Response Factor Report GCMS1

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

3/21/05

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

	Compound	1	2	5	10	20	50	100	Avg	%RSD
1) I	Pentafluorobenzene (IS)	ISTD								
2) S	Dibromofluoromethane (SU1)	0.881	0.829	0.802	0.730	0.720	0.689	0.640	0.756	11.19
3) I	1,4-DIOXANE-d8	ISTD								
4) T	1,4-DIOXANE	2.705	2.478	2.101	1.905	1.995	1.822	1.905	2.130	15.66
5) I	1,2,3-Trichloropropane-d5	ISTD								
6) T	1,2,3-Trichloropropane								0.000#	-1.00

(#) = Out of Range

DX031905.M Tue Mar 22 12:15:58 2005 GCMS1

3/22/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319018.D Vial: 18
Acq On : 19 Mar 2005 3:54 pm 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 21 12:54 2005 Quant Results File: DX031905.RES

Re-Calc

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 12:54:07 2005
Response via : Initial Calibration
DataAcq Meth : DX021605

3/21/05 JG

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42387	1.00 ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6173	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	3733	0.12 ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery =	12.00%#	
Target Compounds					Qvalue
4) 1,4-DIOXANE	12.43	88	668	1.07 ug/L	96
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.	

.5 - 1.5

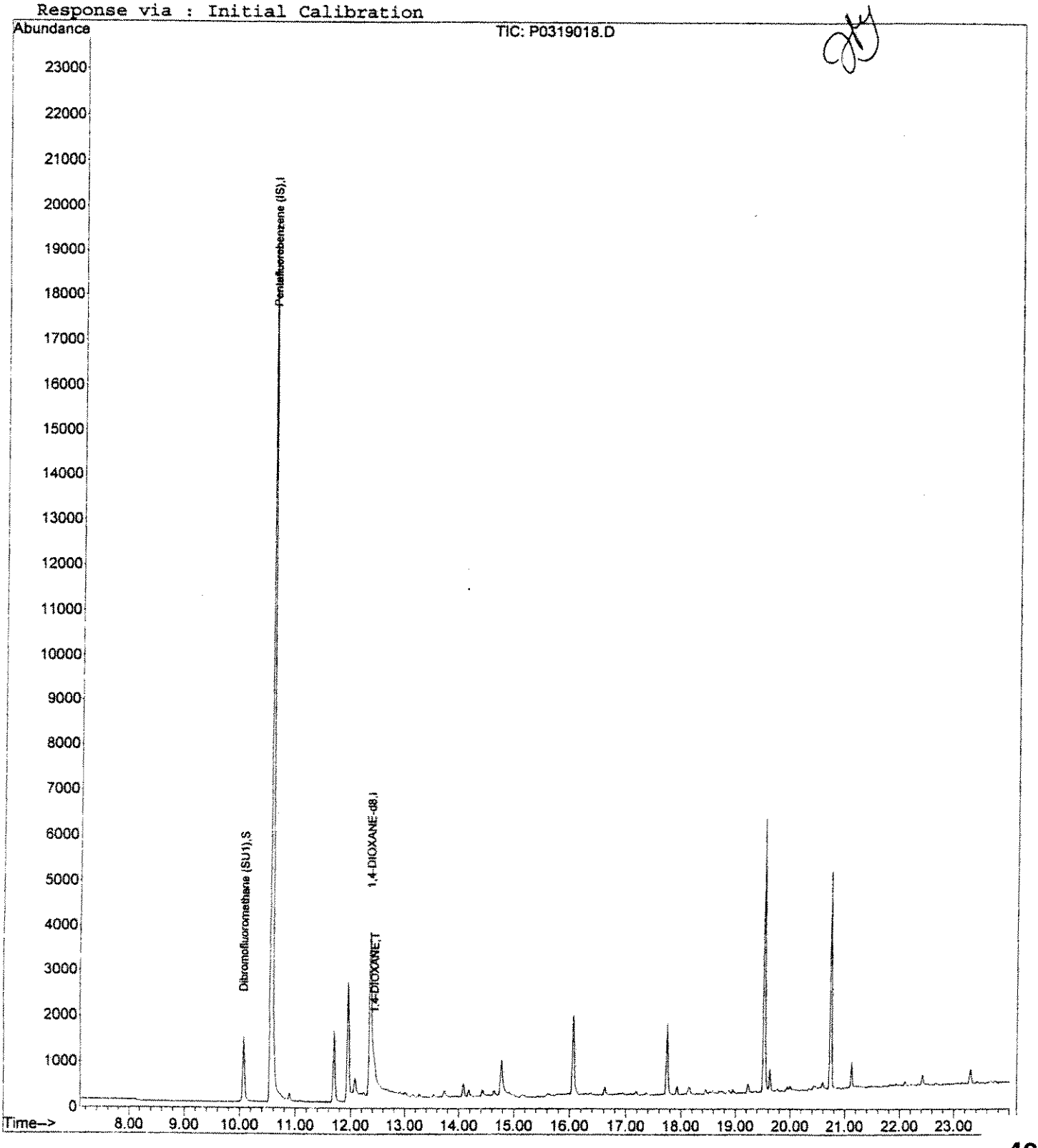
3/21/05

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319018.D Vial: 18
Acq On : 19 Mar 2005 3:54 pm 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 21 12:54 2005 Quant Results File: DX031905.RES

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



1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0319019.D
Data File Path D:\HPCHEM\1\DATA\031905\
Sample Name SS/CCV

Date Acquired 3/19/2005 4:27
Operator JG/MS/CLS
Acq. Method File DX021605
GCMS1

3/21/05 JG

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	47071	46539	23536	94142	TRUE
1,4-DIOXANE-d8	5034	4918	2517	10068	TRUE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	1.08	107.7	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	9.75	10.00	97.48	70	130	TRUE

3/21/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319019.D Vial: 19
Acq On : 19 Mar 2005 4:27 pm Operator: JG/MS/CLS
Sample : SS/CCV Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 12:54 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 12:54:07 2005
Response via : Initial Calibration
DataAcq Meth : DX021605

3/21/05 JG

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	46539	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4918	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	37865	1.08	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 108.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	3745	9.75	ug/L	93
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.		

3/21/05

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

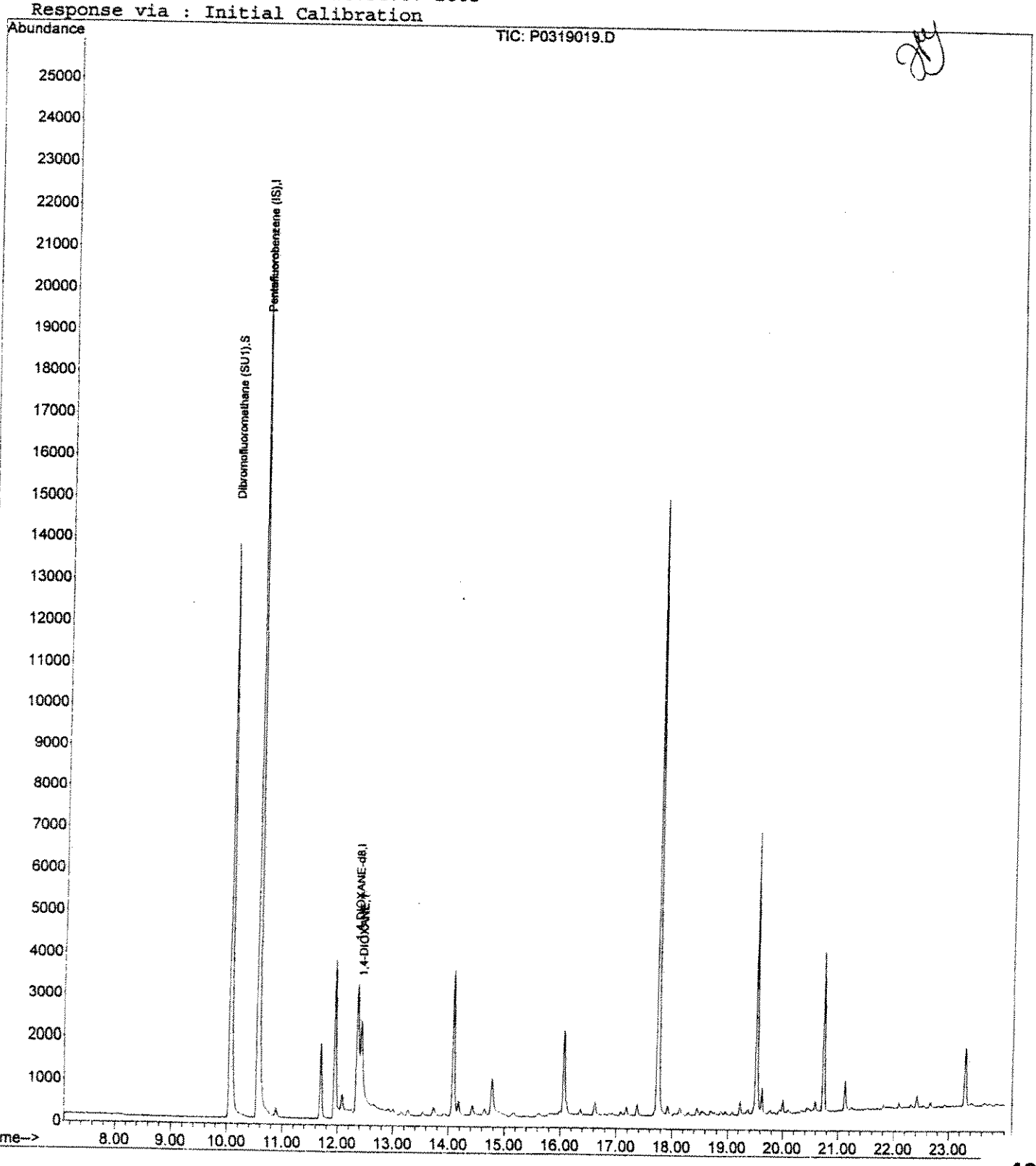
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319019.D
Acq On : 19 Mar 2005 4:27 pm
Sample : SS/CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 12:54 2005

Vial: 19
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

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



METHOD: 624 8260B 524.2

GCMS #: 1 Date Analyzed: 5-11-05

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

Analyst: CS Reviewer / Date: 5/13/05

9/13/01

DMAP GC/MS 1 DAILY LOG SUMMARY

DATE: 5-11-05 **QC BATCH # (s) :** P5E1128

ANALYST: CCS **SEQUENCE FILE:** C:\GCMS1\DATA\05-1105.S

CALIBRATION METHOD(S): DX031905.M

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
/	P5E1101	tune	1 uL	NA	8260	Hard	
1	02	CCV	1 x 10mL				
2	03	LCS					P5E1128
3	04	BLK					
4	05	P5E0059-01 A		Cz			
5	06	02 A					
6	07	P5E1128-MS1					
7	08	MSA1					
8	09	P5E0065-01 A					
9	10	02 A					
10	11	03 A					
11	12	P5E0151-01 A					
12	13	P5E0254-01 A					
13	14	02 A					
14	15	03 A					
15	16	04 A					
16	17	05 A					5-12-05 Dilution
17	18	06 A					Dup - did not run
18	19	06 A					
19	20	04 A					
20	21	P5E0295-01 A					
21	22	02 A					
22	23	03 A					
23	24	04 A					
		LCSD + MSD					

STANDARD ID NUMBERS

CCV / H_2O LCS / H20 SPIKE: 5050010 **Internal Std:** NA

CALIBRATION STD: NA **IS / Surrogate / BFB:** 5050011

REVIEWER / DATE: AG 5/12/05

GS
5-12-05

Injection Log

Directory: D:\HPCHEM\1\DATA\051105

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0511001.D	1.	TUNE/BLANK	1X 10ML	11 May 2005 14:37
2	2	P0511002.D	1.	p5e1128-bs1	1X 10ML	11 May 2005 14:56
3	3	P0511003.D	1.	p5e1128-bsd1	1X 10ML	11 May 2005 15:29
4	4	P0511004.D	1.	p5e1128-blk1	1X 10ML	11 May 2005 16:02
5	5	P0511005.D	1.	poe0059-01	1X 10ML	11 May 2005 16:35
6	6	P0511006.D	1.	poe0059-02	1X 10ML	11 May 2005 17:07
7	7	P0511007.D	1.	poe0059-02ms1	1X 10ML	11 May 2005 17:40
8	8	P0511008.D	1.	poe0059-02msd1	1X 10ML	11 May 2005 18:13
9	9	P0511009.D	1.	poe0085-01	1X 10ML	11 May 2005 18:46
10	10	P0511010.D	1.	poe0085-02	1X 10ML	11 May 2005 19:19
11	11	P0511011.D	1.	poe0085-03	1X 10ML	11 May 2005 19:51
12	12	P0511012.D	1.	poe0151-01	1X 10ML	11 May 2005 20:24
13	13	P0511013.D	1.	poe0254-01	1X 10ML	11 May 2005 20:57
14	14	P0511014.D	1.	poe0254-02	1X 10ML	11 May 2005 21:30
15	15	P0511015.D	1.	poe0254-03	1X 10ML	11 May 2005 22:03
16	16	P0511016.D	1.	poe0254-04	1X 10ML	11 May 2005 22:36
17	17	P0511017.D	1.	poe0254-05	1X 10ML	11 May 2005 23:08

