



06/11/12

Technical Report for

XTO Energy

PCU F31-19G

1206-03

Accutest Job Number: D35040

Sampling Date: 05/31/12

Report to:

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ATTN: Dwayne Knudson

Total number of pages in report: 63



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D35040

PCU F31-19G

Project No: 1206-03

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D35040-1	05/31/12	11:00 DS	06/02/12	SO	Soil	PARTIALLY BURIED TANK BOTTOM - 1 FT
D35040-2	05/31/12	11:19 DS	06/02/12	SO	Soil	PARTIALLY BURIED TANK WEST WALL
D35040-3	05/31/12	11:10 DS	06/02/12	SO	Soil	PARTIALLY BURIED TANK EAST WALL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D35040

Site: PCU F31-19G

Report Date 6/11/2012 10:17:50 AM

On 06/02/2012, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D35040 was assigned to the project. The lab sample IDs, client sample IDs, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB903

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35033-2MS, D35033-2MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP6010

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35039-1MS, D35039-1MSD were used as the QC samples indicated.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP7585

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35034-1MS, D35034-1MSD, D35034-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN15246

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK BOTTOM - 1 FT					Date Sampled:	05/31/12
Lab Sample ID:	D35040-1					Date Received:	06/02/12
Matrix:	SO - Soil					Percent Solids:	86.1
Method:	SW846 8015B						
Project:	PCU F31-19G						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16231.D	1	06/06/12	SK	n/a	n/a	GGB903
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	85%		60-140%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK BOTTOM - 1 FT					Date Sampled:	05/31/12
Lab Sample ID:	D35040-1					Date Received:	06/02/12
Matrix:	SO - Soil					Percent Solids:	86.1
Method:	SW846-8015B SW846 3546						
Project:	PCU F31-19G						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH005185.D	1	06/08/12	AV	06/06/12	OP6010	GFH285
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	442	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		43-136%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PARTIALLY BURIED TANK BOTTOM - 1 FT	Date Sampled:	05/31/12
Lab Sample ID:	D35040-1	Date Received:	06/02/12
Matrix:	SO - Soil	Percent Solids:	86.1
Project:	PCU F31-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.7	0.11	mg/kg	5	06/05/12	06/06/12 GJ	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2492
(2) Prep QC Batch: MP7585

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK WEST WALL					Date Sampled:	05/31/12
Lab Sample ID:	D35040-2					Date Received:	06/02/12
Matrix:	SO - Soil					Percent Solids:	87.3
Method:	SW846 8015B						
Project:	PCU F31-19G						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16232.D	1	06/06/12	SK	n/a	n/a	GGB903
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK WEST WALL				Date Sampled:	05/31/12
Lab Sample ID:	D35040-2				Date Received:	06/02/12
Matrix:	SO - Soil				Percent Solids:	87.3
Method:	SW846-8015B SW846 3546					
Project:	PCU F31-19G					

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH005187.D	1	06/08/12	AV	06/06/12	OP6010	GFH285
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	239	15	9.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	90%		43-136%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK EAST WALL					Date Sampled:	05/31/12
Lab Sample ID:	D35040-3					Date Received:	06/02/12
Matrix:	SO - Soil					Percent Solids:	87.1
Method:	SW846 8015B						
Project:	PCU F31-19G						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16233.D	1	06/06/12	SK	n/a	n/a	GGB903
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PARTIALLY BURIED TANK EAST WALL					Date Sampled:	05/31/12
Lab Sample ID:	D35040-3					Date Received:	06/02/12
Matrix:	SO - Soil					Percent Solids:	87.1
Method:	SW846-8015B SW846 3546						
Project:	PCU F31-19G						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH005189.D	1	06/08/12	AV	06/06/12	OP6010	GFH285
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	429	15	9.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	102%		43-136%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co. 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D35040

[illegible]

D35040: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D35040

Client: KRW CONSULTING, INC

Immediate Client Services Action Required: No

Date / Time Received: 6/2/2012 9:15:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU F31-19G

Airbill #'s: FedEx

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D35040
Account: XTOKRWR XTO Energy
Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB903-MB	GB16212.D	1	06/05/12	SK	n/a	n/a	GGB903

The QC reported here applies to the following samples:

Method: SW846 8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	101% 60-140%

Blank Spike Summary

Page 1 of 1

Job Number: D35040

Account: XTOKRWR XTO Energy

Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB903-BS	GB16213.D	1	06/05/12	SK	n/a	n/a	GGB903

The QC reported here applies to the following samples:

Method: SW846 8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	120	109	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	122%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35040
Account: XTOKRWR XTO Energy
Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35033-2MS	GB16217.D	1	06/05/12	SK	n/a	n/a	GGB903
D35033-2MSD	GB16218.D	1	06/05/12	SK	n/a	n/a	GGB903
D35033-2	GB16216.D	1	06/05/12	SK	n/a	n/a	GGB903

The QC reported here applies to the following samples:

Method: SW846 8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	D35033-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		142	149	105	150	106	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D35033-2	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	103%	98%	60-140%

GC Volatiles

Raw Data



Judy Melson
06/06/12 09:39

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16231.D\FID1A.CH Vial: 23
Signal #2 : Y:\1\DATA\060512\GB16231.D\FID2B.CH
Acq On : 6 Jun 2012 1:47 am Operator: StephK
Sample : D35040-1, 50X Inst : GC/MS Ins
Misc : GC2883,GGB903,5.003,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 06 08:08:30 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jun 06 08:07:51 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

