4/13/05 1900	[signature]	4/13/05 1900C
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal _____
Perchlorate Only 72 Hours _____
Metals Only 72 Hours _____
Sample Integrity: (Check)
Intact X On Ice: 3°C

QA/QC DATA PACKAGE: LEVEL IV

Del Mar Analytical

QA/QC DATA PACKAGE LEVEL IV

TABLE SUMMARY

Del Mar Analytical

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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

LABORATORY REPORT

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

Project: IOD0948

Sampled: 04/13/05
Received: 04/15/05
Issued: 04/21/05 14:57

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
POD0411-01	IOD0948-01	Water

SAMPLE RECEIPT:	Samples were received intact, at 3°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:

Karen Maxwell

Del Mar Analytical - Phoenix
Karen Maxwell
Project Manager

Del Mar Analytical

QA/QC DATA PACKAGE: LEVEL IV

CHAIN OF CUSTODY FORMS

Del Mar Analytical

17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOD0948

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: IOD0948-01 Water	**Sampled: 04/13/05 13:00**		
Dioxane-8260B-out	04/27/05 13:00	04/22/05 12:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	05/11/05 13:00	04/22/05 12:00	Boeing

Containers Supplied:
40 ml VOA w/HCL (IOD0948-01H)
40 ml VOA w/HCL (IOD0948-01I)
40 ml VOA w/HCL (IOD0948-01J)

PODO411-01

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): 2.6°C

Released By	Date	Time	Received By	Date	Time
	4-14-05	1700		4/15/5	
Released By	Date	Time	Received By	Date	Time
				4/15/5	9:45

QC DATA PACKAGE: LEVEL IV

ANALYTICAL REPORTS

Del Mar Analytical

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

Project ID: IOD0948

Report Number: POD0411

Sampled: 04/13/05
Received: 04/15/05

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: POD0411-01 (IOD0948-01 - Water)									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D1803	0.49	1.0	ND	1	04/18/05	04/18/05	
Surrogate: Dibromofluoromethane (80-125%)					*117 %*				

Del Mar Analytical - Phoenix
Karen Maxwell
Project Manager

QA/QC DATA PACKAGE: LEVEL IV

QUALITY CONTROL SUMMARIES

Del Mar Analytical

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

Project ID: IOD0948

Report Number: POD0411

Sampled: 04/13/05
Received: 04/15/05

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: P5D1803 Extracted: 04/18/05											
Blank Analyzed: 04/18/2005 (P5D1803-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	*1.06*			*ug/l*	*1.00*		*106*	*80-125*			
LCS Analyzed: 04/18/2005 (P5D1803-BS1)											
1,4-Dioxane	8.69	1.0	0.49	ug/l	10.0		87	70-130			
Surrogate: Dibromofluoromethane	*1.06*			*ug/l*	*1.00*		*106*	*80-125*			
LCS Dup Analyzed: 04/18/2005 (P5D1803-BSD1)											
1,4-Dioxane	8.50	1.0	0.49	ug/l	10.0		85	70-130	2	20	
Surrogate: Dibromofluoromethane	*1.07*			*ug/l*	*1.00*		*107*	*80-125*			
Matrix Spike Analyzed: 04/18/2005 (P5D1803-MS1)						**Source: POD0370-01**					
1,4-Dioxane	8.69	1.0	0.49	ug/l	10.0	ND	87	70-150			
Surrogate: Dibromofluoromethane	*1.10*			*ug/l*	*1.00*		*110*	*80-125*			
Matrix Spike Dup Analyzed: 04/18/2005 (P5D1803-MSD1)						**Source: POD0370-01**					
1,4-Dioxane	8.17	1.0	0.49	ug/l	10.0	ND	82	70-150	6	25	
Surrogate: Dibromofluoromethane	*1.13*			*ug/l*	*1.00*		*113*	*80-125*			

Del Mar Analytical - Phoenix
Karen Maxwell
Project Manager

Del Mar Analytical

17461Derian 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: IOD0948

Report Number: POD0411

Sampled: 04/13/05
Received: 04/15/05

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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Report Number: POD0411

Sampled: 04/13/05
Received: 04/15/05

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

Del Mar Analytical

QA/QC DATA PACKAGE: LEVEL IV

EPA METHOD 8260B LABORATORY RAW DATA

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

QA/QC DATA PACKAGE: LEVEL IV

EPA METHOD 8260B LABORATORY RAW DATA

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

GCMS #: 1 Date Analyzed: 3/19/05

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

Analyst: JGalassi 3/21/05 Reviewer / Date: 3/22/05

DMAP GC/MS 1 DAILY LOG SUMMARY

CAL CURVE

DATE: 3/19/05 **QC BATCH # (s) :** ~~P5C1902~~ J6 3/21/05

ANALYST: JLY/MS **SEQUENCE FILE:** C:\GCMS1\DATA\

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

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
/	P0319001	TUNE	1uL	NA	8260	H2O	
1	2	CCV	1X10mL				
2	3	LCSDUP					-DNU IS Low
3	4	LCSDUP					-DNU IS Low - Re-Inj Lvl + Exp
/	5	TUNE					
1	6	CCV					-DNU, IS's still low will re-calibrate
2	7	CCV					↓
3	8	Blank					
4	9	1.0 ppb Cal					DNU Grubbs TPH outlier Re-run
5	10	2.0					
6	11	5.0					
7	12	10.0					
8	13	20.0					
9	14	50.0					
10	15	100.0					
11	16	Clean Rblank / Tune					
12	17	~~MSCCV~~ / Blank					
13	18	1.0 ppb Cal					
14	19	55/CCV					