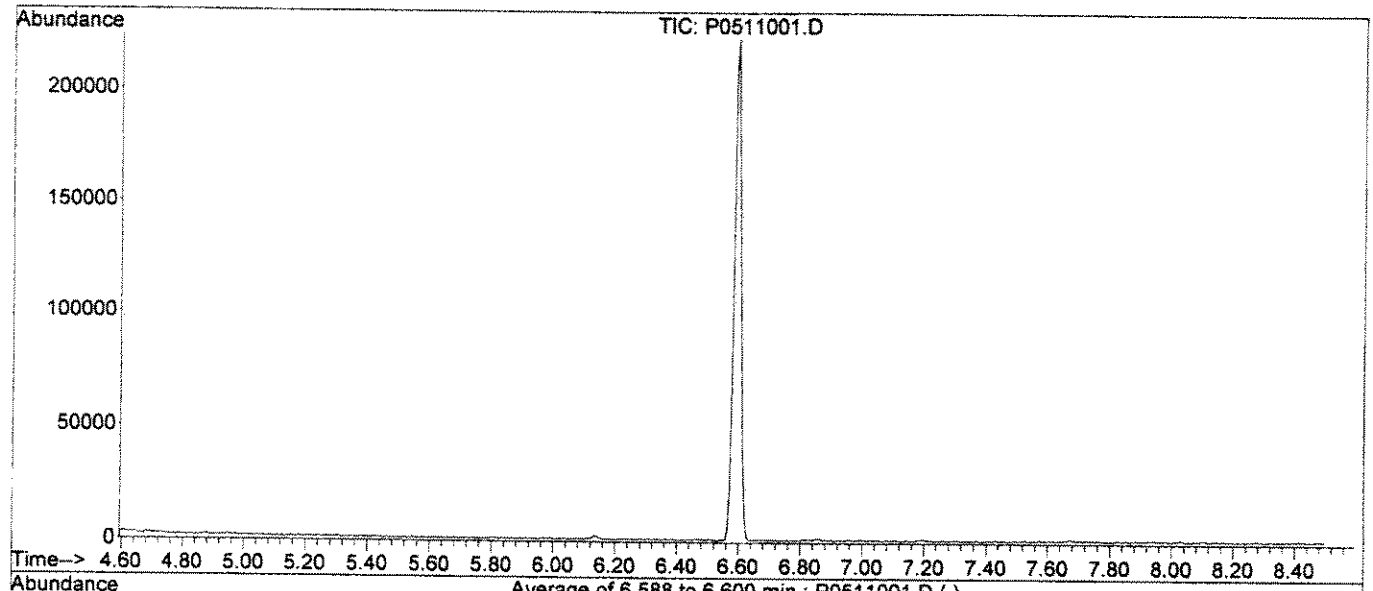
8260

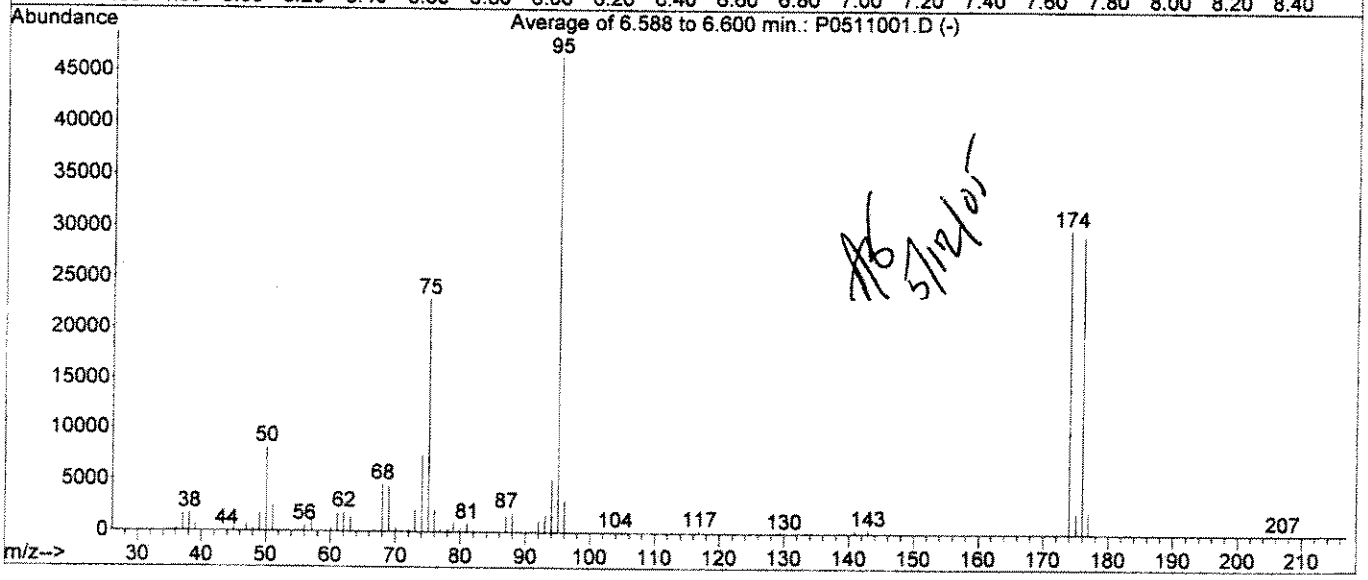
BFB

5-12-05

Data File : D:\HPCHEM\1\DATA\051105\P0511001.D
Acq On : 11 May 2005 2:37 pm
Sample : TUNE/BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)

Vial: 1
Operator: cs
Inst : GCMS1
Multiplr: 1.00





AB 5/12/05

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	17.6	8165	PASS
75	95	30	60	49.6	23035	PASS
95	95	100	100	100.0	46469	PASS
96	95	5	9	6.7	3133	PASS
173	174	0.00	2	0.4	128	PASS
174	95	50	100	64.6	30008	PASS
175	174	5	9	6.9	2063	PASS
176	174	95	101	97.8	29355	PASS
177	176	5	9	7.1	2084	PASS

5-12-05

1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0511002.D
Data File Path D:\HPCHEM\1\DATA\051105\
Sample Name p5e1128-bs1

Date Acquired 5/11/2005 2:56
Operator cs
Acq. Method File DX031905
GCMS1

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	47071	39462	23536	94142	TRUE
1,4-DIOXANE-d8	5034	6968	2517	10068	TRUE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	0.97	96.5	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	10.68	10.00	106.79	70	130	TRUE

5/12/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511002.D Vial: 2
Acq On : 11 May 2005 2:56 pm Operator: cs
Sample : p5e1128-bs1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:02 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

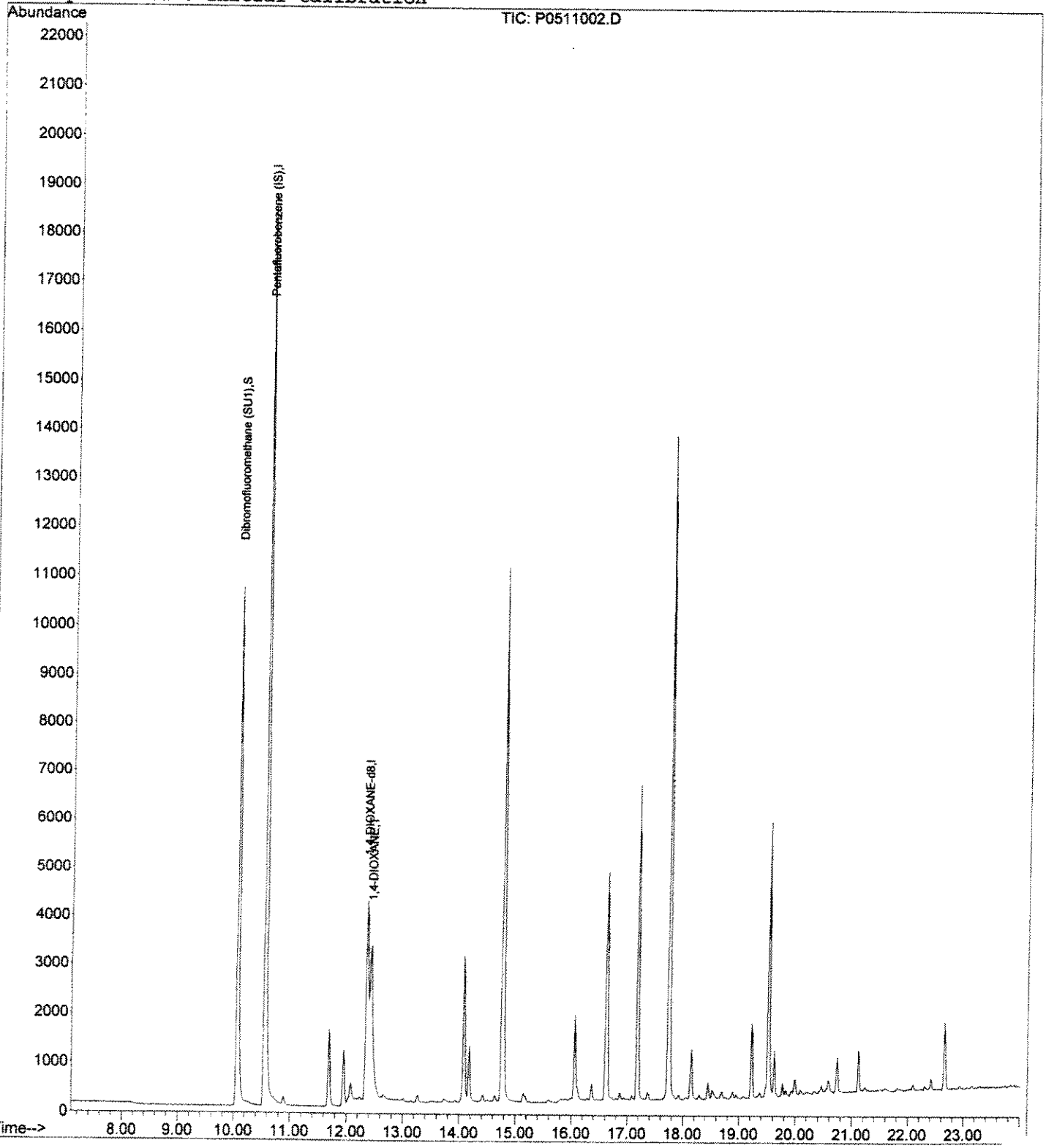
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	39462	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6968	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	28790	0.97	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 97.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	5632	10.68	ug/L	97

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511002.D Vial: 2
Acq On : 11 May 2005 2:56 pm Operator: cs
Sample : p5e1128-bs1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:02 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\051105\P0511002.D Vial: 2
Acq On : 11 May 2005 2:56 pm Operator: cs
Sample : p5e1128-bs1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene (IS)	1.000	1.000	0.0	84	0.00
2	S	Dibromofluoromethane (SU1)	0.756	0.730	3.4	84	0.00
3	I	1,4-DIOXANE-d8	1.000	1.000	0.0	138	0.00
4	T	1,4-DIOXANE	2.130	2.021	5.1	147	0.00
5	I	1,2,3-Trichloropropane-d5	1.000	1.000	0.0	0#	-15.08#
6	T	1,2,3-Trichloropropane	0.000	0.000#	0.0	0#	-15.08#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P0511002.D DX031905.M Thu May 12 10:02:46 2005 GCMS1

1,4-DIOXANE BY METHOD 8260B SIM

CS
5-12-05

Data File Name P0511003.D
Data File Path D:\HPCHEM\1\DATA\051105\
Sample Name p5e1128-bsd1

Date Acquired 5/11/2005 3:29
Operator cs
Acq. Method File DX031905
GCMS1

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	47071	40733	23536	94142	TRUE
1,4-DIOXANE-d8	5034	7703	2517	10068	TRUE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	0.96	96.5	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	9.63	10.00	96.29	70	130	TRUE

AG 5/12/5

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511003.D Vial: 3
Acq On : 11 May 2005 3:29 pm Operator: cs
Sample : p5e1128-bsd1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:02 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