Compound		R.T.	Response	Conc	Units

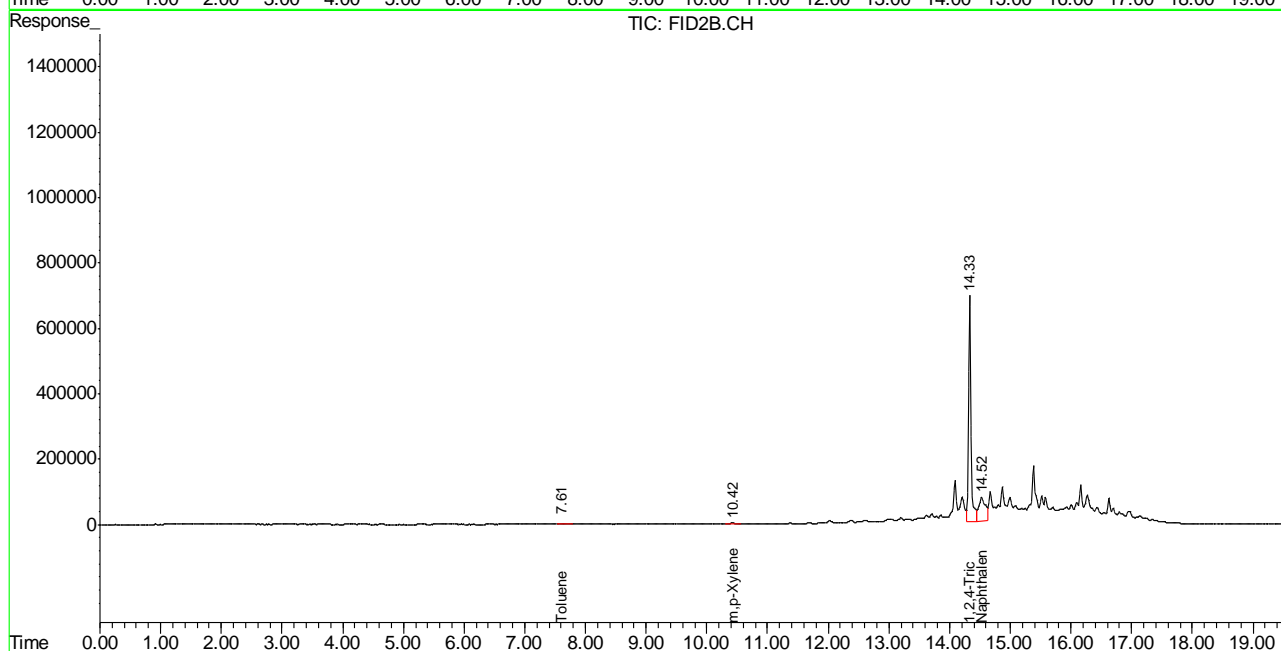
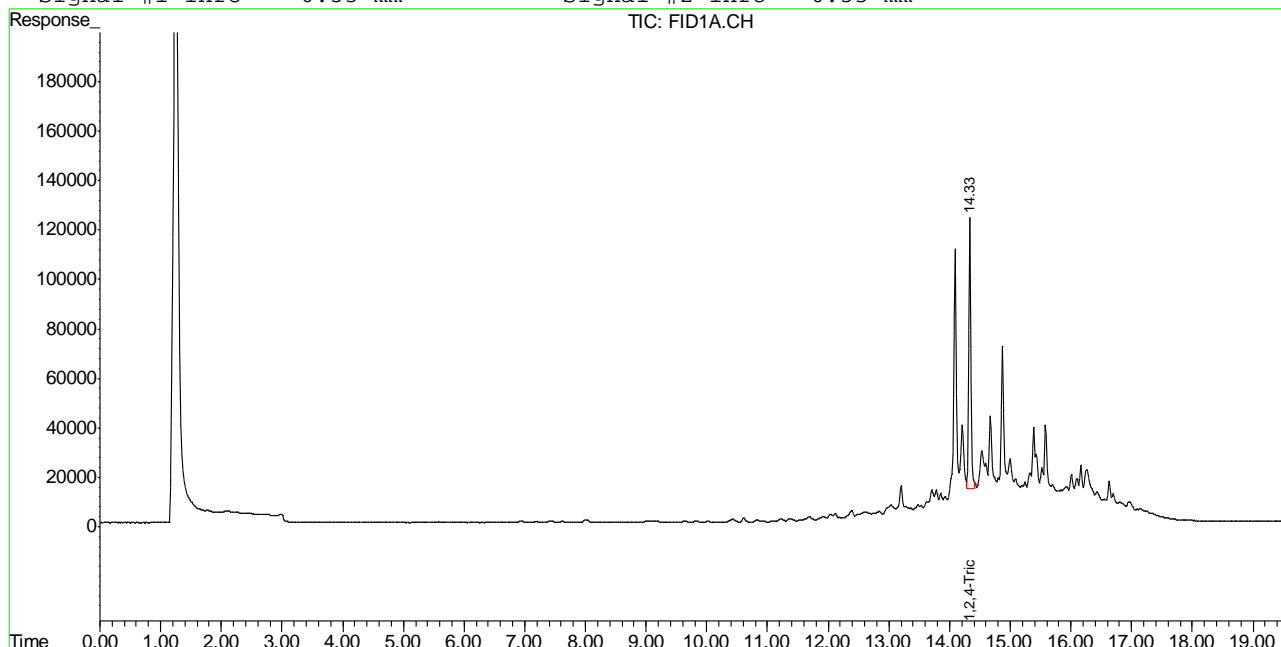
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.33	2649757	84.565 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.33	18696375	115.035 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	5892632	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.61	110089	0.278	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.42	253093	0.320	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.53	5686465	28.820	ug/L

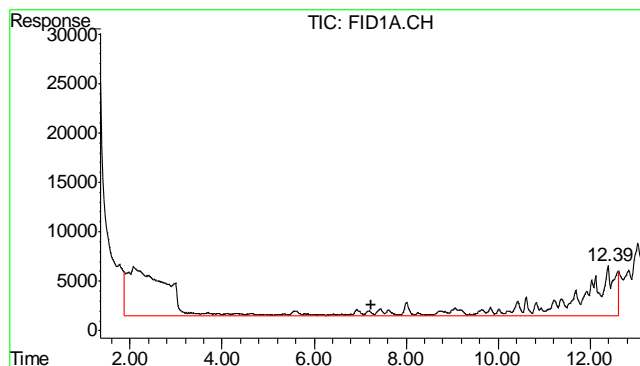
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16231.D\FID1A.CH Vial: 23
 Signal #2 : Y:\1\DATA\060512\GB16231.D\FID2B.CH
 Acq On : 6 Jun 2012 1:47 am Operator: StephK
 Sample : D35040-1, 50X Inst : GC/MS Ins
 Misc : GC2883,GGB903,5.003,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 6 7:16 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Jun 06 08:07:51 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

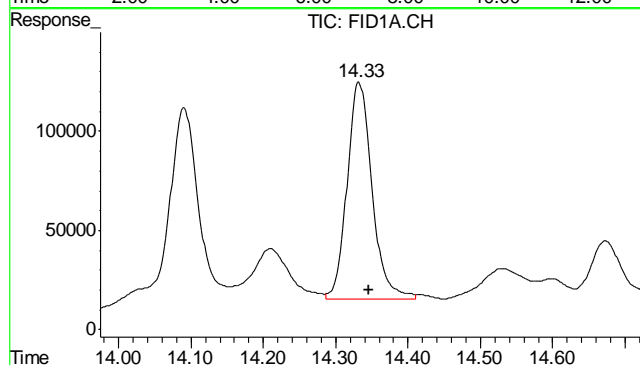
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





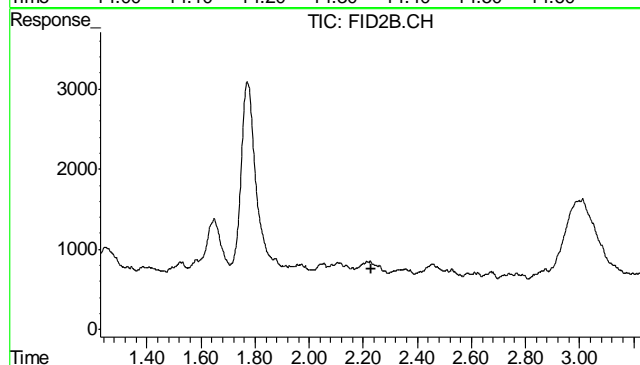
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 5892632
Conc: N.D.



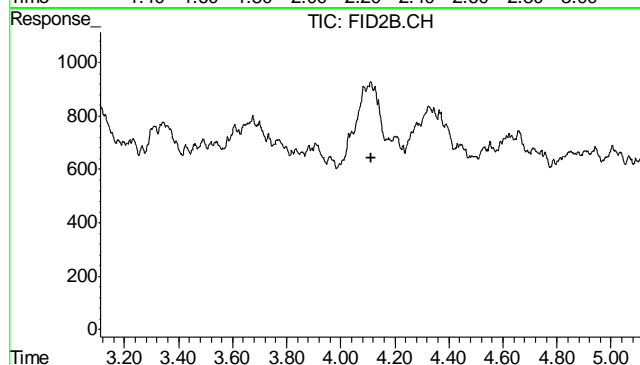
#2 1,2,4-Trichlorobenzene

R.T.: 14.331 min
Delta R.T.: -0.014 min
Response: 2649757
Conc: 84.56 % m



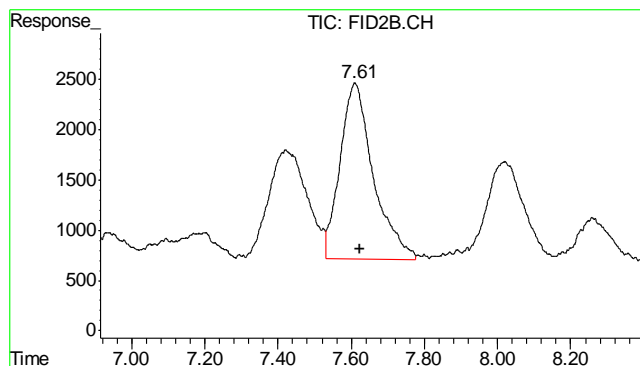
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.228 min
Response: 0
Conc: N.D.