MS 7/14 05

STANDARD ID NUMBERS

CCV / H_2O LCS / H20 SPIKE: 5030018 **Internal Std:** 353. 5030259 JG 3/21/05

CALIBRATION STD: 5030348 / 5030349 **IS / Surrogate / BFB:** 5030321

REVIEWER / DATE: 3/22/05 tune / 5030090

Injection Log

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

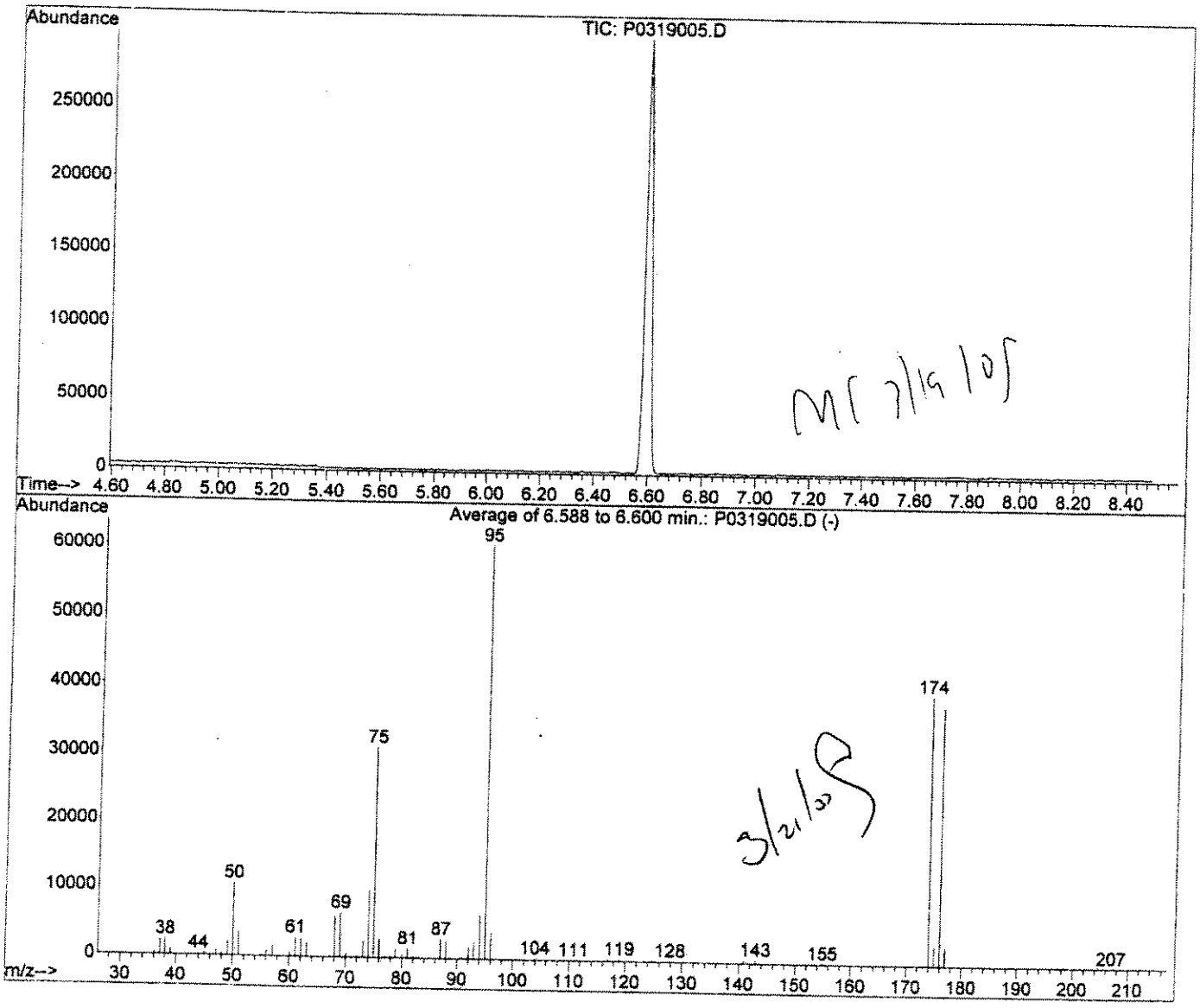
Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0319001.D	1.	~~TUNE/BLANK~~	1X 10ML	19 Mar 2005 06:19
2	2	P0319002.D	1.	CCV	1X 10ML	19 Mar 2005 06:32
3	3	P0319003.D	1.	LCS DUP	1X 10ML	19 Mar 2005 07:08
4	4	P0319004.D	1.	~~LCS DUP~~ DNU	1X 10ML	19 Mar 2005 07:44
5	5	P0319005.D	1.	TUNE	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

BFB

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

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



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

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

Quantitation Report (QT Reviewed)

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

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

MT 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	46878	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6171	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0 NT	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 ND	92

3/21/05

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

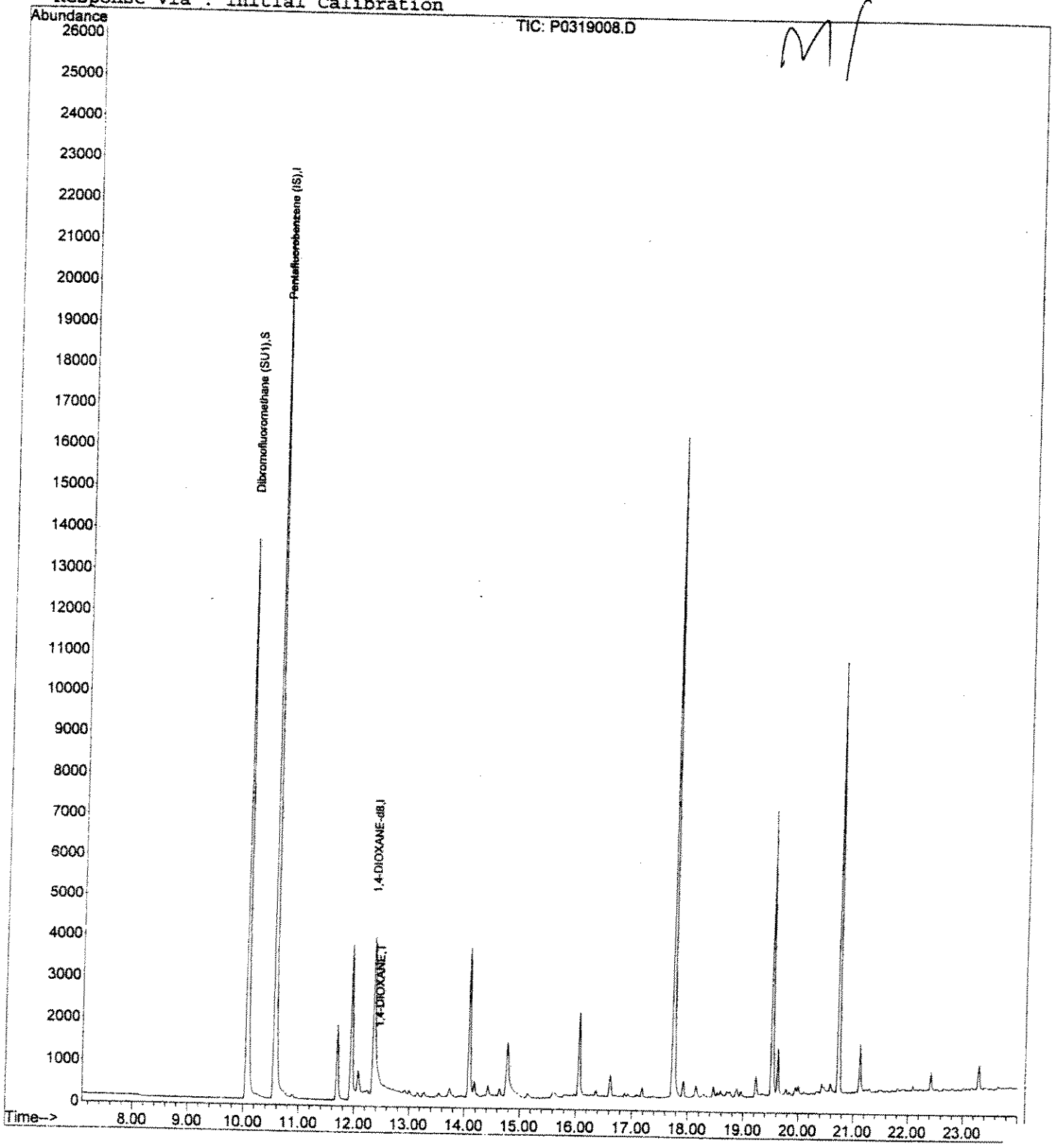
Quantitation Report

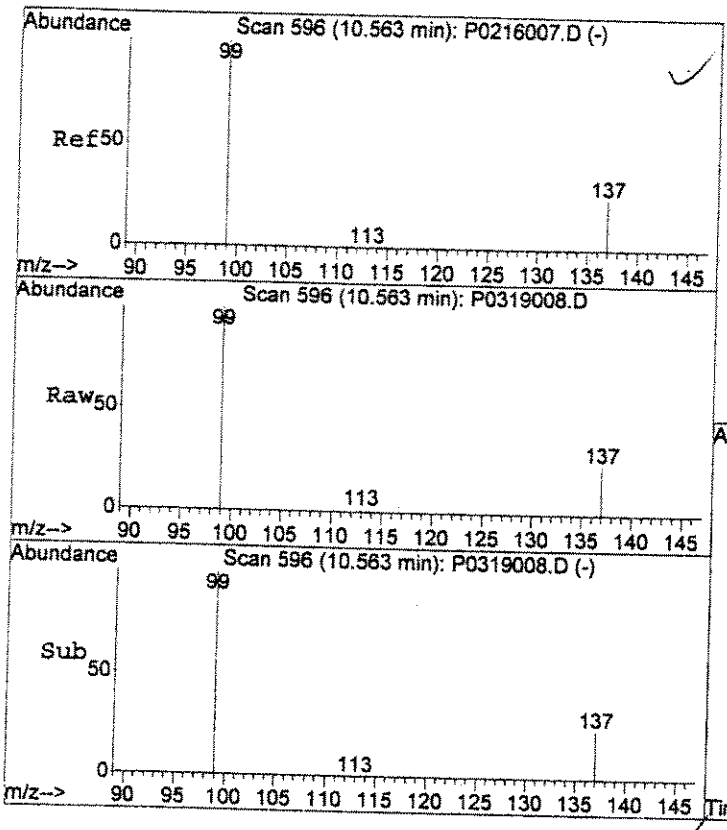
Data File : D:\HPCHEM\1\DATA\031905\P0319008.D
Acq On : 19 Mar 2005 10:12 am
Sample : BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 10:34 2005