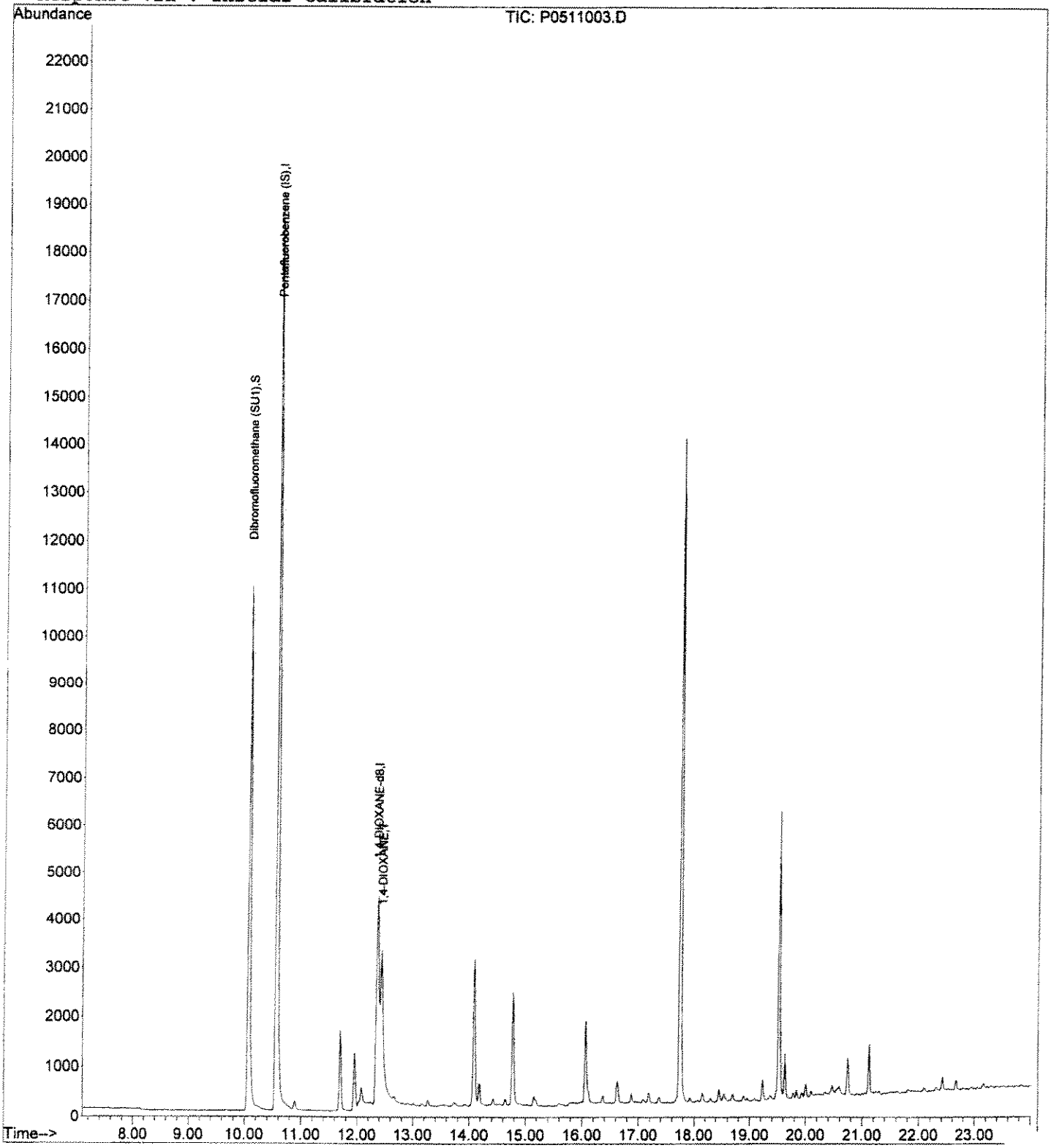
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	40733	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	7703	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	29696	0.96	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 96.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	5614	9.63	ug/L	99

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511003.D Vial: 3
Acq On : 11 May 2005 3:29 pm Operator: cs
Sample : p5e1128-bsd1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:02 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511004.D Vial: 4
Acq On : 11 May 2005 4:02 pm Operator: cs
Sample : p5e1128-blk1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:03 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

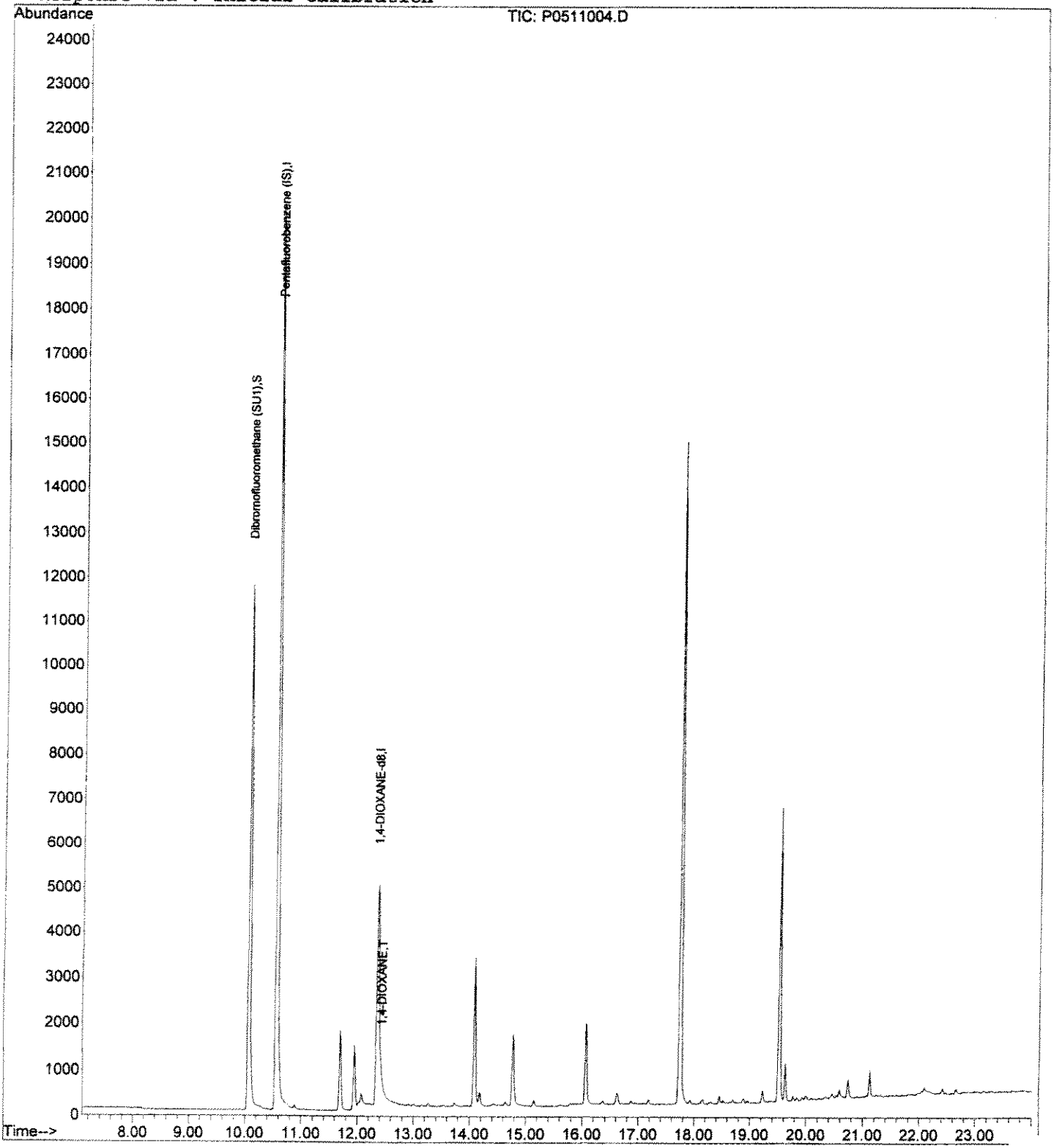
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	43608	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	8456	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	31916	0.97	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 97.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	208	0.33	ug/L	89

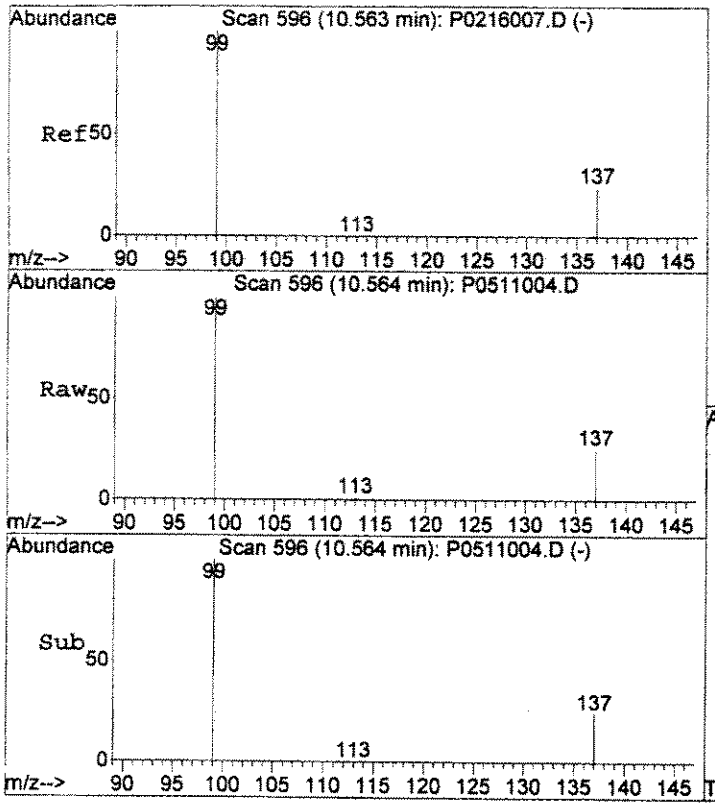
(#) = qualifier out of range (m) = manual integration
P0511004.D DX031905.M Thu May 12 10:03:45 2005 GCMS1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511004.D Vial: 4
Acq On : 11 May 2005 4:02 pm Operator: cs
Sample : p5e1128-blk1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:03 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration

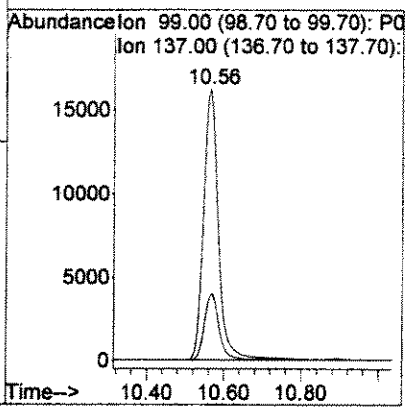


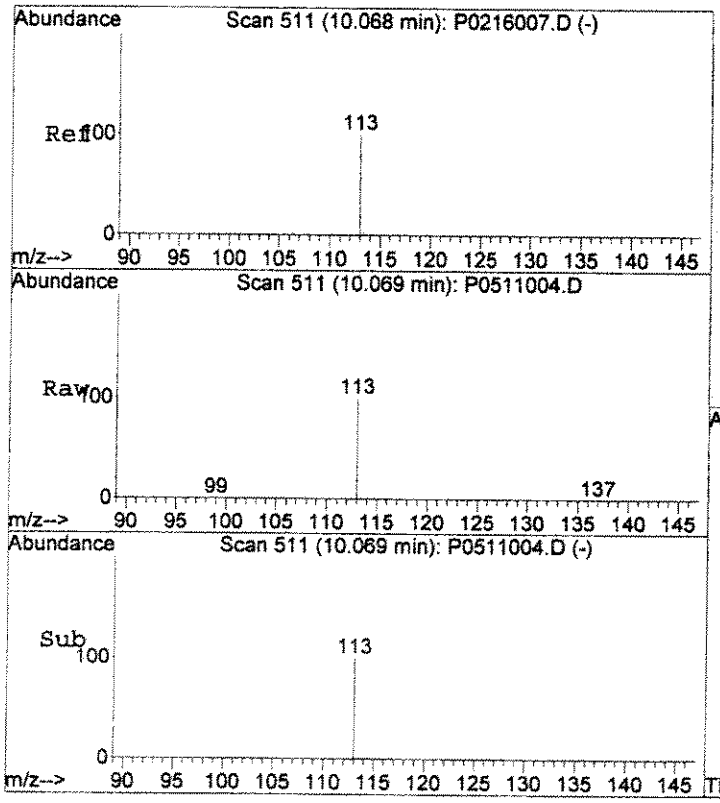


#1
Pentafluorobenzene (IS)
Concen: 1.00 ug/L
RT: 10.56 min Scan# 596
Delta R.T. -0.00 min
Lab File: P0511004.D
Acq: 11 May 2005 4:02 pm