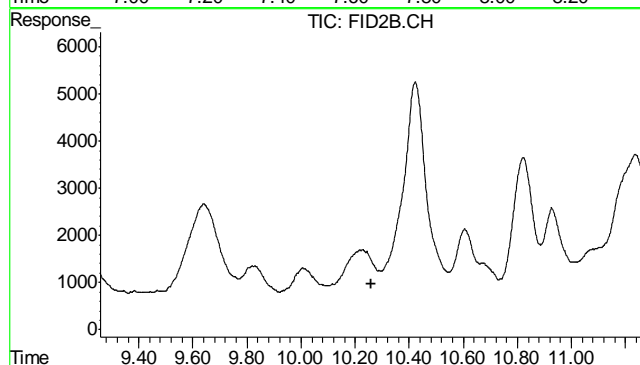
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.112 min
Response: 0
Conc: N.D.



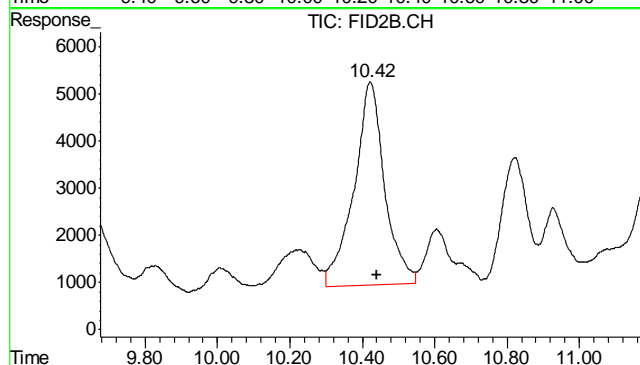
#6 Toluene

R.T.: 7.610 min
Delta R.T.: -0.013 min
Response: 110089
Conc: 0.28 ug/L



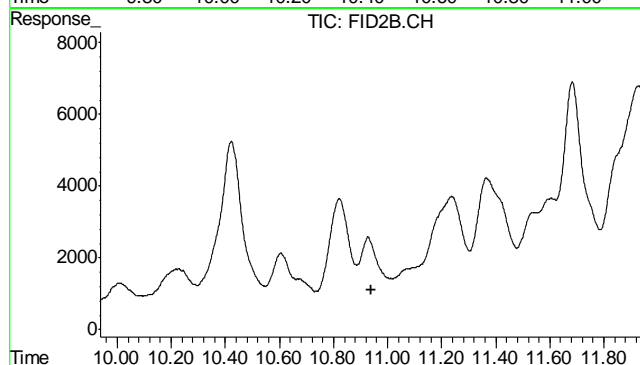
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.258 min
Response: 0
Conc: N.D.



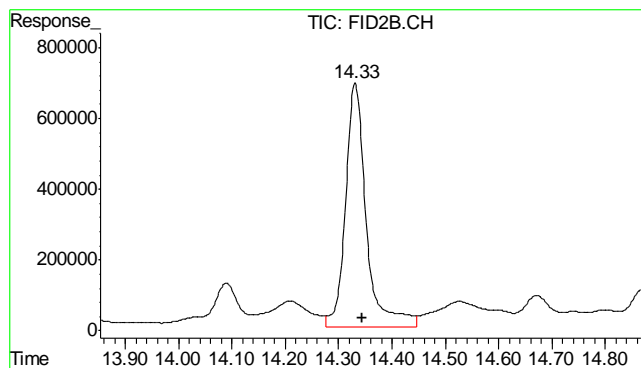
#8 m,p-Xylene

R.T.: 10.423 min
Delta R.T.: -0.017 min
Response: 253093
Conc: 0.32 ug/L



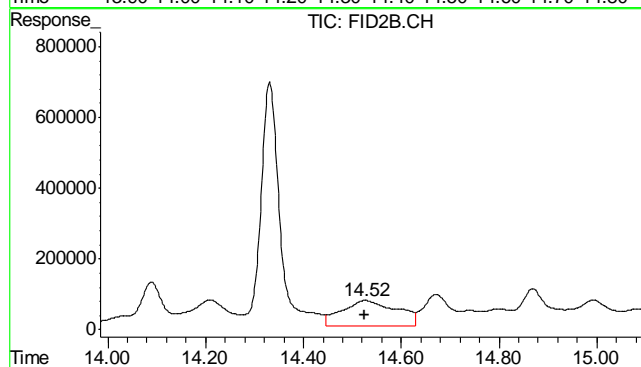
#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.938 min
Response: 0
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.331 min
Delta R.T.: -0.013 min
Response: 18696375
Conc: 115.04 %



#11 Naphthalene

R.T.: 14.526 min
Delta R.T.: 0.001 min
Response: 5686465
Conc: 28.82 ug/L

6.1.1

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Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16232.D\FID1A.CH Vial: 24
 Signal #2 : Y:\1\DATA\060512\GB16232.D\FID2B.CH
 Acq On : 6 Jun 2012 2:22 am Operator: StephK
 Sample : D35040-2, 50X Inst : GC/MS Ins
 Misc : GC2883,GGB903,5.013,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 06 08:08:34 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Jun 06 08:07:51 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