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

Quant Results File: DX021605.RES

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

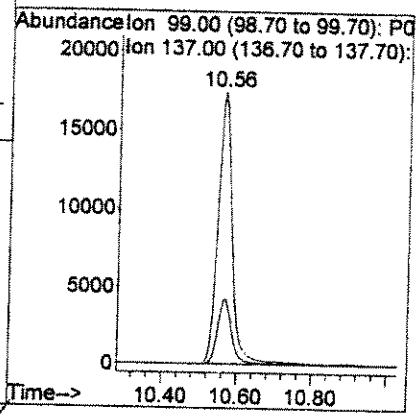


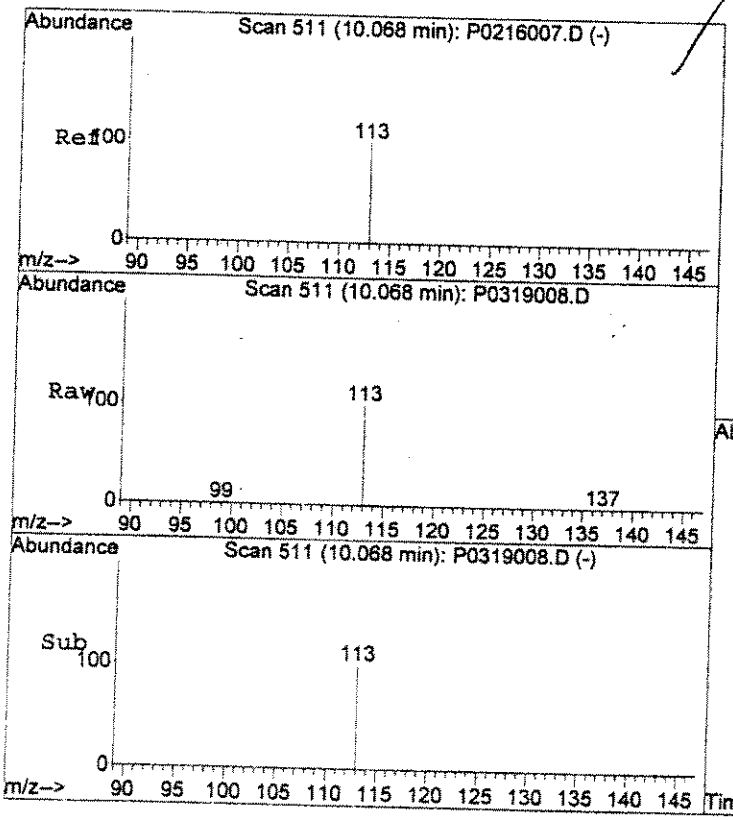


#1
Pentafluorobenzene (IS)
Concen: 1.00 ug/L
RT: 10.56 min Scan# 596
Delta R.T. 0.00 min
Lab File: P0319008.D
Acq: 19 Mar 2005 10:12 am

Tgt Ion: 99 Resp: 46878

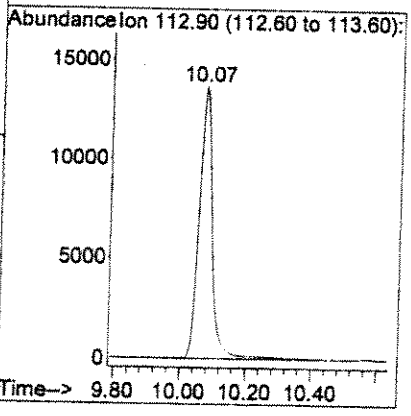
Ion	Ratio	Lower	Upper
99	100		
137	23.9	3.7	43.7

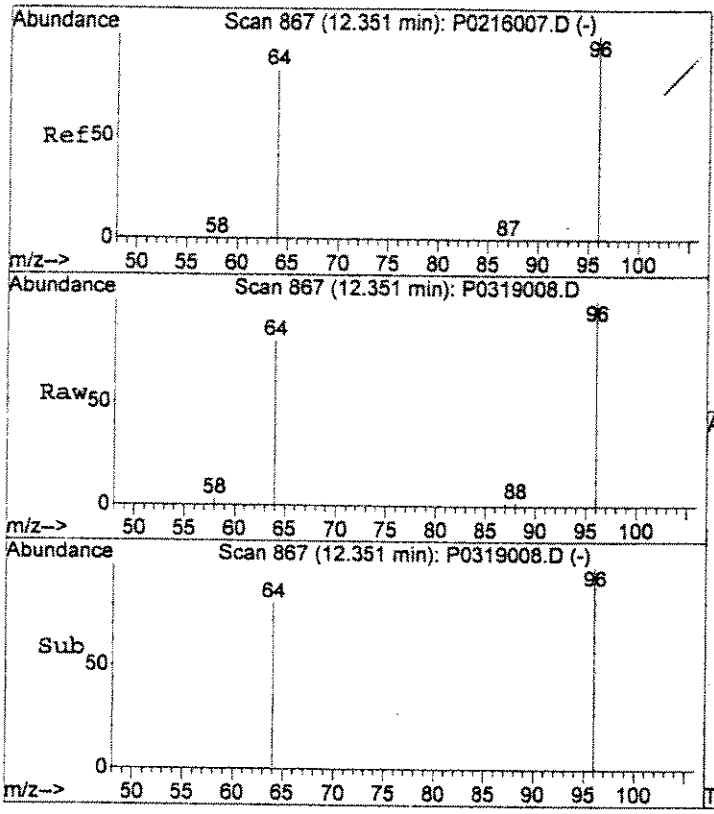




#2
Dibromofluoromethane (SU1)
Concen: 1.00 ug/L
RT: 10.07 min Scan# 511
Delta R.T. 0.00 min
Lab File: P0319008.D
Acq: 19 Mar 2005 10:12 am

Tgt Ion:113 Resp: 37890

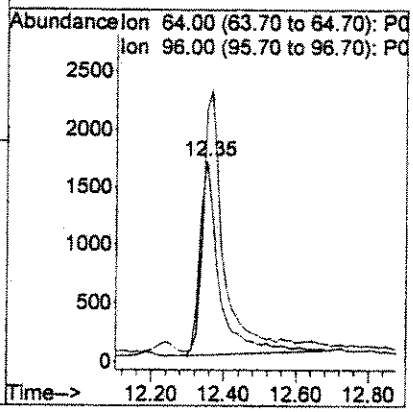


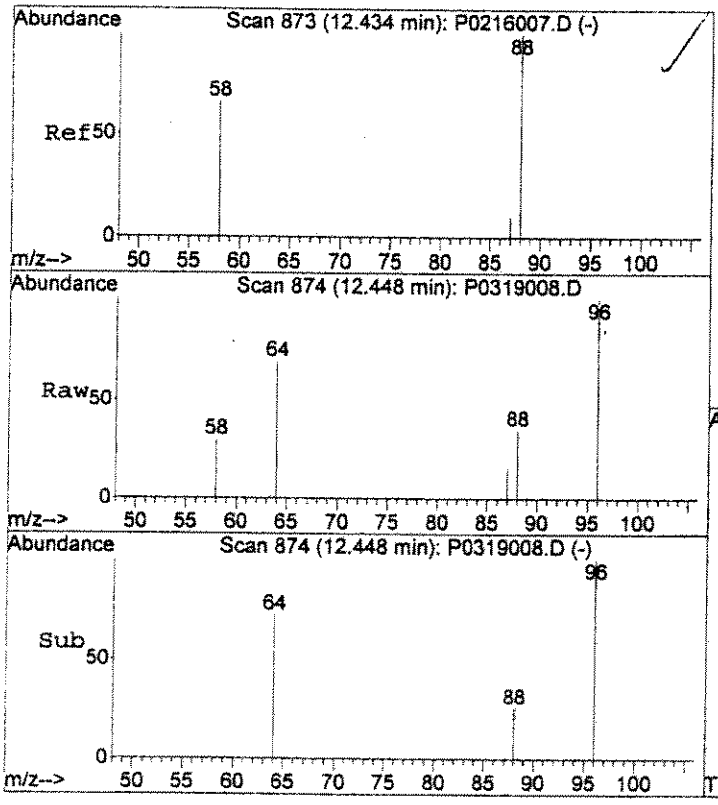


#3
1,4-DIOXANE-d8
Concen: 25.00 ug/L
RT: 12.35 min Scan# 867
Delta R.T. -0.00 min
Lab File: P0319008.D
Acq: 19 Mar 2005 10:12 am