Tgt Ion: 99 Resp: 43608

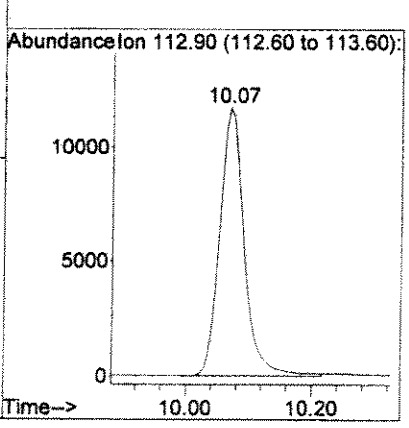
Ion	Ratio	Lower	Upper
99	100		
137	24.1	3.8	43.8

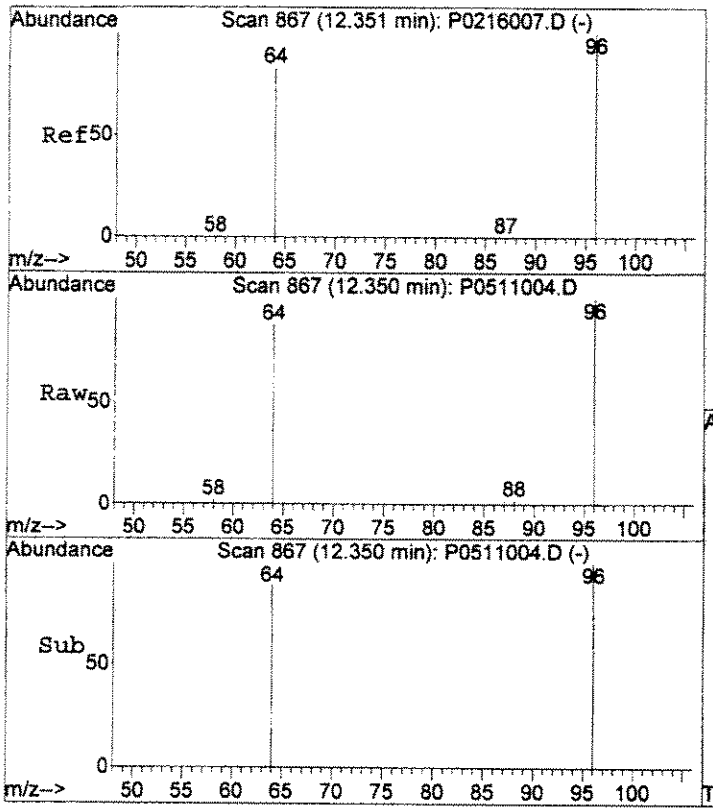




#2
Dibromofluoromethane (SU1)
Concen: 1.00 ug/L
RT: 10.07 min Scan# 511
Delta R.T. -0.00 min
Lab File: P0511004.D
Acq: 11 May 2005 4:02 pm

Tgt Ion:113 Resp: 31916

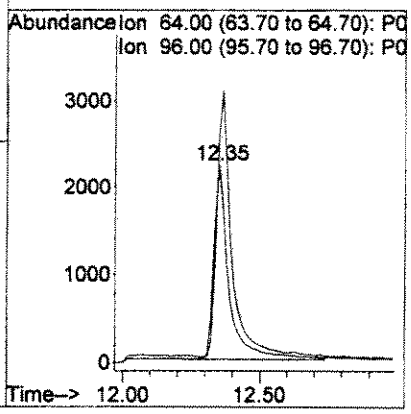


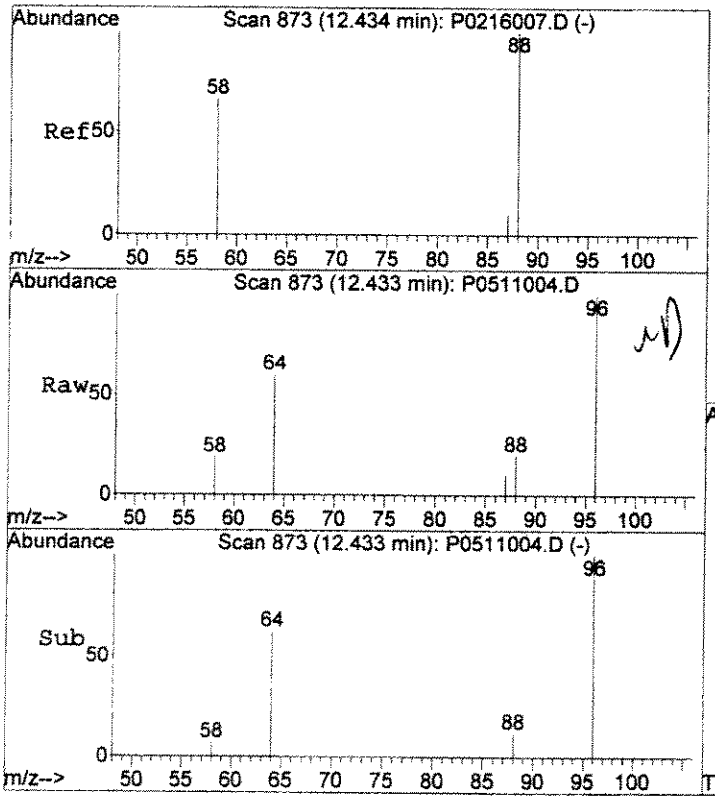


#3
1,4-DIOXANE-d8
Concen: 25.00 ug/L
RT: 12.35 min Scan# 867
Delta R.T. -0.00 min
Lab File: P0511004.D
Acq: 11 May 2005 4:02 pm

Tgt Ion: 64 Resp: 8456

Ion	Ratio	Lower	Upper
64	100		
96	112.9	72.7	172.7

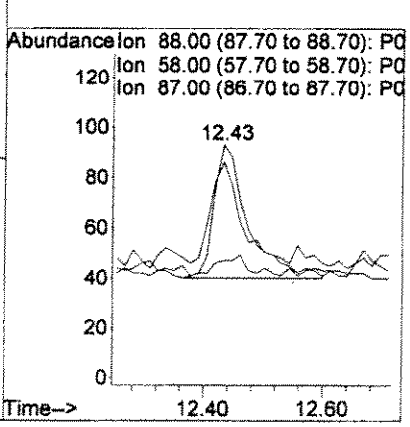




#4
1,4-DIOXANE
Concen: 0.33 ug/L
RT: 12.43 min Scan# 873
Delta R.T. -0.00 min
Lab File: P0511004.D
Acq: 11 May 2005 4:02 pm

Tgt Ion: 88 Resp: 208

Ion	Ratio	Lower	Upper
88	100		
58	75.5	15.8	115.8
87	7.5	0.0	59.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511006.D Vial: 6
Acq On : 11 May 2005 5:07 pm Operator: cs
Sample : poe0059-02 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

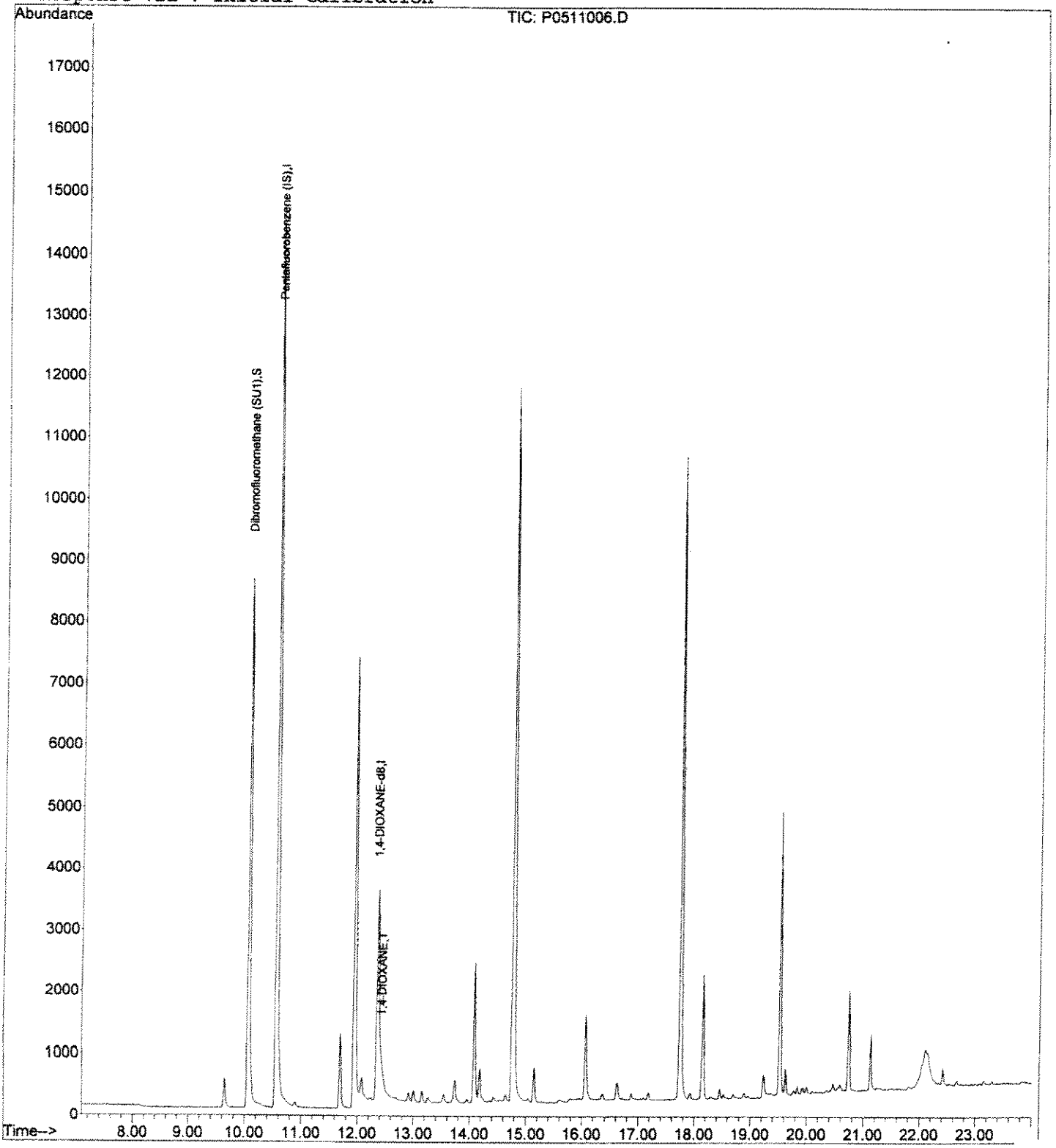
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	30937	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6052	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	23451	1.00	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 100.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	388	0.85	ug/L	91

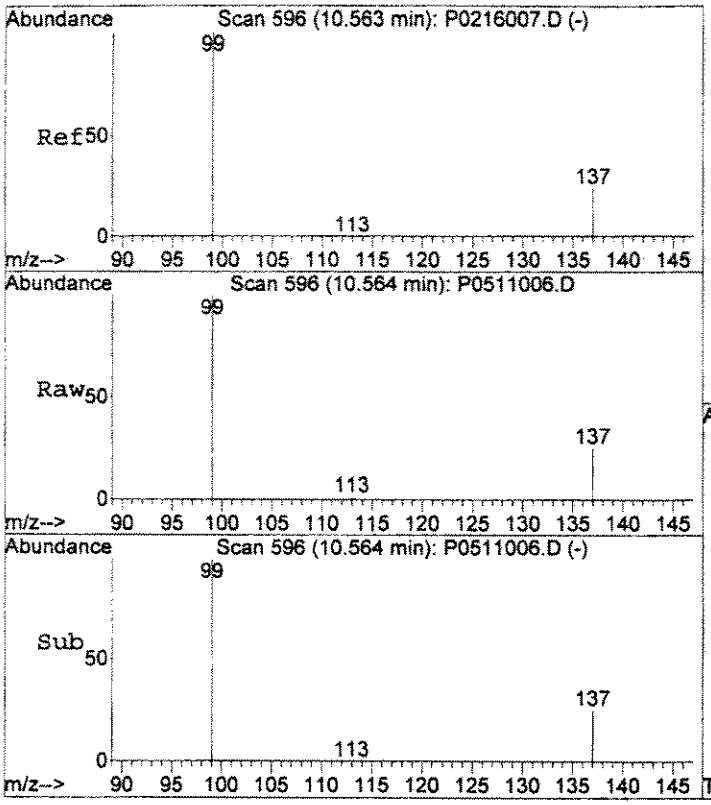
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511006.D Vial: 6
Acq On : 11 May 2005 5:07 pm Operator: cs
Sample : poe0059-02 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration

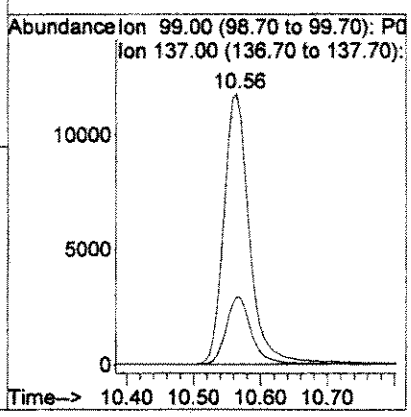


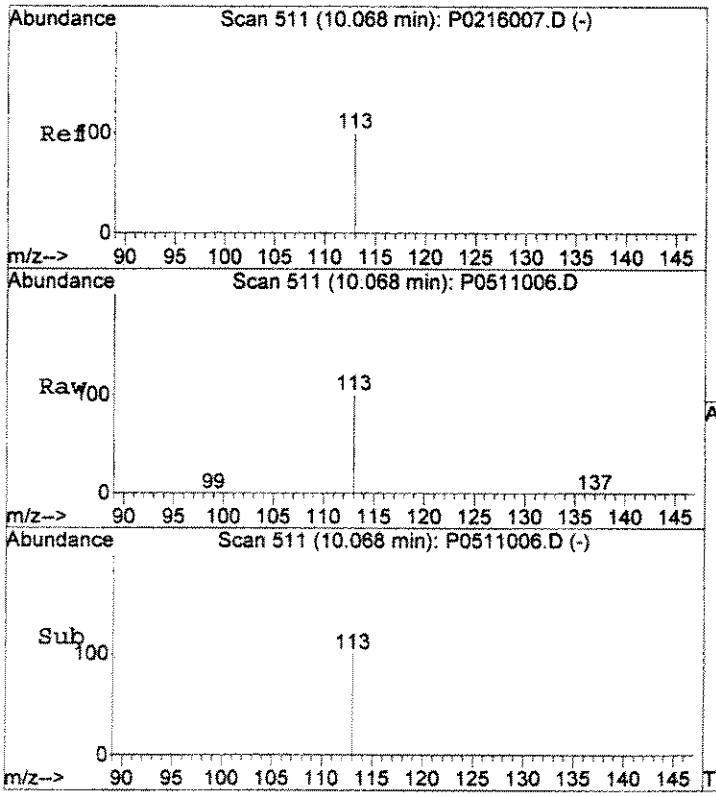


#1
Pentafluorobenzene (IS)
Concen: 1.00 ug/L
RT: 10.56 min Scan# 596
Delta R.T. -0.00 min
Lab File: P0511006.D
Acq: 11 May 2005 5:07 pm

Tgt Ion: 99 Resp: 30937

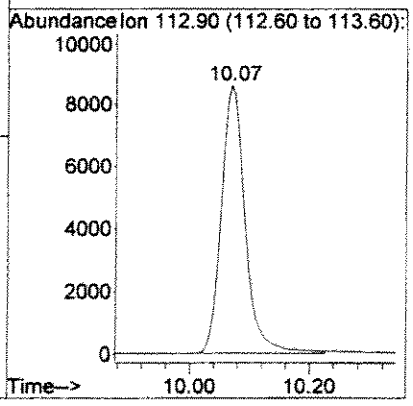
Ion	Ratio	Lower	Upper
99	100		
137	24.5	3.8	43.8

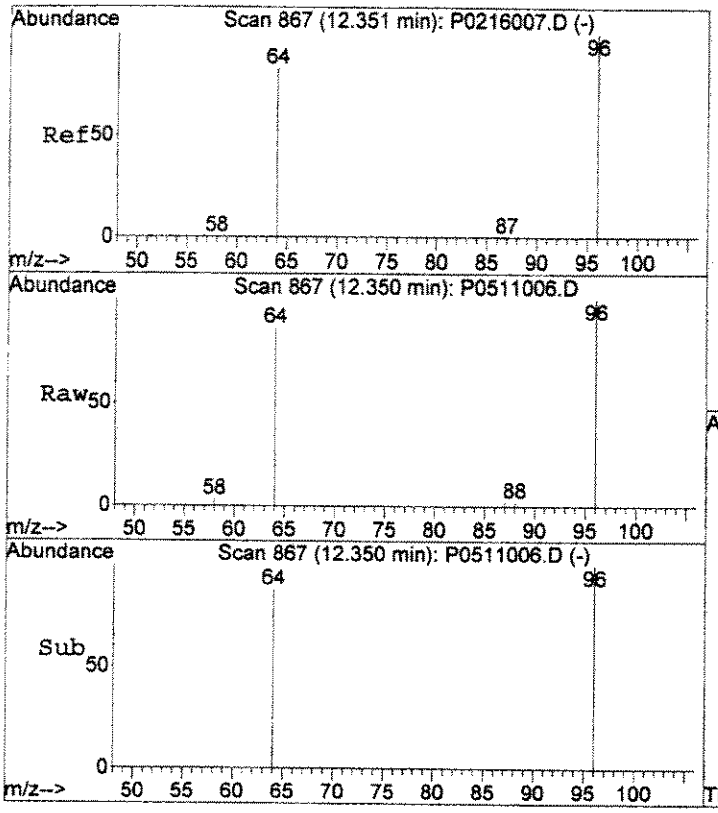




#2
Dibromofluoromethane (SU1)
Concen: 1.00 ug/L
RT: 10.07 min Scan# 511
Delta R.T. -0.00 min
Lab File: P0511006.D
Acq: 11 May 2005 5:07 pm

Tgt Ion:113 Resp: 23451

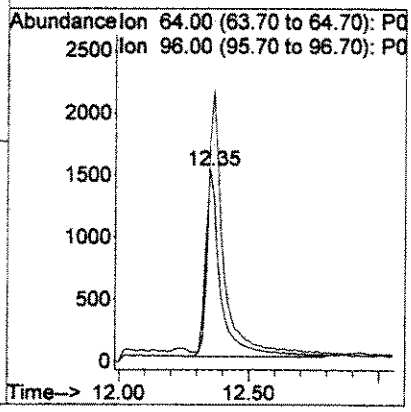


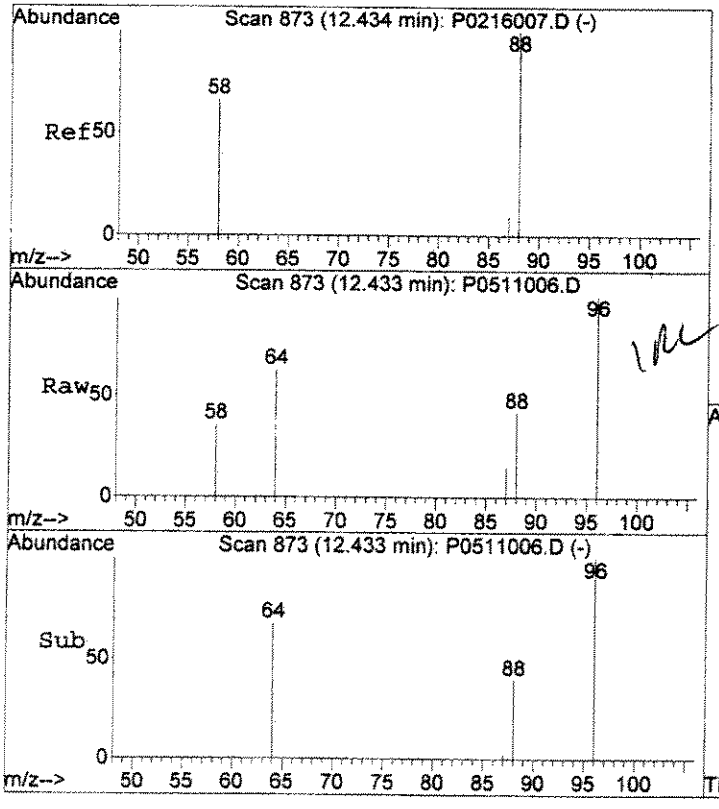


#3
1,4-DIOXANE-d8
Concen: 25.00 ug/L
RT: 12.35 min Scan# 867
Delta R.T. -0.00 min
Lab File: P0511006.D
Acq: 11 May 2005 5:07 pm

Tgt Ion: 64 Resp: 6052

Ion	Ratio	Lower	Upper
64	100		
96	114.5	72.7	172.7

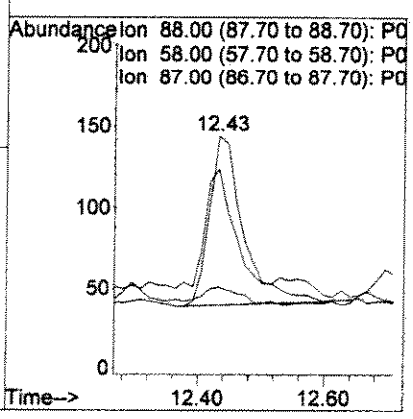




#4
1,4-DIOXANE
Concen: 0.85 ug/L
RT: 12.43 min Scan# 873
Delta R.T. -0.00 min
Lab File: P0511006.D
Acq: 11 May 2005 5:07 pm

Tgt Ion: 88 Resp: 388

Ion	Ratio	Lower	Upper
88	100		
58	74.3	15.8	115.8
87	9.5	0.0	59.5



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511007.D Vial: 7
Acq On : 11 May 2005 5:40 pm Operator: cs
Sample : poe0059-02ms1 DSL 1178-MS1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

CS 5-12-05

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	37664	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6138	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	28032	0.98	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 98.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	4817	10.37	ug/L	95

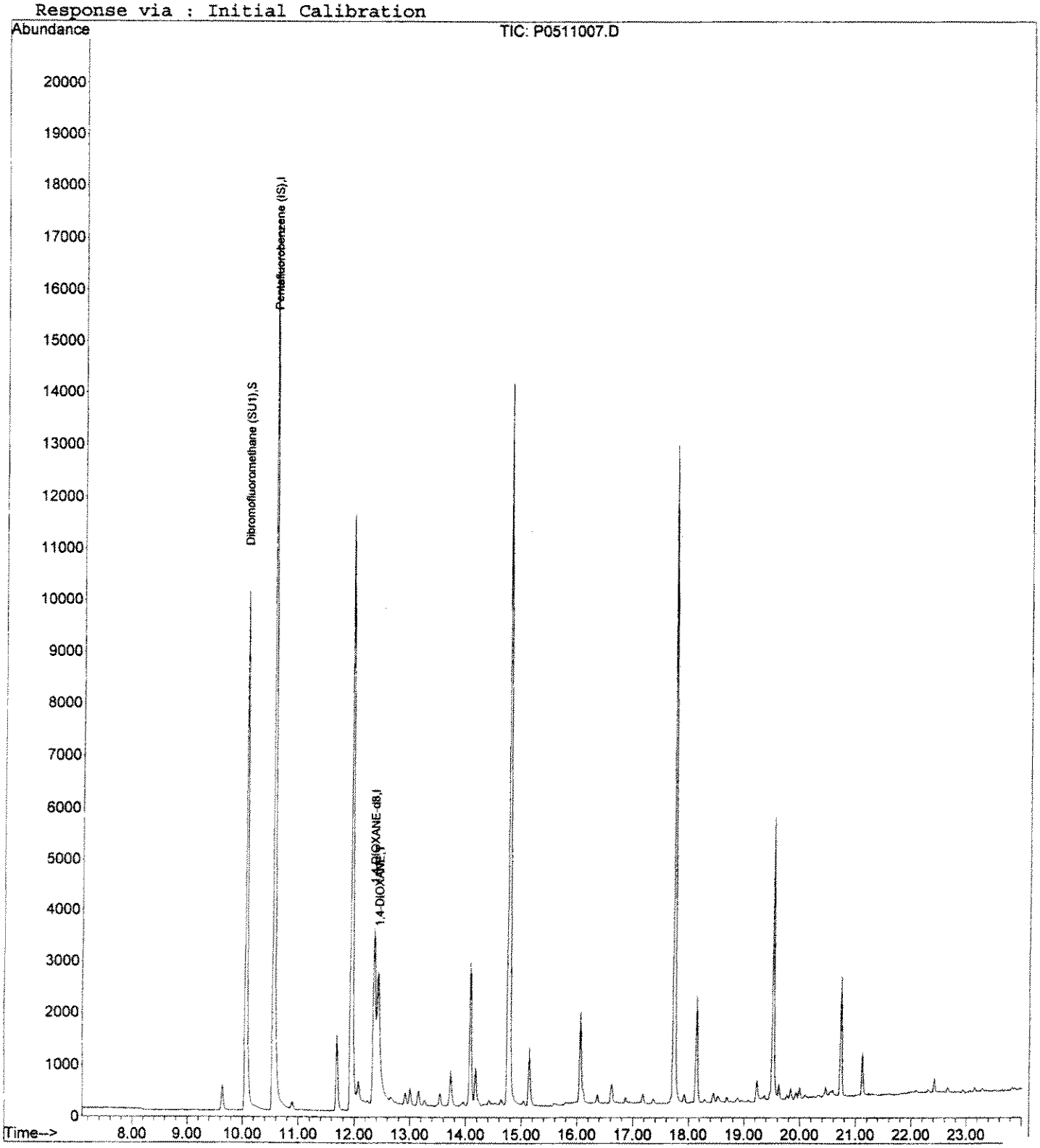
AR 5/13/05

(#) = qualifier out of range (m) = manual integration
P0511007.D DX031905.M Thu May 12 10:04:20 2005 GCMS1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511007.D Vial: 7
Acq On : 11 May 2005 5:40 pm Operator: cs
Sample : poe0059-02ms1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511008.D Vial: 8
Acq On : 11 May 2005 6:13 pm Operator: cs
Sample : poe0059-02msd1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