	Compound	R.T.	Response	Conc	Units

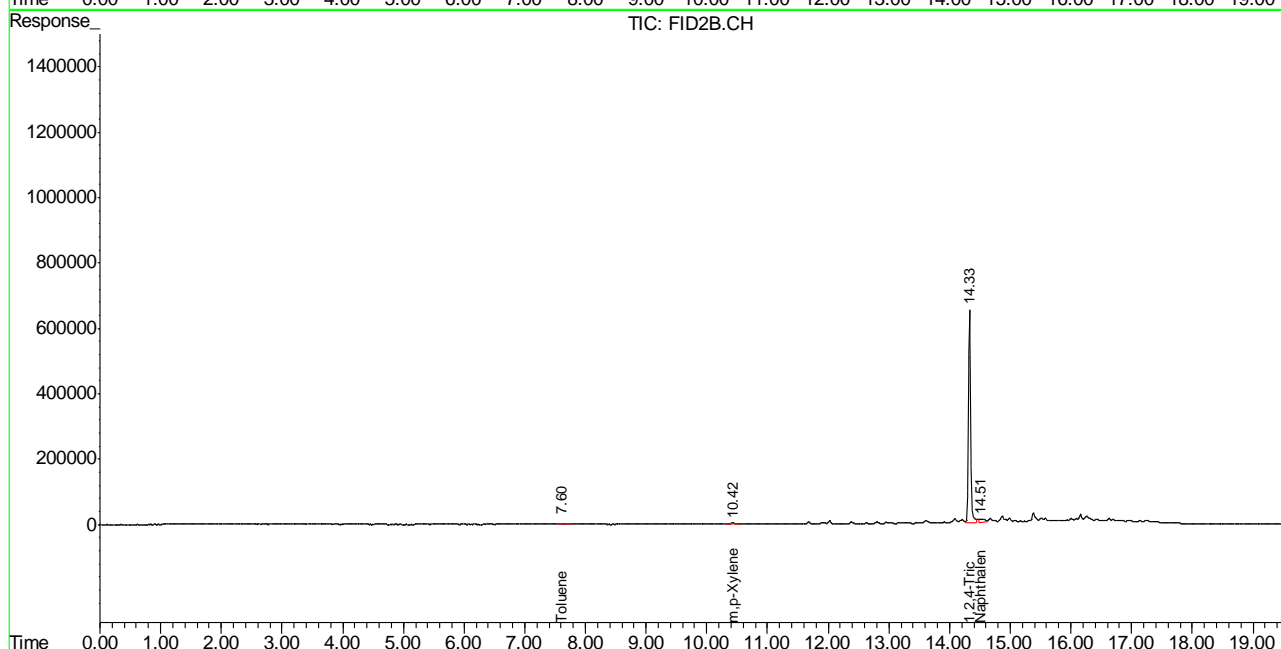
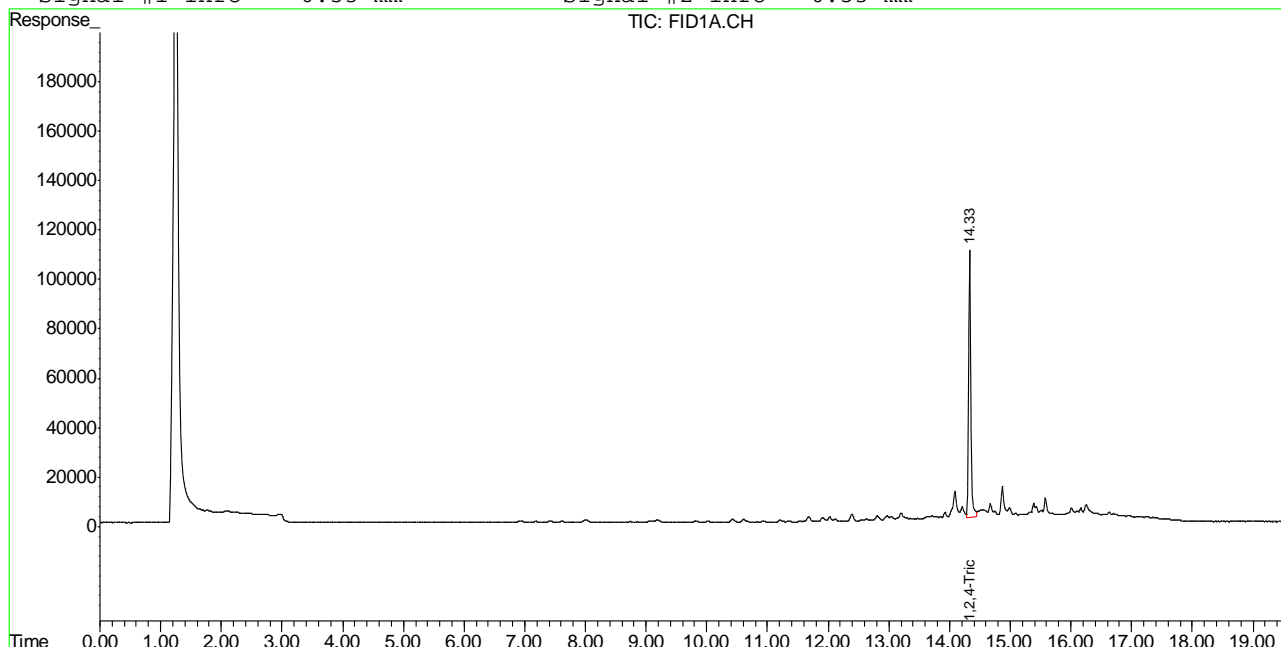
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.33	2692934	85.943	%
10) S	1,2,4-Trichlorobenzene (P)	14.33	15740869	96.850	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4709562	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.61	112825	0.285	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.42	208066	0.196	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.51	598349	3.033	ug/L

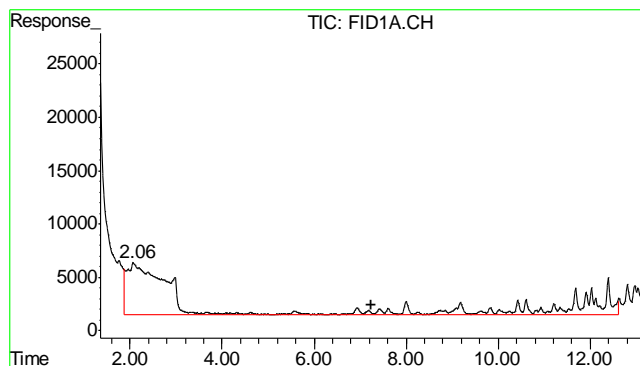
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16232.D\FID1A.CH Vial: 24
 Signal #2 : Y:\1\DATA\060512\GB16232.D\FID2B.CH
 Acq On : 6 Jun 2012 2:22 am Operator: StephK
 Sample : D35040-2, 50X Inst : GC/MS Ins
 Misc : GC2883,GGB903,5.013,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 6 7:17 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Jun 06 08:07:51 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

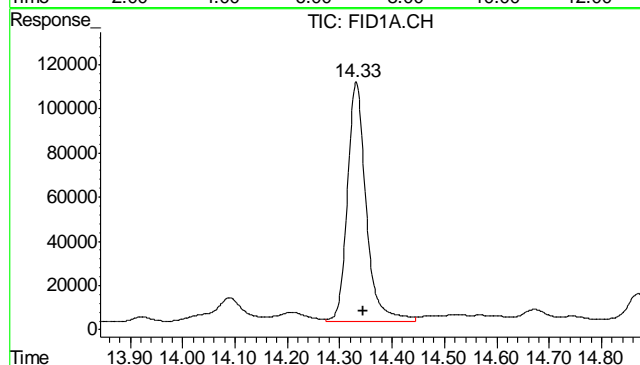
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





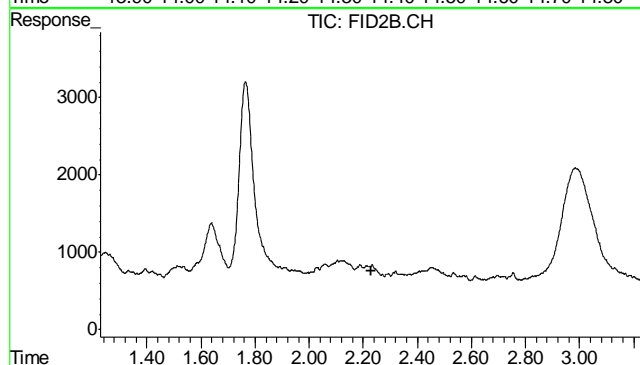
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4709562
Conc: N.D.