Tgt Ion: 64 Resp: 6171

Ion	Ratio	Lower	Upper
64	100		
96	123.7	70.1	170.1

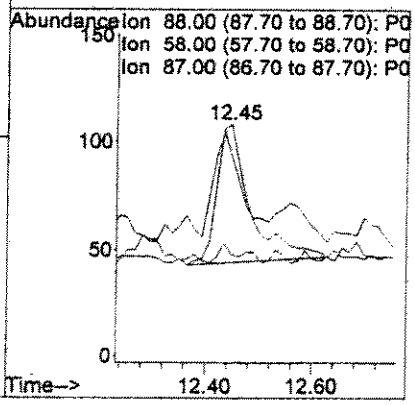


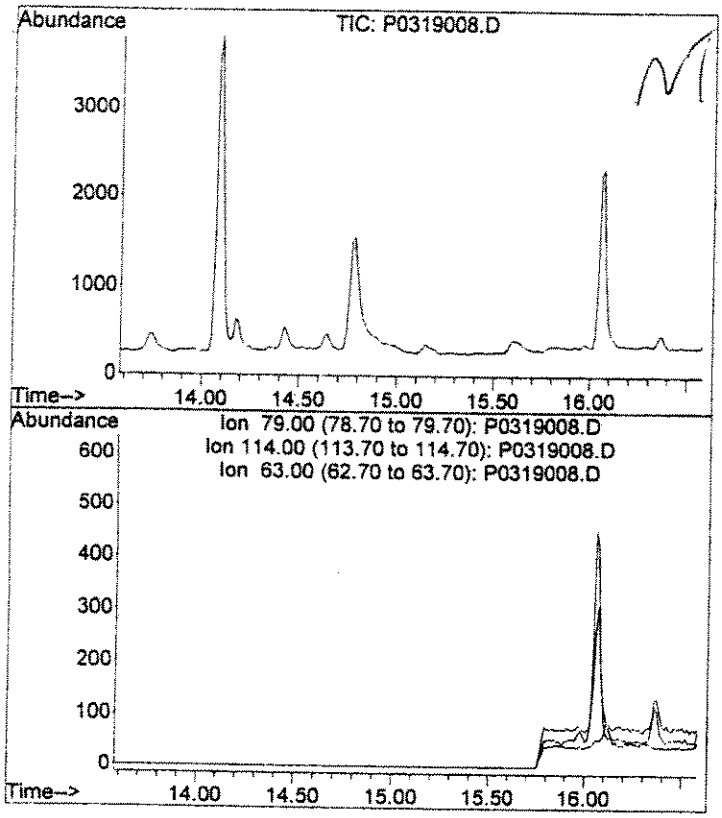


#4
1,4-DIOXANE
Concen: 0.23 ug/L
RT: 12.45 min Scan# 874
Delta R.T. 0.01 min
Lab File: P0319008.D
Acq: 19 Mar 2005 10:12 am

Tgt Ion: 88 Resp: 278

Ion	Ratio	Lower	Upper
88	100		
58	61.5	16.3	116.3
87	3.1	0.0	59.9





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

Lab File: P0319008.D
Acq: 19 Mar 2005 10:12 am

Tgt Ion: 79

Sig	Exp Ratio
79	100
114	0.0
63	98.0

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 <	1.672
6pts Grubbs values <	1.822
7pts Grubbs values <	1.938
8pts Grubbs values <	2.032
9pts Grubbs values <	2.11
10pts Grubbs values <	2.176

Outlier

MT 3/19/07

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319009.D Vial: 9
Acq On : 19 Mar 2005 10:54 am Operator: JG/MS/CLS
Sample : 1.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:42 2005 Quant Results File: DX021605.RES

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

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

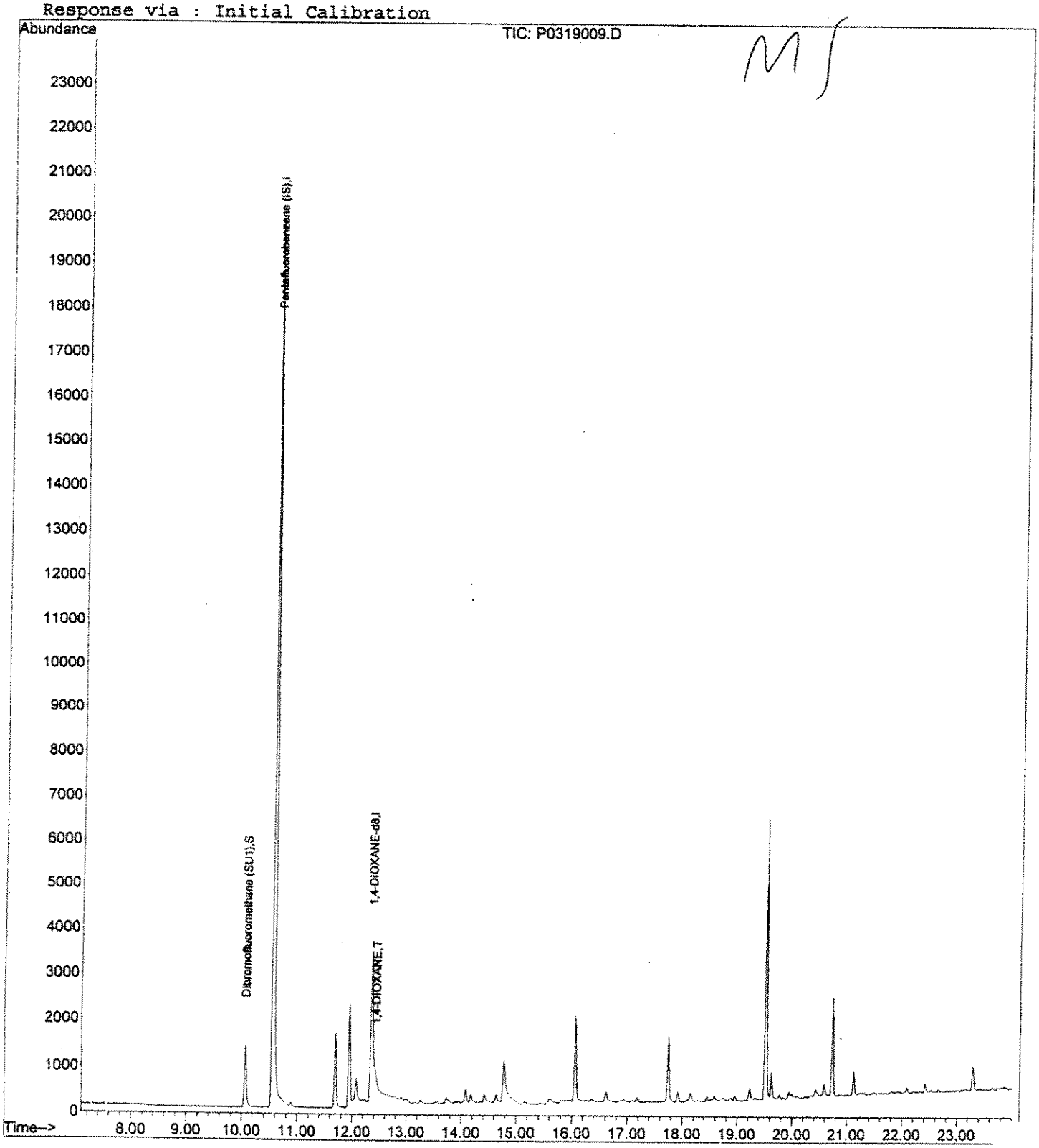
DNU

(#) = qualifier out of range (m) = manual integration
P0319009.D DX021605.M Sat Mar 19 13:43:06 2005 GCMS1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319009.D Vial: 9
Acq On : 19 Mar 2005 10:54 am Operator: JG/MS/CLS
Sample : 1.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:42 2005 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