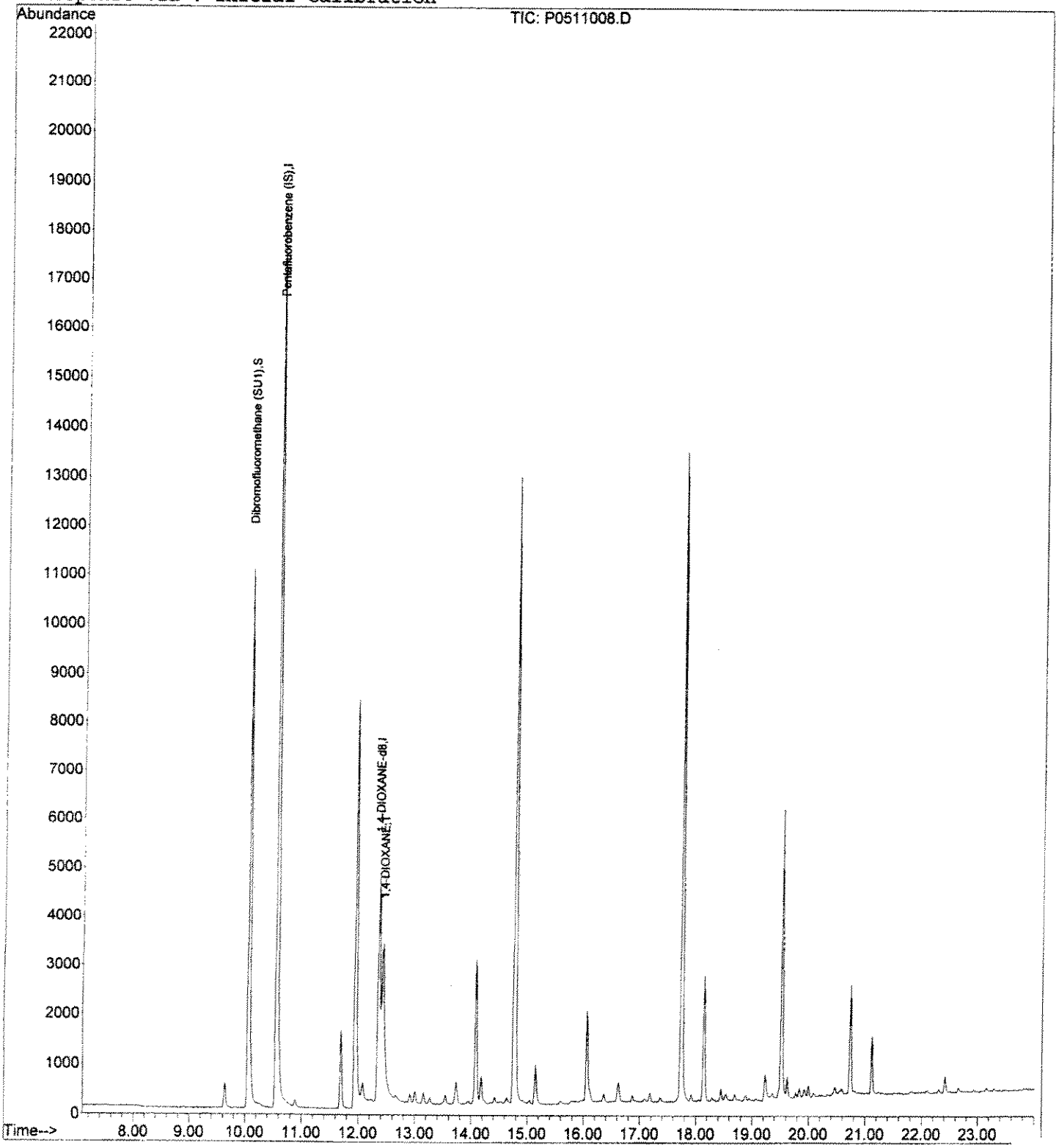
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	39551	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	7597	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	30374	1.02	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 102.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	5777	10.05	ug/L	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511008.D Vial: 8
Acq On : 11 May 2005 6:13 pm Operator: cs
Sample : poe0059-02msd1 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:04 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\051105\P0511012.D Vial: 12
Acq On : 11 May 2005 8:24 pm Operator: cs
Sample : poe0151-01 Inst : GCMS1
Misc : ~~1X 10ML~~ 10X 10mL cs 5-12-05 Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:11 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration
DataAcq Meth : DX031905

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	34886	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6295	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	26643	1.01	ug/L	0.00
Spiked Amount 1.000	Range 80 - 120		Recovery = 101.00%			
Target Compounds						Qvalue
4) 1,4-DIOXANE	12.43	88	177	0.37	ug/L	91

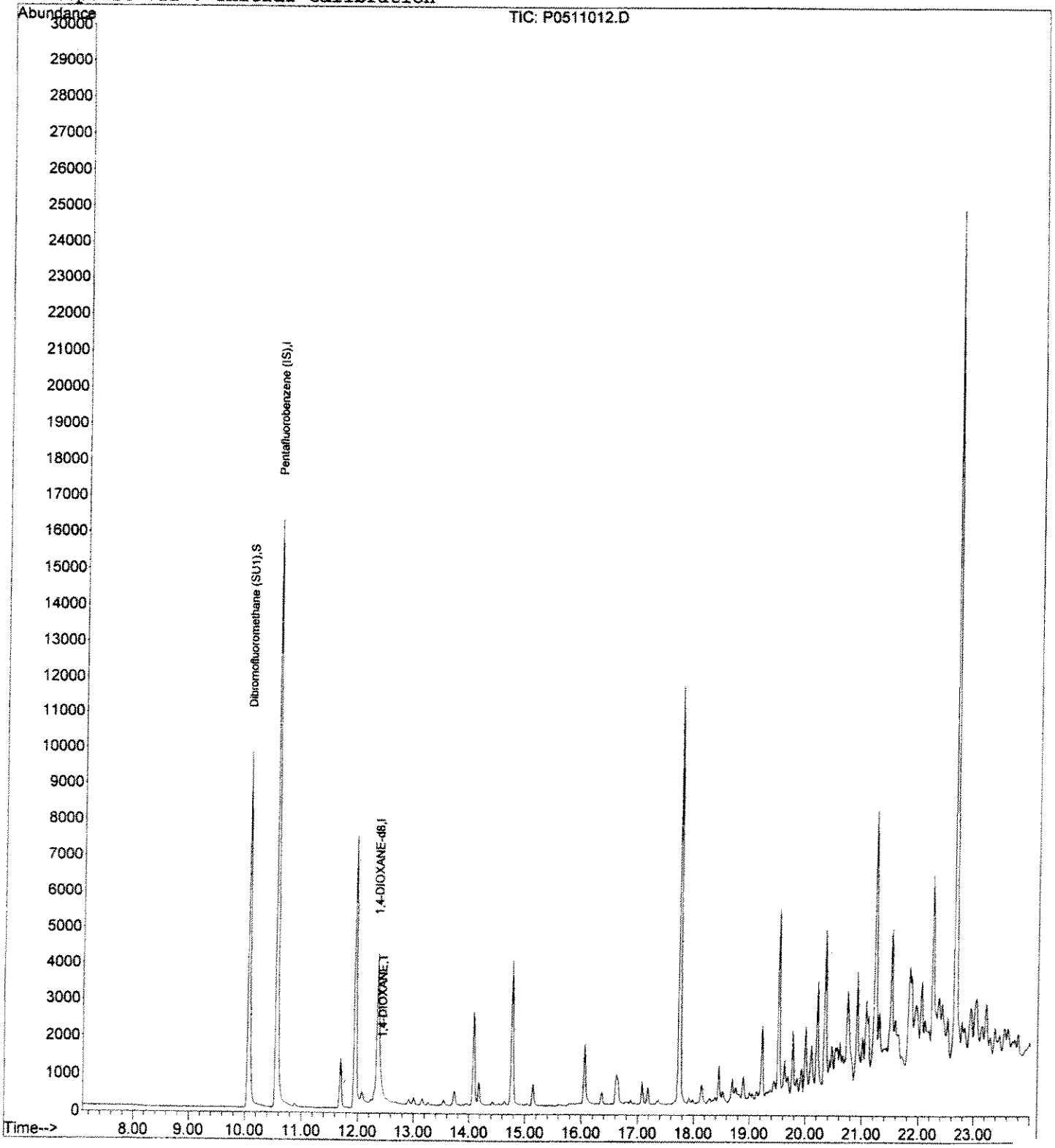
5/13/05

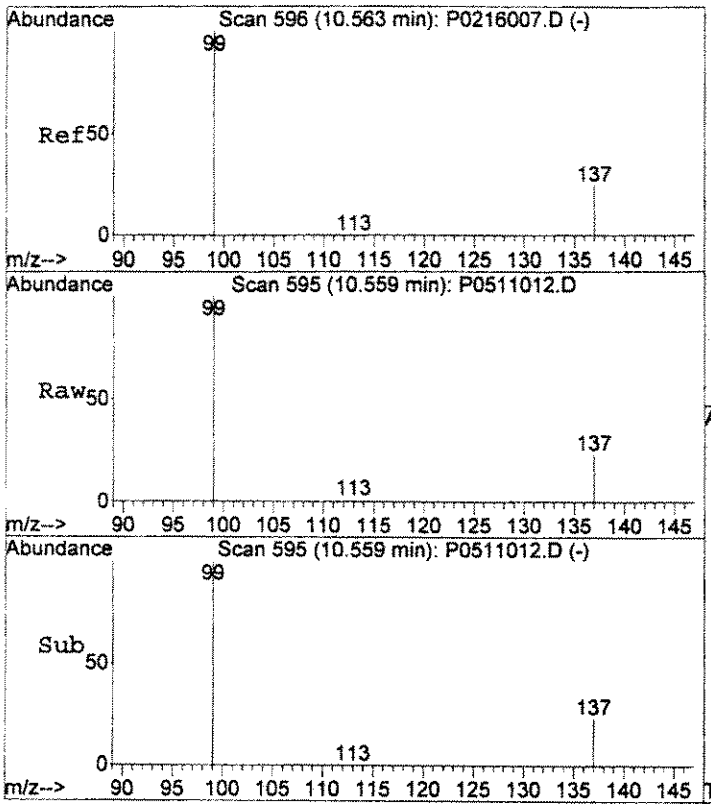
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\051105\P0511012.D Vial: 12
Acq On : 11 May 2005 8:24 pm Operator: cs
Sample : poe0151-01 Inst : GCMS1
Misc : 1X 10ML Multiplr: 1.00
MS Integration Params: DIOXANE.P
Quant Time: May 12 10:11 2005 Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration

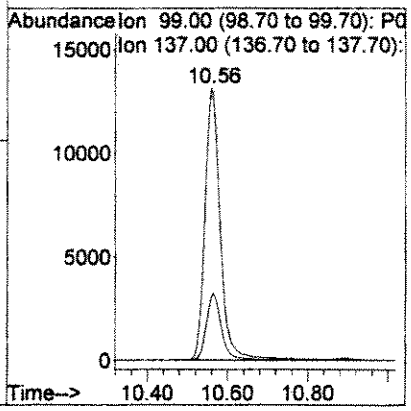


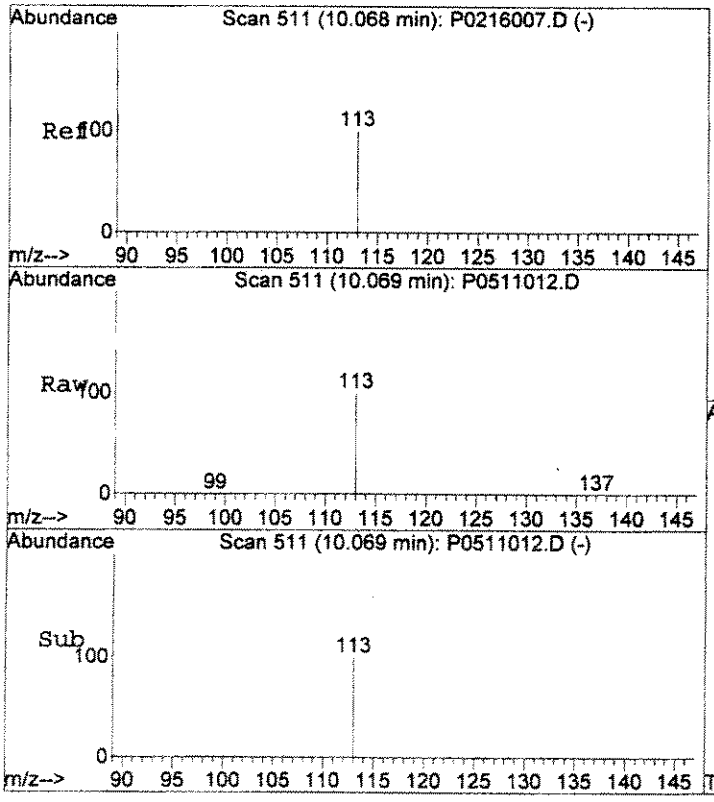


#1
Pentafluorobenzene (IS)
Concen: 1.00 ug/L
RT: 10.56 min Scan# 595
Delta R.T. -0.01 min
Lab File: P0511012.D
Acq: 11 May 2005 8:24 pm

Tgt Ion: 99 Resp: 34886

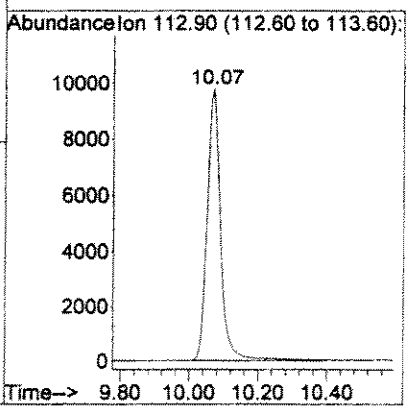
Ion	Ratio	Lower	Upper
99	100		
137	23.8	3.8	43.8

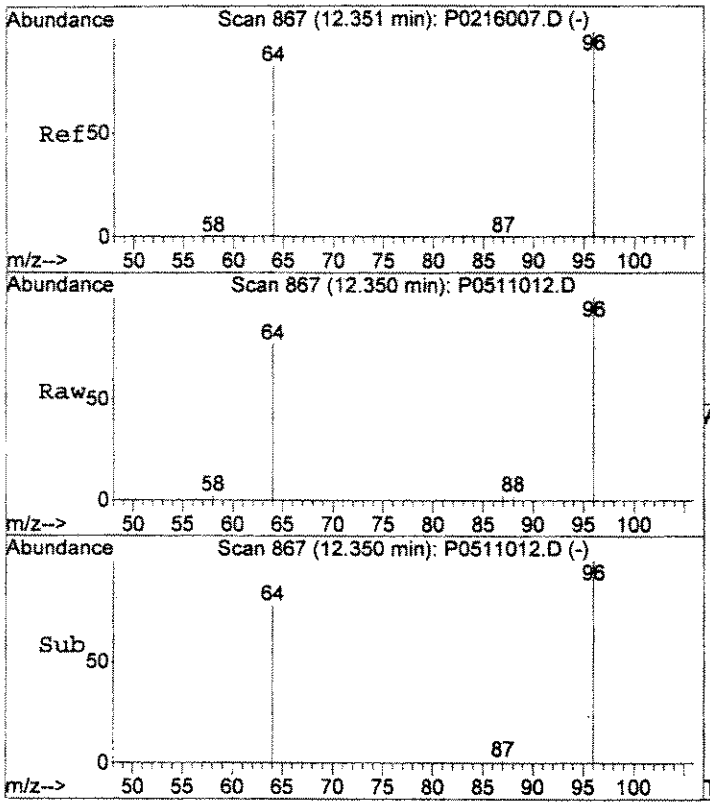




#2
Dibromofluoromethane (SU1)
Concen: 1.00 ug/L
RT: 10.07 min Scan# 511
Delta R.T. -0.00 min
Lab File: P0511012.D
Acq: 11 May 2005 8:24 pm

Tgt Ion:113 Resp: 26643

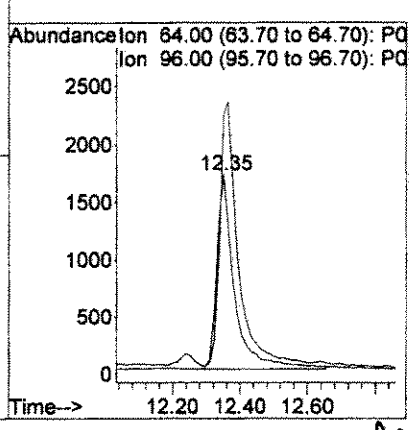


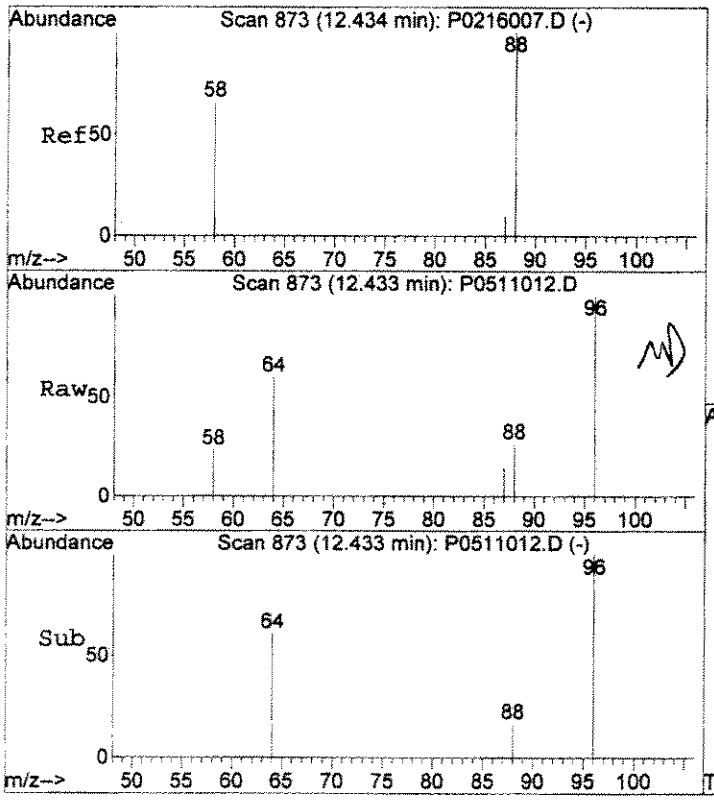


#3
1,4-DIOXANE-d8
Concen: 25.00 ug/L
RT: 12.35 min Scan# 867
Delta R.T. -0.00 min
Lab File: P0511012.D
Acq: 11 May 2005 8:24 pm

Tgt Ion: 64 Resp: 6295

Ion	Ratio	Lower	Upper
64	100		
96	127.7	72.7	172.7

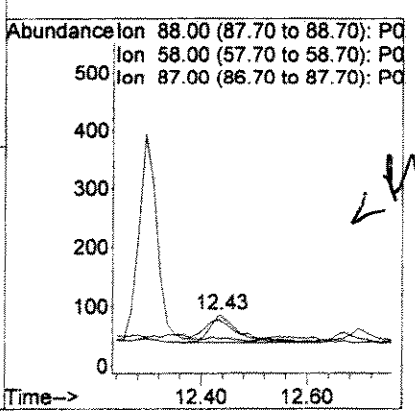




#4
1,4-DIOXANE
Concen: 0.37 ug/L
RT: 12.43 min Scan# 873
Delta R.T. 0.00 min
Lab File: P0511012.D
Acq: 11 May 2005 8:24 pm

Tgt Ion: 88 Resp: 177

Ion	Ratio	Lower	Upper
88	100		
58	72.3	15.8	115.8
87	4.3	0.0	59.5



PREPARATION BENCH SHEET

P5E1128

Del Mar Analytical - Phoenix

Printed: 5/12/05 3:28:29PM

Matrix: Water

Prepared using: GCMS - EPA 5030 GCMS

Surrogate used: 5050011

Lab Number	C	Analysis	Prepared	Initial (ml)	Final (ml)	Source ID	Spike 1	ul Spike	Spike 2	ul Spike	ul Surrogate	Initials			Extraction Comments
P5E1128-BLK1		QC	05/11/05 00:00	10	10						1				
P5E1128-BS1		QC	05/11/05 00:00	10	10		5050010	10			1				
P5E1128-BSD1		QC	05/11/05 00:00	10	10		5050010	10			1				
P5E1128-MS1		QC	05/11/05 00:00	10	10	POE0059-02	5050010	10			1				
P5E1128-MSD1		QC	05/11/05 00:00	10	10	POE0059-02	5050010	10			1				
POE0059-01	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0059-02	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0085-01	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0085-02	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0085-03	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0151-01	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				
POE0254-01	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				J Flags. Level VI QC.
POE0254-02	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				no jflags
POE0254-03	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				no jflags
POE0254-04	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				no jflags
POE0254-05	A	8260B (1,4-Dioxane)	05/11/05 00:00	10	10						1				no jflags

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Witnessed By Date

Preparation Reviewed By 5/12/05 Date

Extracts Received By Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5050010

Description:	1,4-Dioxane SSC 10 ppm	Expires:	06/02/05
Standard Type:	Analyte Spike	Prepared:	05/02/05
Solvent:	MeOH #44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	05/02/05 11:59 by cs

1,4-Dioxane SSC 10ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	10

Parent Standards used in this standard

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5050008	1,4-Dioxane SS 2000 ppm STOCK	05/02/05	Corey Schrader	06/02/05	05/02/05 11:41 by c	0.005

Elizabeth Wueschner — Reviewed By

05-11-2005 — Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5050008

Description:	1,4-Dioxane SS 2000 ppm STOCK	Expires:	06/02/05
Standard Type:	Other Solution	Prepared:	05/02/05
Solvent:	MeOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	05/02/05 11:41 by cs

O2SI, 1,4-Dioxane 2000 ppm in Methanol PART#020223-01 LOT#109885
CRACKED NEW AMPULE -- original log in #5010214

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	2000

Elizabeth Wueschner — Reviewed By

05-11-2005 — Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5050011

Description:	IS/SURR MIX DIOXANE250/10/10PPM	Expires:	05/25/05
Standard Type:	Surrogate Spike	Prepared:	05/02/05
Solvent:	MeOH/EMD#44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	05/02/05 12:01 by cs

IS/SURR MIX for 1,4-Dioxane:1,4-Dioxane-d8 at 250 ppm,Pentafluorobenzene at 10 ppm,Dibromofluoromethane at 10 ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	10
1,4-Difluorobenzene	540-36-3	10
1,4-Dioxane-d8	17647-74-4	250
4-Bromofluorobenzene	460-00-4	10
Chlorobenzene-d5	3114-55-4	10
Dibromofluoromethane	1868-53-7	10
Pentafluorobenzene	NA	10
Toluene-d8	2037-26-5	10

Parent Standards used in this standard

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5040415	8260 SURR,2000PPM	04/25/05	Melissa Spencer	05/25/05	04/25/05 11:50 by M	0.005
5040458	8260 INTERNAL STANDARD	04/27/05	Melissa Spencer	05/27/05	04/27/05 09:35 by M	0.005
5050009	1,4-Dioxane-d8 10000 PPB	05/02/05	Corey Schrader	06/02/05	05/02/05 11:42 by c	0.025

Elizabeth Wueschner — Reviewed By

05-11-2005 — Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5040415

Description:	8260 SURR,2000PPM	Expires:	05/25/05
Standard Type:	Surrogate Spike	Prepared:	04/25/05
Solvent:	MEOH	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/25/05 11:50 by MS

ABSOLUTE, PART#21002, LOT#060304, 3 COMP @ 2000ug/mL
CRACKED NEW AMPULE--original log in #5020381

Analyte	CAS Number	Concentration (ppm)
4-Bromofluorobenzene	460-00-4	2000
Dibromofluoromethane	1868-53-7	2000
Toluene-d8	2037-26-5	2000

Reviewed By Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5040458

Description:	8260 INTERNAL STANDARD	Expires:	05/27/05
Standard Type:	Other Solution	Prepared:	04/27/05
Solvent:	N/A	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/27/05 09:35 by MS

Absolute PART#20013, LOT#081604, 2000PPM
CRACKED NEW AMPULE--ORIGINAL LOG-IN ID#4120170

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	2000
1,4-Difluorobenzene	540-36-3	2000
Chlorobenzene-d5	3114-55-4	2000
Pentafluorobenzene	NA	2000

Reviewed By Date

Analytical Standard Record

Del Mar Analytical - Phoenix

5050009

Description:	1,4-Dioxane-d8 10000 PPB	Expires:	06/02/05
Standard Type:	Other Solution	Prepared:	05/02/05
Solvent:	MeOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	05/02/05 11:42 by cs

Absolute Part# 92785, Lot# 022301, 1,4-Dioxane-d8, 10mg/mL in methanol
ORIGINAL LOG-IN ID#5010501

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane-d8	17647-74-4	10000

Elizabeth Wueschner — Reviewed By

05-11-2005 — Date

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Semivolatiles

Package ID T711SV58
Task Order 313150010
SDG No. IOE0230
No. of Analyses 1

Date: June 21, 2005
Reviewer's Signature

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

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOE0230

Prepared by

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

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Semivolatiles
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	M. Pokorny
Date of Review:	June 21, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Semivolatile Organics (DVP-3, Rev. 2), EPA Method 625,* and the *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE0230-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 05/04/05. The average RRFs were ≥0.05 and the %RSDs were ≤35% or r^2 ≥0.995 for both target compounds listed on the sample summary form. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 05/09/05. The RRFs for both target compounds were ≥0.05, and the %Ds were ≤20%. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5E05051-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5E05051-BS1/5E05051-BSD1) was extracted and analyzed with this SDG. All percent recoveries and RPDs were within the laboratory QC limits. A

representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample surrogate recoveries were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ±30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for naphthalene and n-nitrosodimethylamine by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial and the method detection limit study. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.