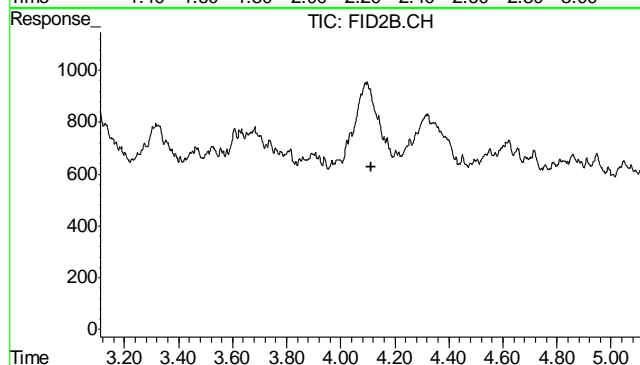
#2 1,2,4-Trichlorobenzene

R.T.: 14.332 min
Delta R.T.: -0.014 min
Response: 2692934
Conc: 85.94 %



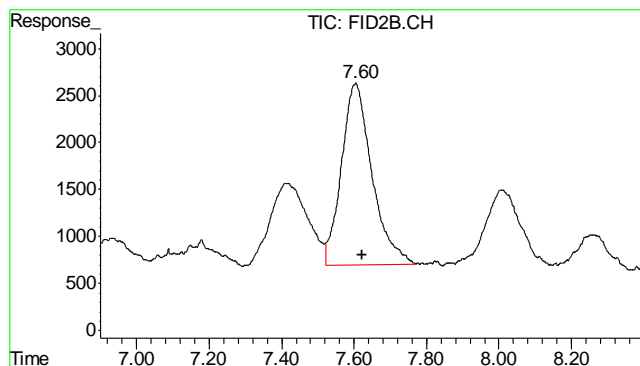
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.228 min
Response: 0
Conc: N.D.



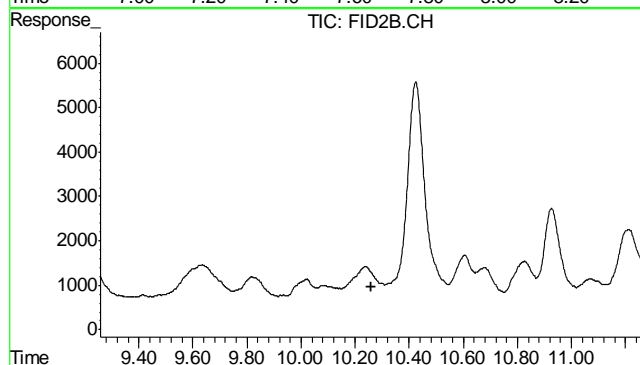
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.112 min
Response: 0
Conc: N.D.



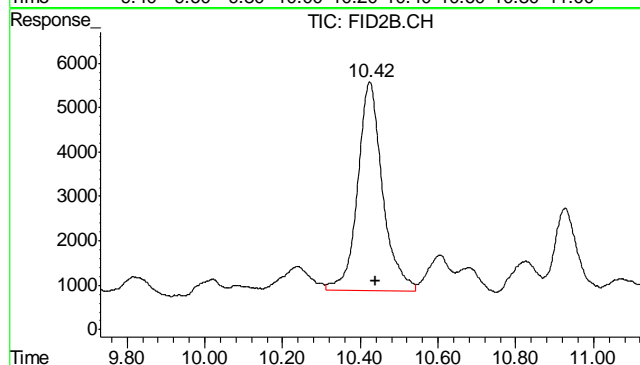
#6 Toluene

R.T.: 7.605 min
Delta R.T.: -0.018 min
Response: 112825
Conc: 0.28 ug/L



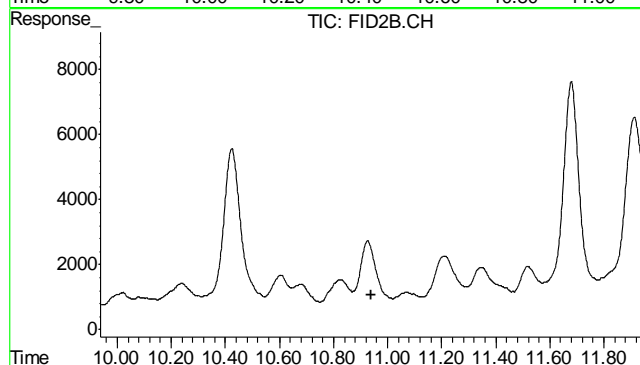
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.258 min
Response: 0
Conc: N.D.



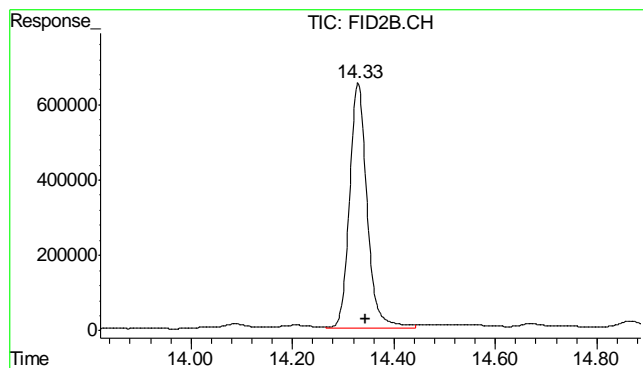
#8 m,p-Xylene

R.T.: 10.424 min
Delta R.T.: -0.015 min
Response: 208066
Conc: 0.20 ug/L



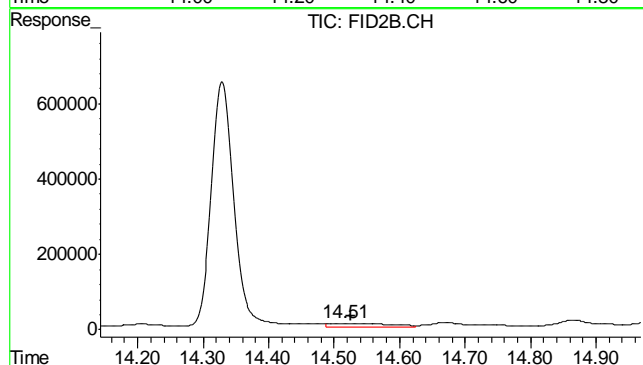
#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.938 min
Response: 0
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.329 min
 Delta R.T.: -0.014 min
 Response: 15740869
 Conc: 96.85 %



#11 Naphthalene

R.T.: 14.514 min
 Delta R.T.: -0.011 min
 Response: 598349
 Conc: 3.03 ug/L

6.1.2

6

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16233.D\FID1A.CH Vial: 25
Signal #2 : Y:\1\DATA\060512\GB16233.D\FID2B.CH
Acq On : 6 Jun 2012 2:57 am Operator: StephK
Sample : D35040-3, 50X Inst : GC/MS Ins
Misc : GC2883,GGB903,5.024,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 06 08:08:38 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jun 06 08:07:51 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