MS

Quantitation Report (QT Reviewed)

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

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

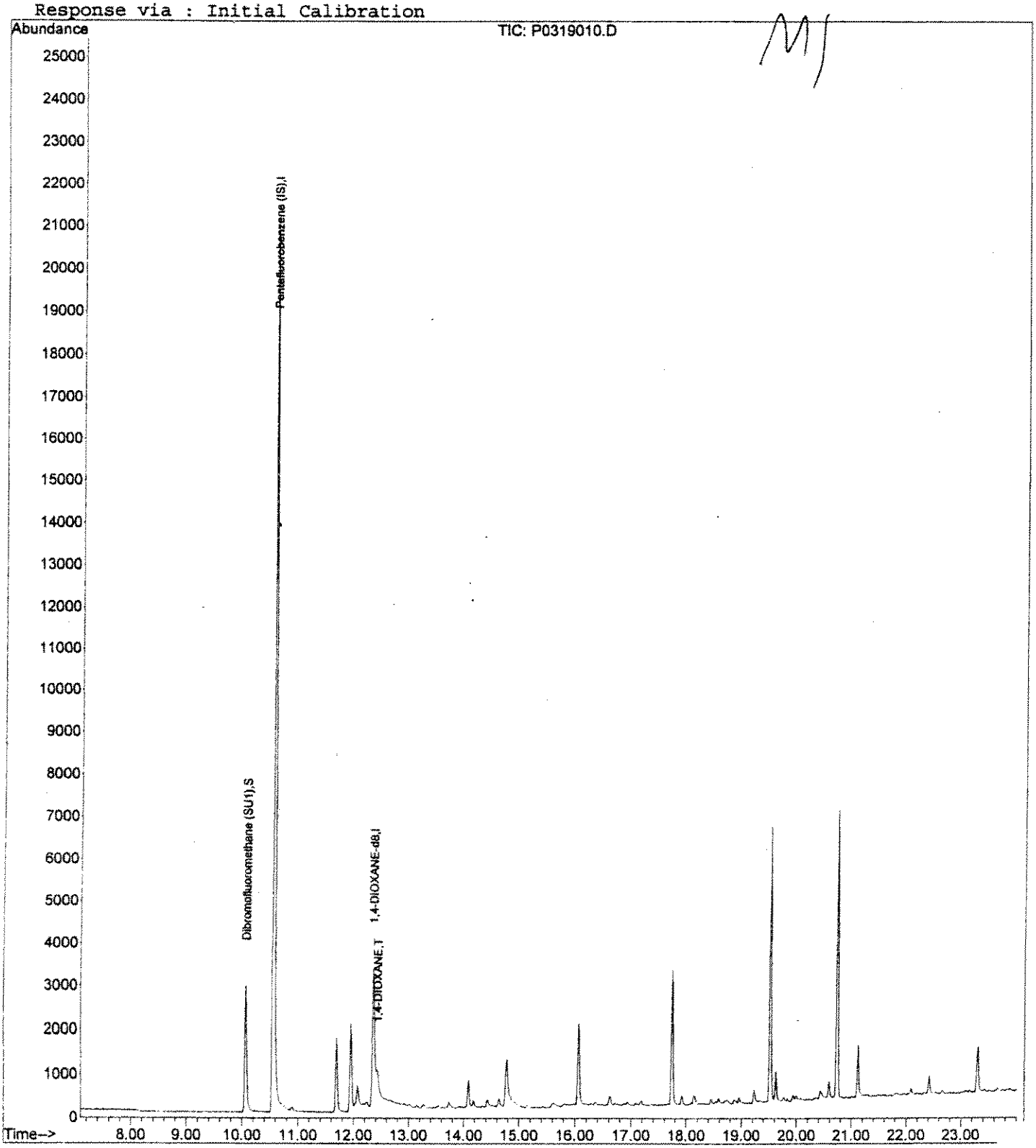
3/21/05

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319010.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

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\P0319011.D
Acq On : 19 Mar 2005 11:59 am
Sample : 5.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 11
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

MC 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47558	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5263	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)	10.06	113	19072	0.52	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 52.00%#			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	2211	6.25	ug/L	99

3/21/05

(#) = qualifier out of range (m) = manual integration
P0319011.D DX021605.M Sat Mar 19 13:43:33 2005 GCMS1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319011.D
Acq On : 19 Mar 2005 11:59 am
Sample : 5.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 11
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

MC 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47558	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5263	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)	10.06	113	19072	0.52	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 52.00%#			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	2211	6.25	ug/L	99

3/21/05

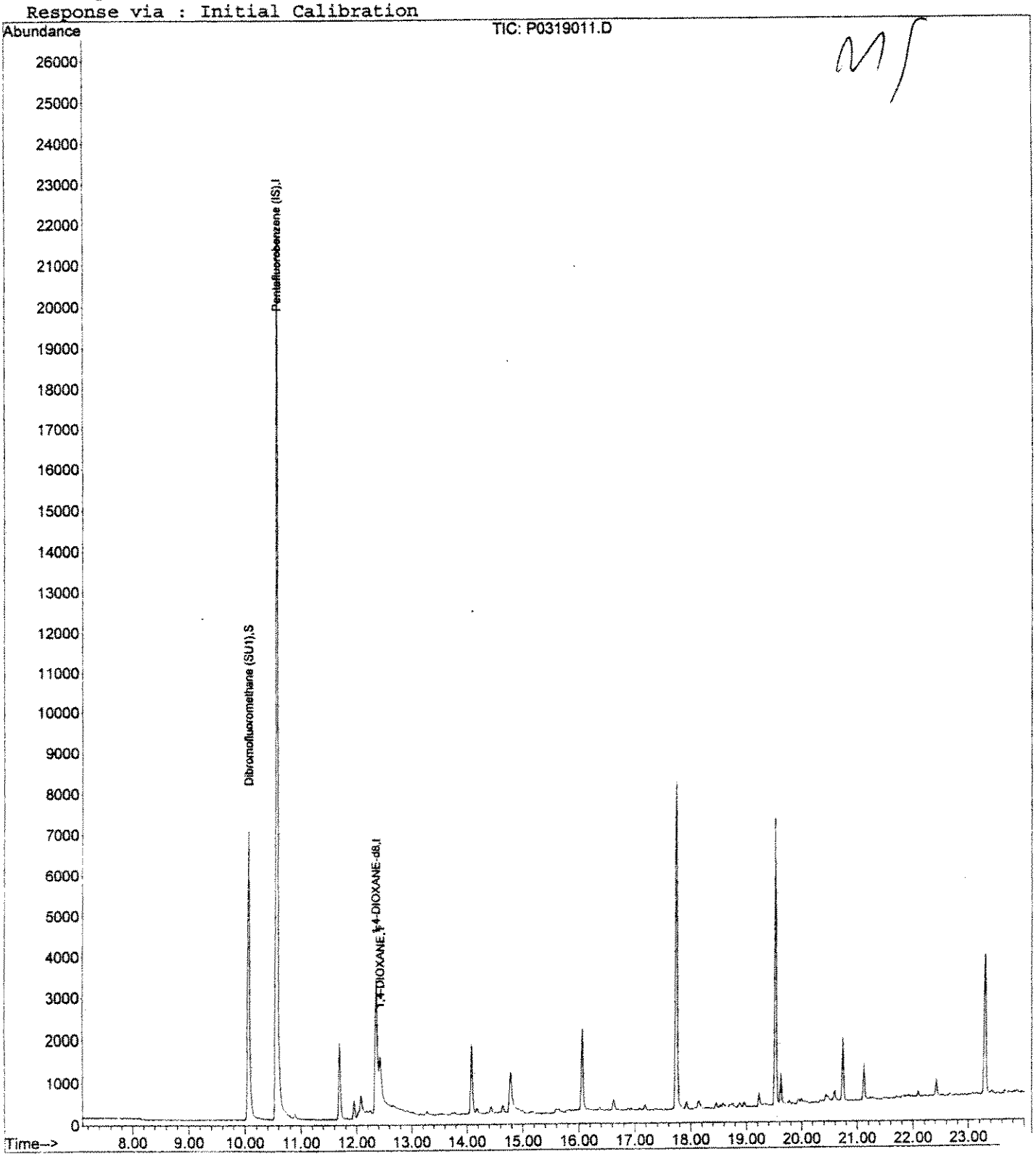
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319011.D
Acq On : 19 Mar 2005 11:59 am
Sample : 5.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 11
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