Del Mar Analytical

17461 Derian Ave , Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-96[illegible] FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-[illegible] FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-[illegible] 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: IOE0230

Sampled: 05/03/05
Received: 05/04/05

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

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**						
Reporting Units: ug/l											
Naphthalene	EPA 625	5E05051	4.5	10	**23**	0.962	05/05/05	05/10/05			
N-Nitrosodimethylamine	EPA 625	5E05051	3.7	20	ND	0.962	05/05/05	05/10/05		U	
Surrogate: 2-Fluorophenol (30-120%)					*58 %*						
Surrogate: Phenol-d6 (35-120%)					*66 %*						
Surrogate: 2,4,6-Tribromophenol (45-120%)					*83 %*						
Surrogate: Nitrobenzene-d5 (45-120%)					*77 %*						
Surrogate: 2-Fluorobiphenyl (45-120%)					*77 %*						
Surrogate: Terphenyl-d14 (45-120%)					*76 %*						

AMEC VALIDATED

LEVEL IV

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

Package ID T711TF70
Task Order 313150010
SDG No. IOE0230
No. of Analyses 2

Laboratory Del Mar Analytical
Reviewer L. Calvin
Analysis/Method TFH/Purgeable by Method 8015M

Date: June 16, 2005
Reviewer's Signature L. Calvin

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	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
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 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 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: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOE0230

Prepared by

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

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	TPH-Purgeable
QC Level:	Level IV
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Reviewer:	L. Calvin
Date of Review:	June 15, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the USEPA CLP *National Functional Guidelines for Organic Data Review* (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE0230-01	water	8015M/GRO
Trip Blank	Trip Blank	IOE0230-02	water	8015M/GRO

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at Del Mar Analytical on ice within the temperature limits of 4°C ±2°C, at 4°C. The Del Mar Analytical case narrative noted that the samples were received intact, and the COC indicated the samples were properly preserved. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 CALIBRATION

One gasoline standard initial calibration dated 11/22/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) were within the QC limit of ≤20%. An initial calibration verification (ICV) was not provided in the data package. The %Ds for all CCVs bracketing the sample analyses were within the Method QC limit of ≤15%. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required

2.4 METHOD BLANKS

Two water method blanks (5E11043-BLK1 and 5E12047-BLK1) were associated with the sample analyses. GRO (C4-C12) was not detected above the MDL in either method blank. Review of the raw data indicated no false negative results. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two water method blank spikes (5E11043-BS1 and 5E12047-BS1) were associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140%. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC limits of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.9.1 Trip Blanks, Field Blanks, and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples in this SDG.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

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

Project ID: Alfa Outfall 012 - Dawing Test

Report Number: IOE0230

Sampled: 05/03/05
Received: 05/04/05

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

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 05/03/05**				rev qual / qual code
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E12047	0.50	1.0	1.7	10	05/12/05	05/12/05	
Surrogate: 4-BFB (FID) (65-140%)					*114 %*				
Sample ID: IOE0230-02 (DRAFT: Trip Blank - Water)					**Sampled: 05/03/05**				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E11043	0.050	0.10	ND	1	05/11/05	05/11/05	U
Surrogate: 4-BFB (FID) (65-140%)					*102 %*				

AMEC VALIDATED

LEVEL IV

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. Calvin
Analysis/Method TFH/Extractable by Method 8015B

Package ID T711TF71
Task Order 313150010
SDG No. IOE0230
No. of Analyses 1

Date: June 16, 2005
Reviewer's Signature L N Calvin

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	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
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 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 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: TPH/Extractable

SAMPLE DELIVERY GROUP: IOE0230

Prepared by

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

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	TPH-Extractable
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	L. Calvin
Date of Review:	June 15, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015B, and validation guidelines outlined in the USEPA CLP *National Functional Guidelines for Organic Data Review* (2/94). Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOE0230-01	water	8015B

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical laboratory on ice within the temperature limits of 4°C ±2°C. The Del Mar Analytical case narrative noted that the sample containers were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 CALIBRATION

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

2.4 METHOD BLANKS

One method blank (5E06055-BLK1) was extracted and analyzed with the sample in this SDG. EFH (C13-C22) was not present above the MDL in the method blank or in the instrument blank analyzed at the beginning of the analytical sequence. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike/blank spike duplicate pair (5E06055-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%,

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

2.6 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC limits of 40-125%. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

Del Mar Analytical

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE0230

Sampled: 05/03/05
Received: 05/04/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 05/03/05**				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E06055	0.082	0.50	0.71	0.971	05/06/05	05/06/05	
Surrogate: n-Octacosane (40-125%)					*73 %*				

ver qual | qual code

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

8

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Volatiles

Package ID T711VO109
Task Order 313150010
SDG No. IOE0230
No. of Analyses 2

Date: June 21, 2005
Reviewer's Signature M. Pokorny

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 required for calibration outliers.
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS[b]	

[a] Subcontracted analytical laboratory is not meeting contract and/or method requirements.
[b] Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOE0230

Prepared by

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

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles
QC Level:	Level IV
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Reviewer:	M. Pokorny
Date of Review:	June 21, 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* 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	IOE0230-01	water	624
Trip Blank	Trip Blank	IOE0230-02	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

Two initial calibrations dated 03/26/05 and 05/10/05 were 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. Two continuing calibrations dated 05/09/05 and 05/12/05 were associated with the sample analyses in this SDG. For the continuing calibration dated 05/09/05, the %Ds for all target compounds were ≤20% in the continuing calibration except for the %Ds for MTBE and 1,2,3-trichloropropane. MTBE and 1,2,3-trichloropropane were qualified as estimated nondetects, "UJ," in the site sample of this SDG. For the continuing calibration dated 05/12/05, the %Ds for all target compounds were ≤20% in the continuing calibration except for the %D for DIPE. The trip blank required no qualification. 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 calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blank (5E09023-BLK1 and 5E12005-BLK1) were 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

Two water blank spikes (5E09023-BS1 and 5E12005-BS1) were 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

An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated 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 for five 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

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: 1OE0230

Sampled: 05/03/05
Received: 05/04/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers (Ref Qual)	Qual Code
Sample ID: 1OE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**					
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	5E09023	0.32	2.0	ND	1	05/09/05	05/10/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E09023	0.32	5.0	ND	1	05/09/05	05/10/05	UJ	C
1,2,3-Trichloropropane	EPA 624	5E09023	0.85	10	ND	1	05/09/05	05/10/05	UJ	C
Di-isopropyl Ether (DIPE)	EPA 624	5E09023	0.25	5.0	ND	1	05/09/05	05/10/05	U	
tert-Butanol (TBA)	EPA 624	5E09023	3.1	25	ND	1	05/09/05	05/10/05	U	
Surrogate: Dibromofluoromethane (80-120%)					*112 %*					
Surrogate: Toluene-d8 (80-120%)					*107 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*105 %*					
Sample ID: 1OE0230-02 (DRAFT: Trip Blank - Water)					**Sampled: 05/03/05**					
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	5E12005	0.32	2.0	ND	1	05/12/05	05/12/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E12005	0.32	5.0	ND	1	05/12/05	05/12/05		
1,2,3-Trichloropropane	EPA 624	5E12005	0.19	10	ND	1	05/12/05	05/12/05		
Di-isopropyl Ether (DIPE)	EPA 624	5E12005	0.25	5.0	ND	1	05/12/05	05/12/05		
tert-Butanol (TBA)	EPA 624	5E12005	3.1	25	ND	1	05/12/05	05/12/05		
Surrogate: Dibromofluoromethane (80-120%)					*97 %*					
Surrogate: Toluene-d8 (80-120%)					*98 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*90 %*					

AMEC VALIDATED

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Volatiles (1,4-dioxane)

Package ID T711VO110
Task Order 313150010
SDG No. IOE0230
No. of Analyses 1

Date: June 21, 2005
Reviewer's Signature

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

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOE0230

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 #:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles (1,4-dioxane)
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	M. Pokorny
Date of Review:	June 21, 2005

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

Table 1. Sample identification

Client ID	EPA ID	Lab No. Del Mar, CA	Matrix	Method
Outfall 012	Outfall 012	IOE0230-01	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, and the sample was received within the temperature limits of 4°C ±2°C. The sample was properly preserved. The COC and transfer COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

One initial calibration, dated 03/19/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥0.05 and the %RSD was ≤35%. The laboratory reported the continuing calibration and the blank spike (P5E1128-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer evaluated P5E1128-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 (P5E1128-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected above the MDL in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5E1128-BS1/BS1D) with this SDG; however, P5E1128-BS1 was reported as the CCV (see section 2.3); therefore, P5E1128-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.

Del Mar Analytical

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-620 FAX (702) 798-...

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE0230

Sampled: 05/03/05
Received: 05/04/05

DRAFT: 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: IOE0230-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 05/03/05**				REV RL-1 QUAL / QUAL COD
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5E1128	4.9	10	ND	10	05/11/05	05/11/05	U
Surrogate: Dibromofluoromethane (80-125%)					*101 %*				

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LEVEL IV

DRAFT REPORT
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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
Reviewer P. Meeks
Analysis/Method Perchlorate

Package ID T711WC155
Task Order 313150010
SDG No. IOE0230
No. of Analyses 1

Date: 06/15/05
Reviewer's Signature P. Meeks

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.
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: PERCHLORATE

SAMPLE DELIVERY GROUP: IOE0230

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 #:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Perchlorate
QC Level:	Level IV
No. of Samples:	1
Reviewer:	P. Meeks
Date of Review:	June 15, 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	IOE0230-01	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 associated with this SDG was ≥0.995. The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. The ICCS was recovered above the control limits at 175%; however, as perchlorate was not detected in the site sample, 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. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample associated with this SDG was recovered 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 these SDGs.

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 the LCS result.

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 samples in these data packages. 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

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-0620 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: IOE0230

Sampled: 05/03/05
Received: 05/04/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers Rep Qual	Qual Code
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 05/03/05**					
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5E05091	0.30	0.50	ND	1	05/05/05	05/05/05	*	
Biochemical Oxygen Demand	EPA 405.1	5E04069	0.59	2.0	**1.5**	1	05/04/05	05/09/05		J
Oil & Grease	EPA 413.1	5E06041	0.94	5.0	ND	1	05/06/05	05/18/05		
Total Dissolved Solids	SM2540C	5E04104	10	10	**250**	1	05/04/05	05/04/05		
Total Suspended Solids	EPA 160.2	5E08025	10	10	**11**	1	05/08/05	05/08/05		
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**					
Reporting Units: ml/l/hr										
Total Settleable Solids	EPA 160.5	5E05078	0.10	0.10	**0.10**	1	05/05/05	05/05/05		
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**					
Reporting Units: NTU										
Turbidity	EPA 180.1	5E05095	0.040	1.0	**30**	1	05/05/05	05/05/05		
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5E10060	0.80	4.0	ND	1	05/10/05	05/10/05	U	C

* Analysis not validated

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

12

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

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

Package ID T711WC156
Task Order 313150010
SDG No. IOE0230
No. of Analyses 1

Date: 06/15/05
Reviewer's Signature P MEEKS

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 applied for CCV recovery outliers and detects below the reporting limit.
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).