	Compound	R.T.	Response	Conc	Units

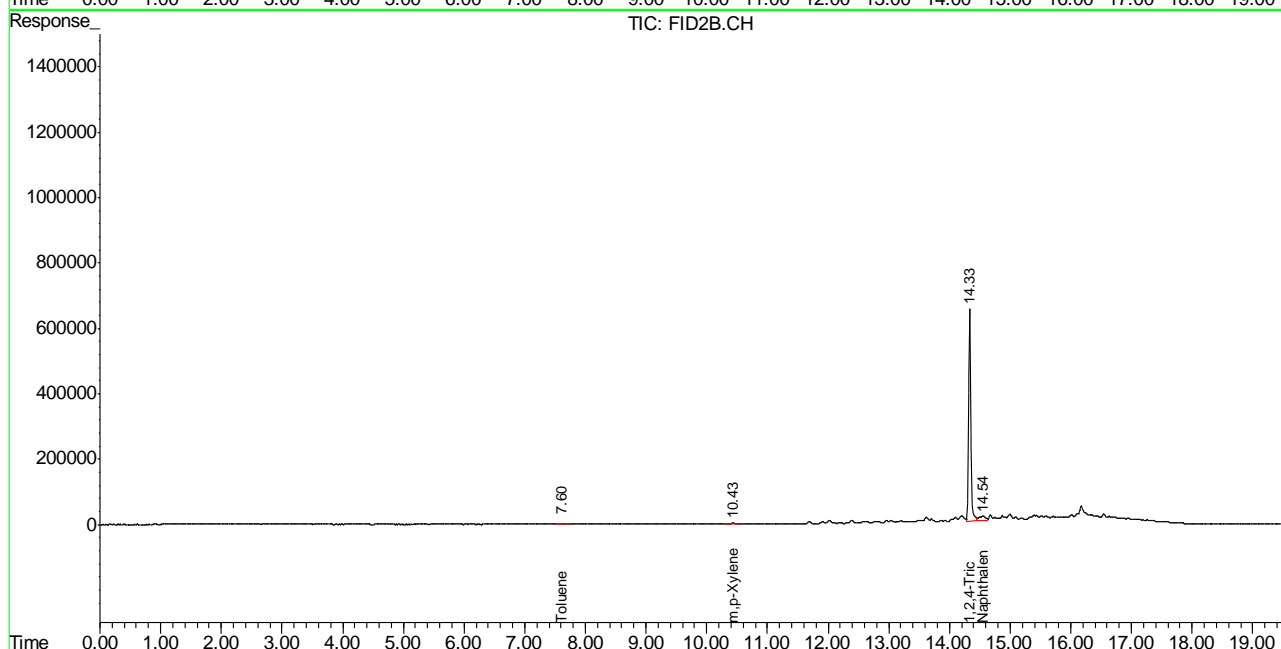
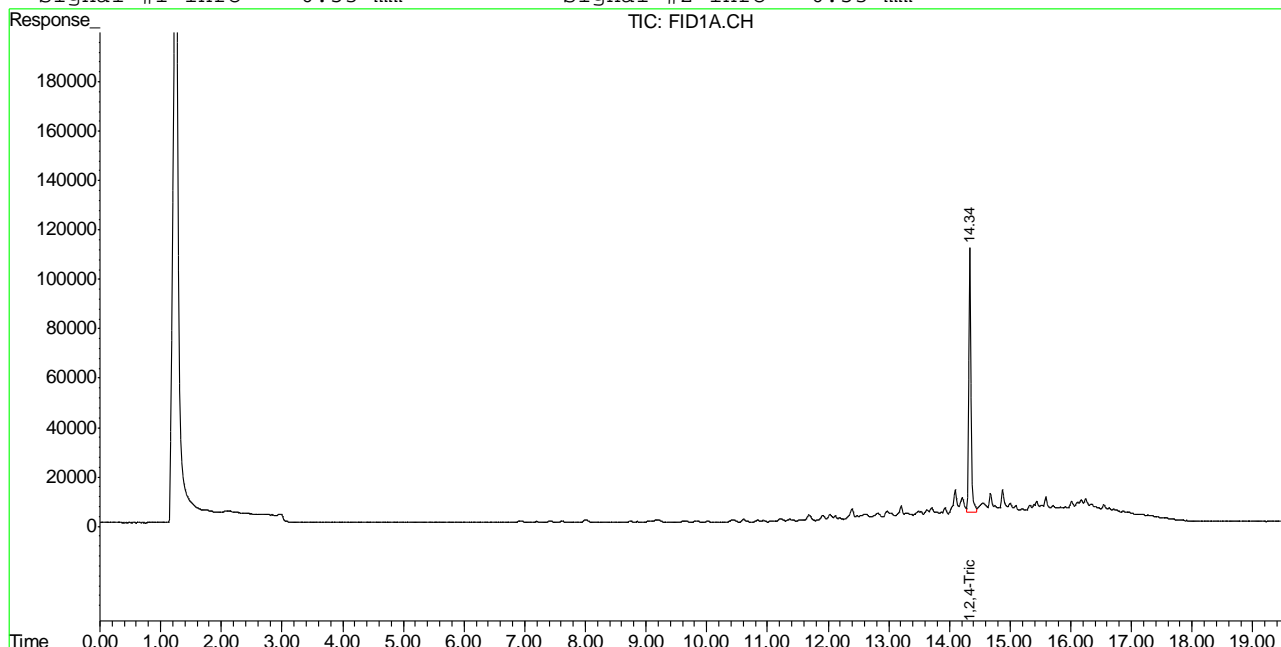
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.34	2688365	85.797 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.33	15978529	98.313 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	5583448	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.61	107550	0.271	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.43	208566	0.198	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.55	1063956	5.392	ug/L

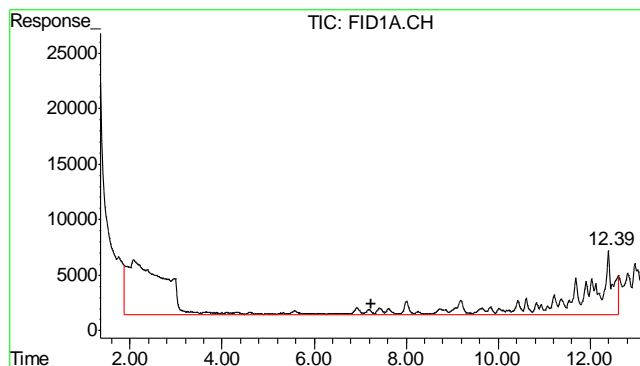
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16233.D\FID1A.CH Vial: 25
 Signal #2 : Y:\1\DATA\060512\GB16233.D\FID2B.CH
 Acq On : 6 Jun 2012 2:57 am Operator: StephK
 Sample : D35040-3, 50X Inst : GC/MS Ins
 Misc : GC2883,GGB903,5.024,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 6 7:17 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Jun 06 08:07:51 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

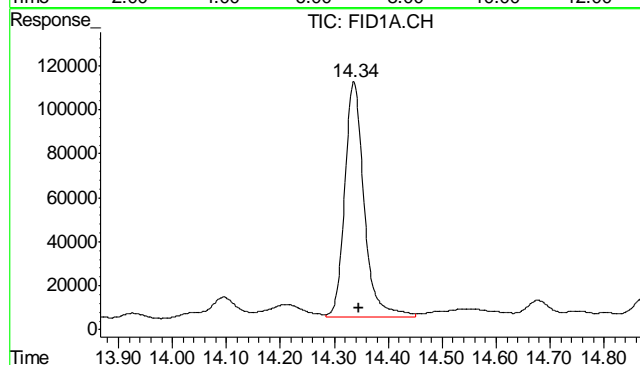
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





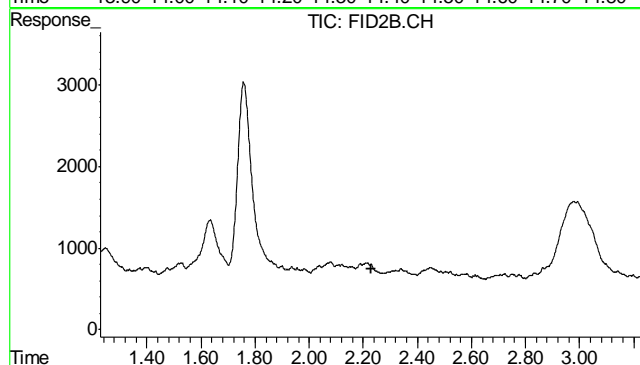
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 5583448
Conc: N.D.