MS

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319012.D Vial: 12
Acq On : 19 Mar 2005 12:32 pm Operator: JG/MS/CLS
Sample : 10.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 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

M 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.57	99	47071	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5034	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	34373	0.95	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 95.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	3835	11.74	ug/L	99

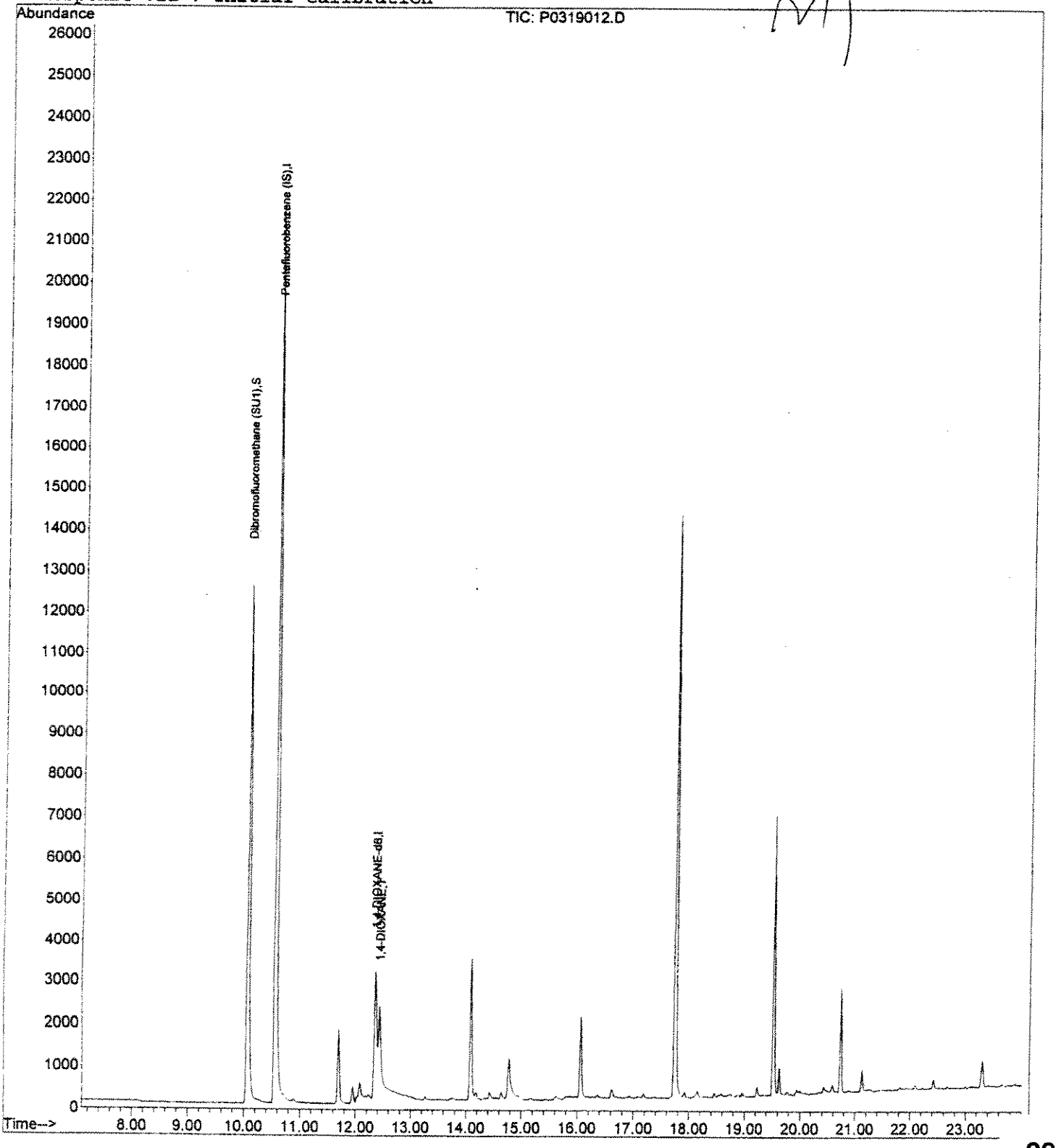
3/21/05

(#) = qualifier out of range (m) = manual integration
P0319012.D DX021605.M Sat Mar 19 13:43:38 2005 GCMS1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319012.D Vial: 12
Acq On : 19 Mar 2005 12:32 pm Operator: JG/MS/CLS
Sample : 10.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 2005 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\P0319013.D Vial: 13
Acq On : 19 Mar 2005 1:05 pm Operator: JG/MS/CLS
Sample : 20.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 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

MC 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47635	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4790	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	68573	1.86	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 186.00%#			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	7646	25.14	ug/L	97