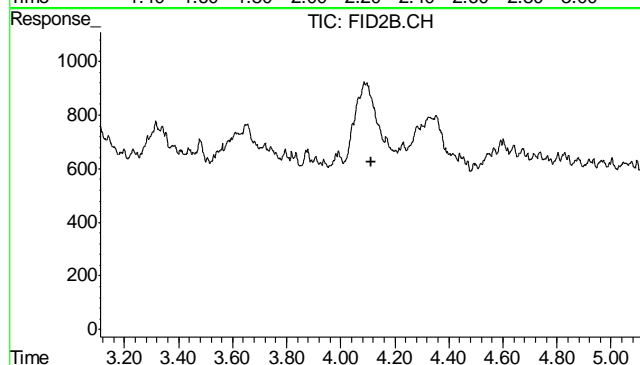
#2 1,2,4-Trichlorobenzene

R.T.: 14.336 min
Delta R.T.: -0.010 min
Response: 2688365
Conc: 85.80 % m



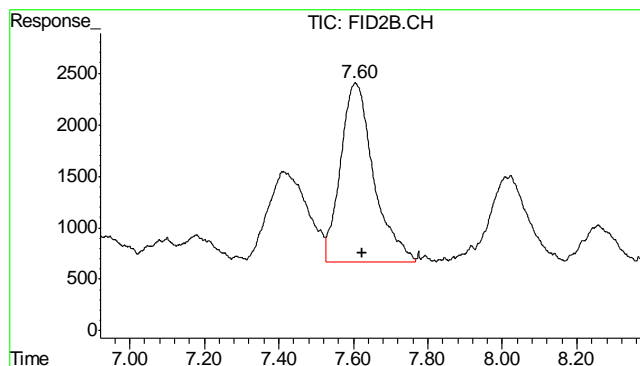
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.228 min
Response: 0
Conc: N.D.



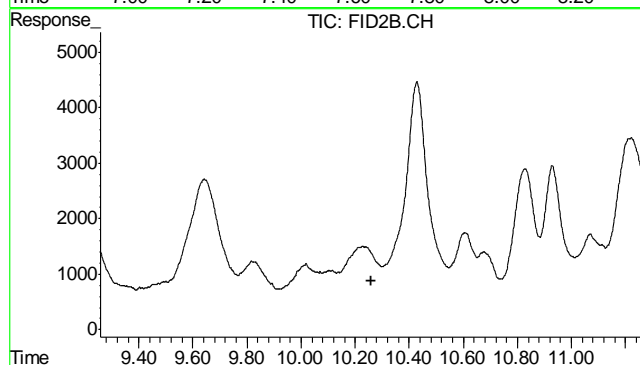
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.112 min
Response: 0
Conc: N.D.



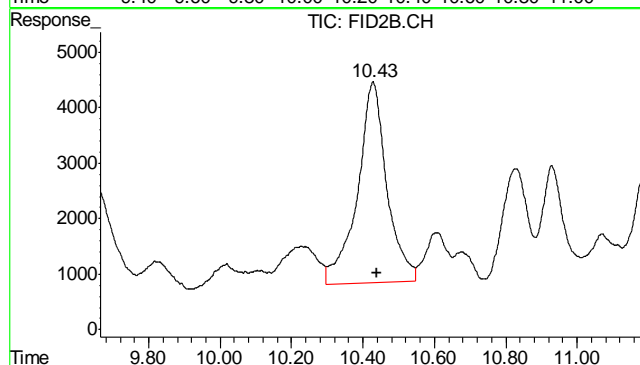
#6 Toluene

R.T.: 7.605 min
Delta R.T.: -0.018 min
Response: 107550
Conc: 0.27 ug/L



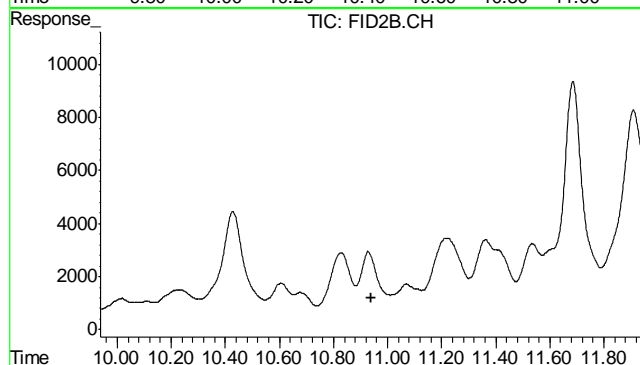
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.258 min
Response: 0
Conc: N.D.



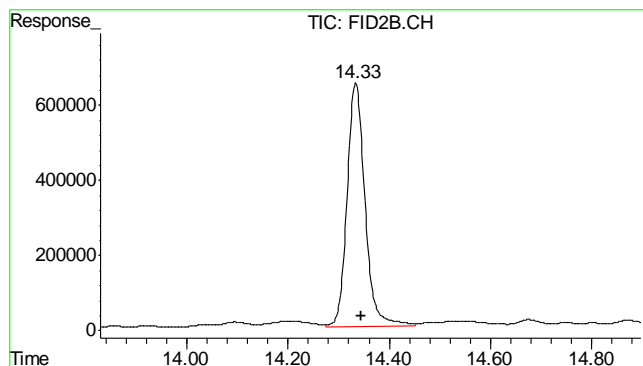
#8 m,p-Xylene

R.T.: 10.428 min
Delta R.T.: -0.011 min
Response: 208566
Conc: 0.20 ug/L



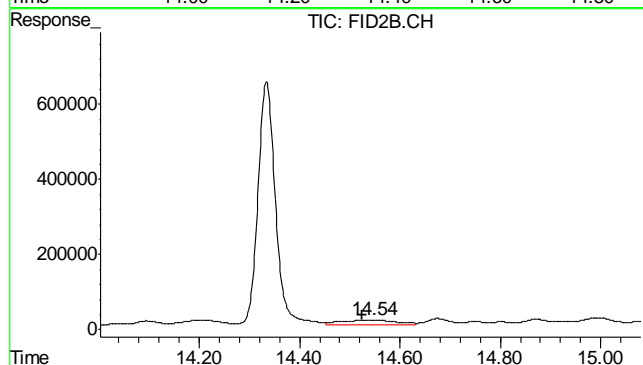
#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.938 min
Response: 0
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.334 min
Delta R.T.: -0.009 min
Response: 15978529
Conc: 98.31 %



#11 Naphthalene

R.T.: 14.546 min
Delta R.T.: 0.021 min
Response: 1063956
Conc: 5.39 ug/L

6.1.3

6

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16212.D\FID1A.CH Vial: 4
 Signal #2 : Y:\1\DATA\060512\GB16212.D\FID2B.CH
 Acq On : 5 Jun 2012 2:05 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC2883,GGB903,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 05 15:54:49 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Tue Jun 05 13:51:36 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

	Compound	R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.35	3168671	101.126	%
10) S	1,2,4-Trichlorobenzene (P)	14.35	18132914	111.568	%
Target Compounds					
1) H	TVH-Gasoline	7.23	3904612	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.64	189995	0.479	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.52	255864	1.297	ug/L