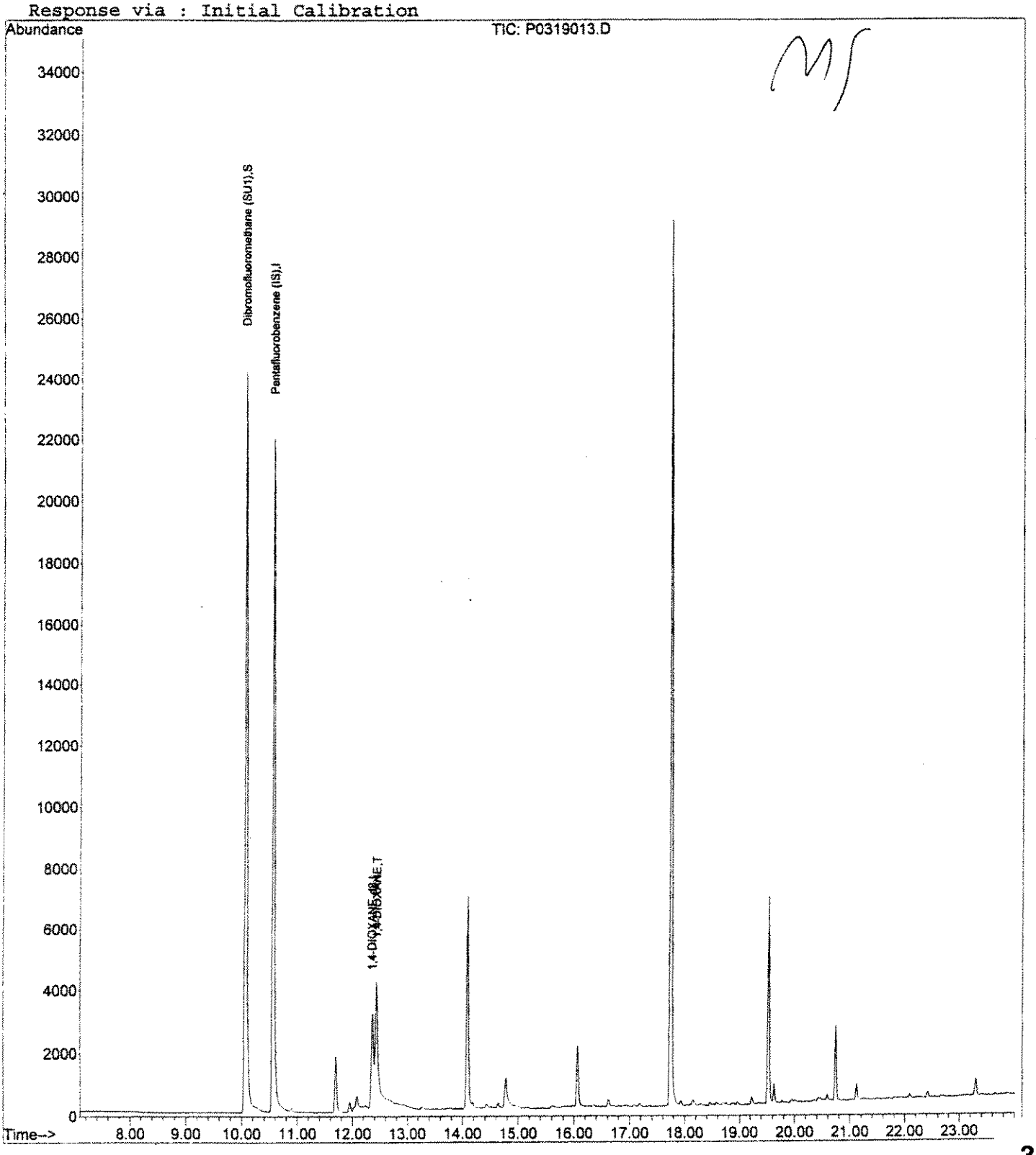
3/21/05

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319013.D Vial: 13
Acq On : 19 Mar 2005 1:05 pm Operator: JG/MS/CLS
Sample : 20.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 2005 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\P0319014.D Vial: 14
Acq On : 19 Mar 2005 1:38 pm Operator: JG/MS/CLS
Sample : 50.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:18 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 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47704	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5034	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	164450	4.46	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 446.00%#			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	18344	58.04	ug/L	99

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

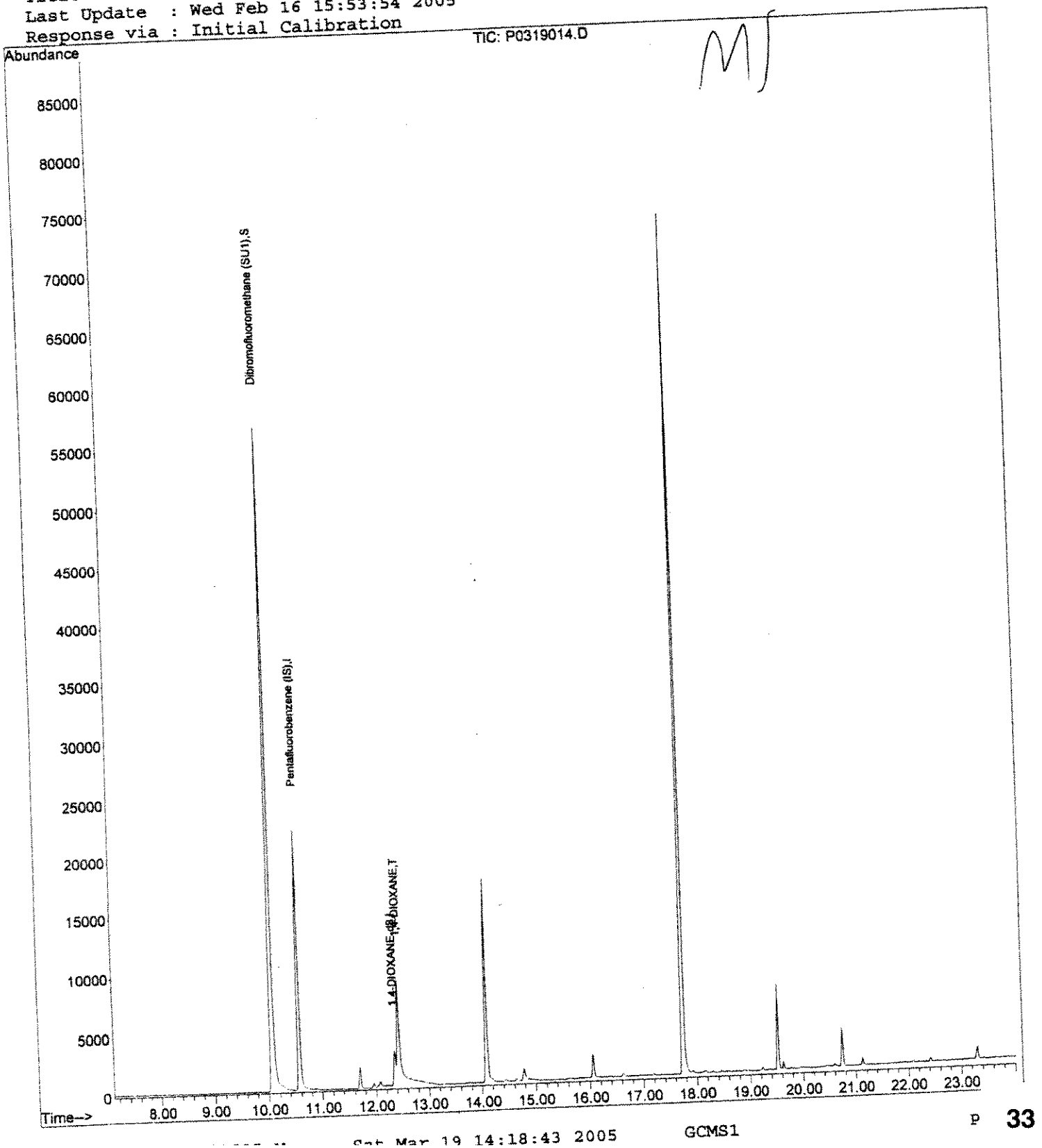
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319014.D
Acq On : 19 Mar 2005 1:38 pm
Sample : 50.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:18 2005

Vial: 14
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\P0319015.D Vial: 15
Acq On : 19 Mar 2005 2:11 pm Operator: JG/MS/CLS
Sample : 100.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:54 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

3/21/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	48150	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5834	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	307967	8.28	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 828.00%#			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	44445	121.87	ug/L	98

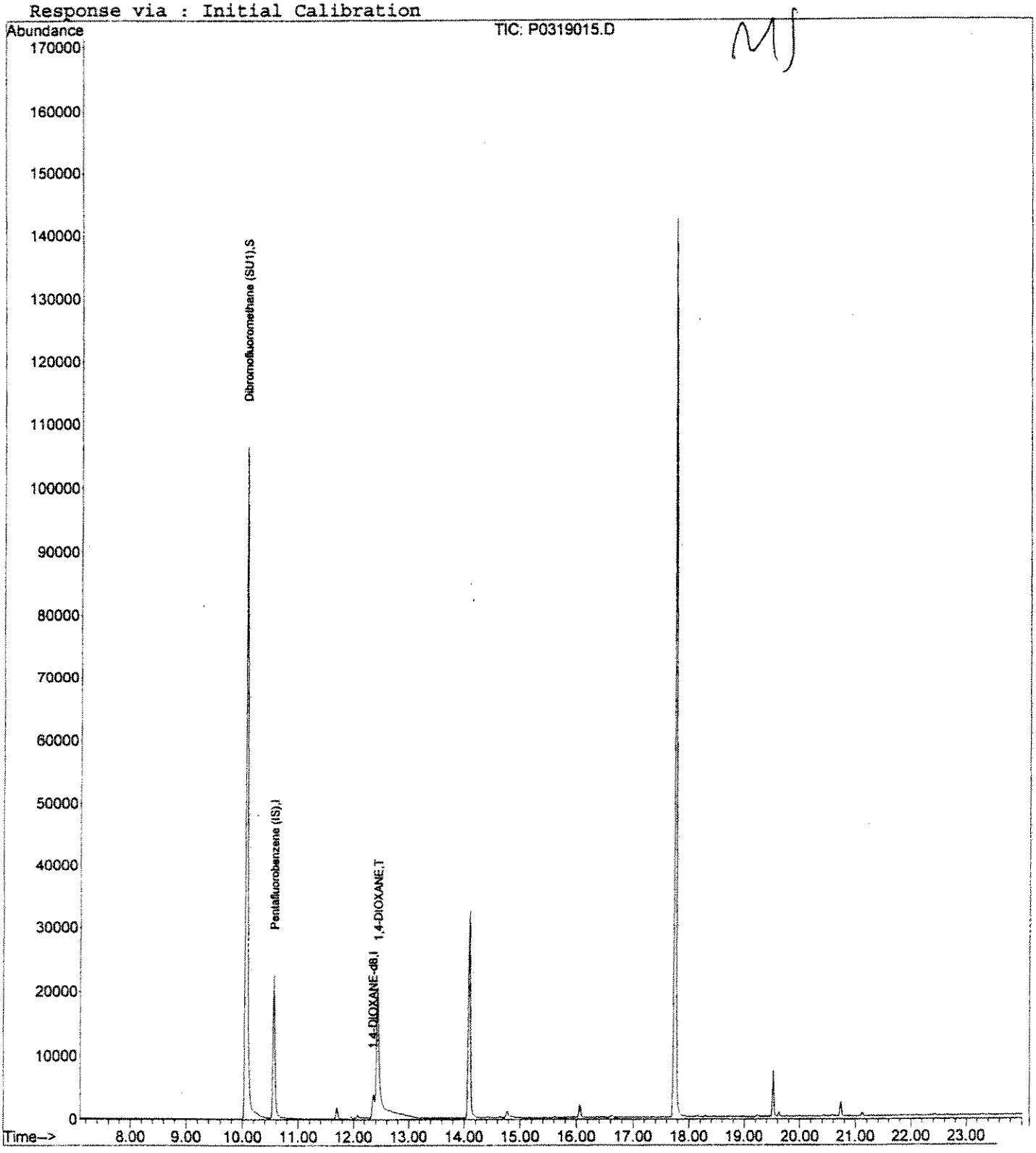
3/21/05

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319015.D Vial: 15
Acq On : 19 Mar 2005 2:11 pm Operator: JG/MS/CLS
Sample : 100.0 PPB CAL Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:54 2005 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\P0319016.D Vial: 16
Acq On : 19 Mar 2005 2:44 pm Operator: JG/MS/CLS
Sample : CLEAN OUT BLANK/TUNE Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 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 : W072903

3/21/05 JG

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	168438	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.36	64	64	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	15.15	79	57	500.00	ug/L	0.07
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.06	113	129670	1.00	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 100.00%			
Target Compounds						Qvalue

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

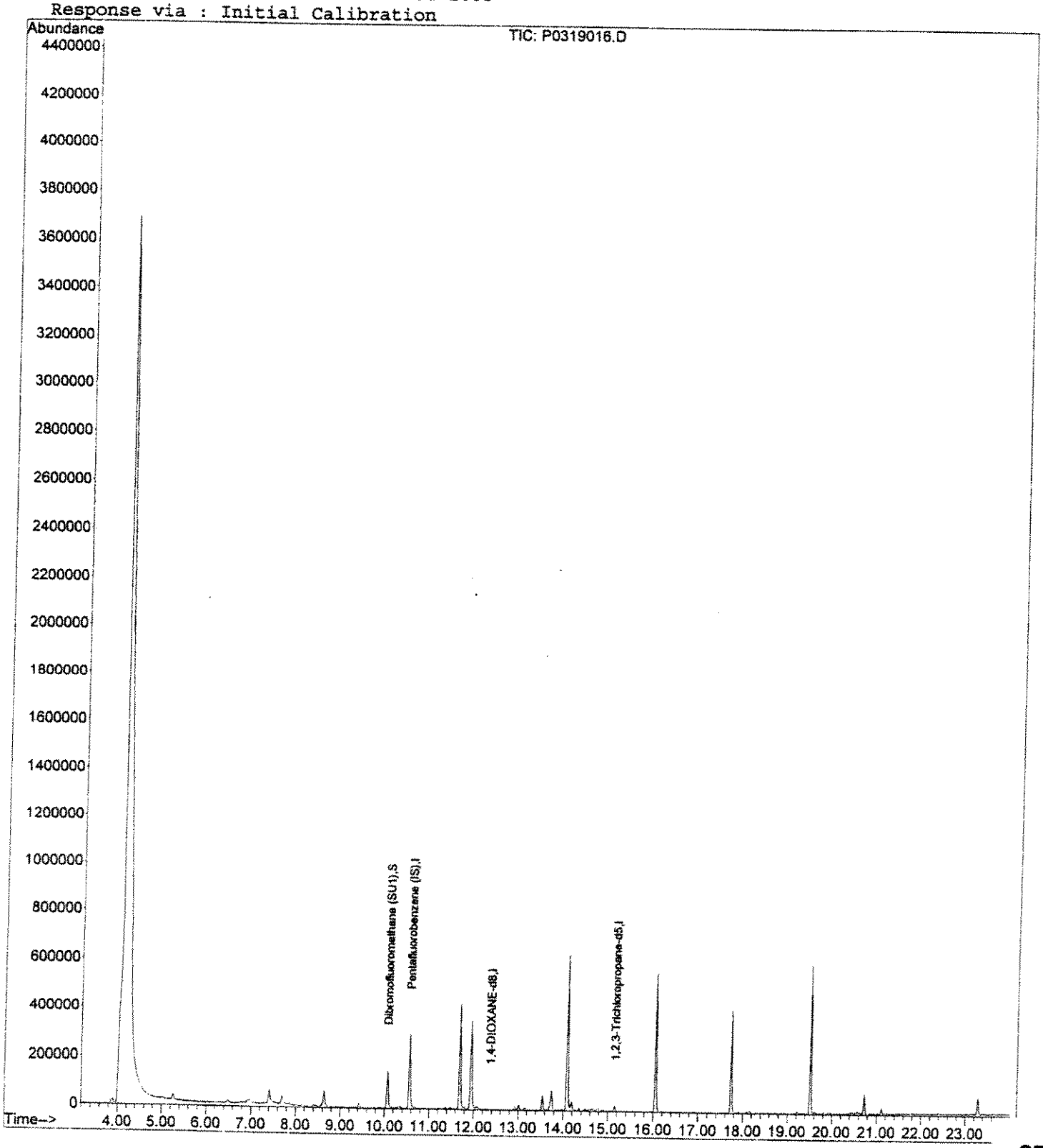
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319016.D
Acq On : 19 Mar 2005 2:44 pm
Sample : CLEAN OUT BLANK/TUNE
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 2005

Vial: 16
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\P0319017.D Vial: 17
Acq On : 19 Mar 2005 3:21 pm Operator: JG/MS/CLS
Sample : BLANK Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 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

3/21/05 JG

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	41664	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6641	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	34219	1.06	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 106.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	233	N.D.		
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.		

3/21/05

(#) = qualifier out of range (m) = manual integration
P0319017.D DX031905.M Mon Mar 21 09:07:35 2005 GCMS1