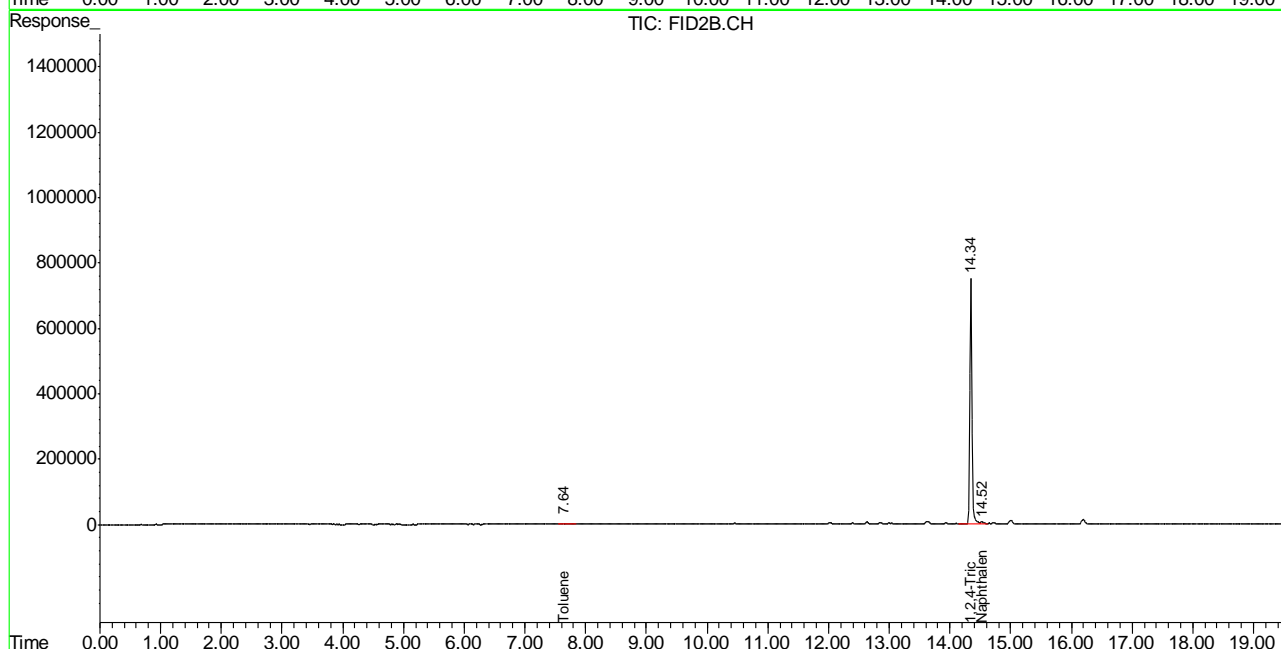
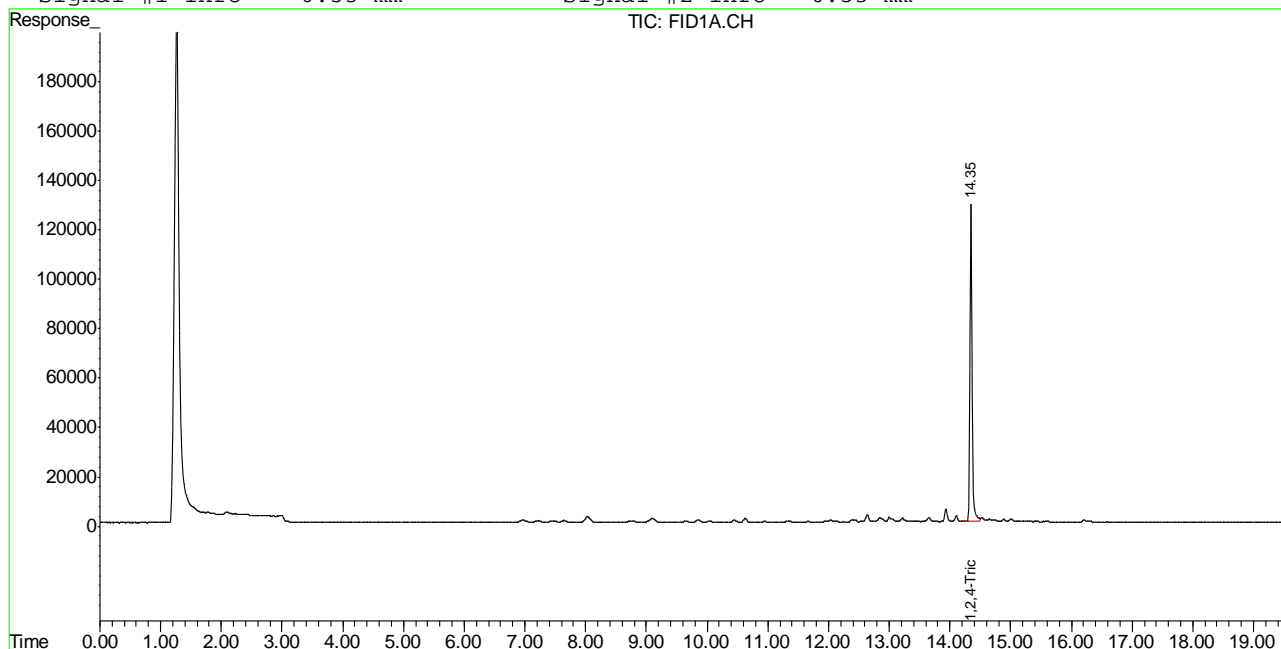
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB16212.D TB868GB868SOIL.M Wed Jun 06 08:14:54 2012 GC

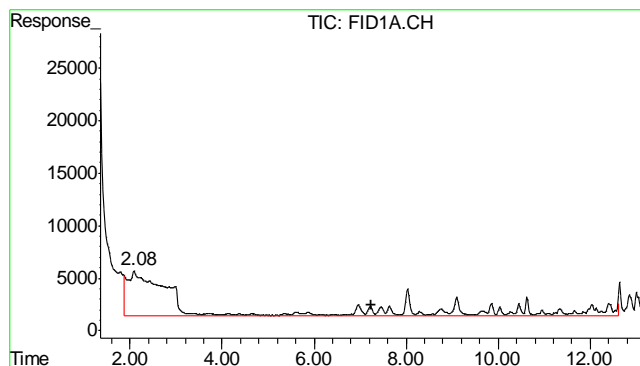
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\060512\GB16212.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\060512\GB16212.D\FID2B.CH
Acq On : 5 Jun 2012 2:05 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC2883,GGB903,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 5 14:58 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Jun 05 13:51:36 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

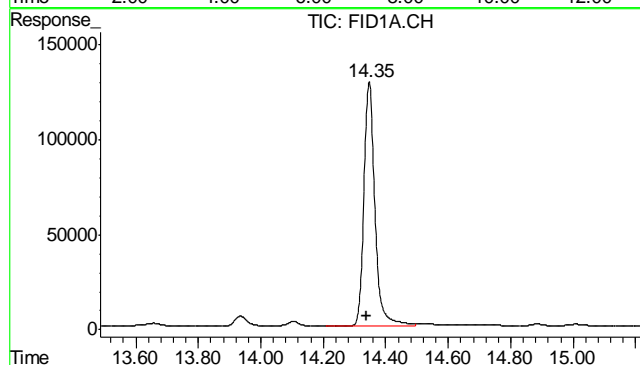
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





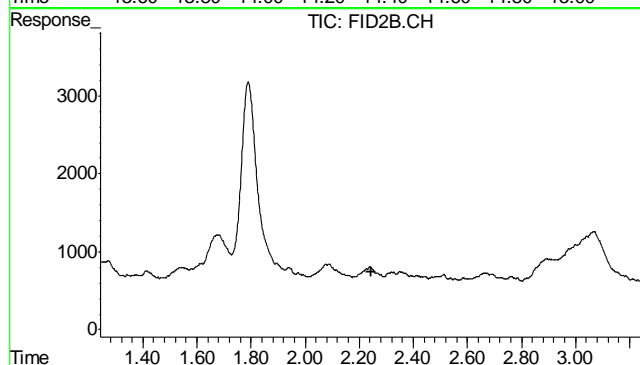
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3904612
Conc: N.D.



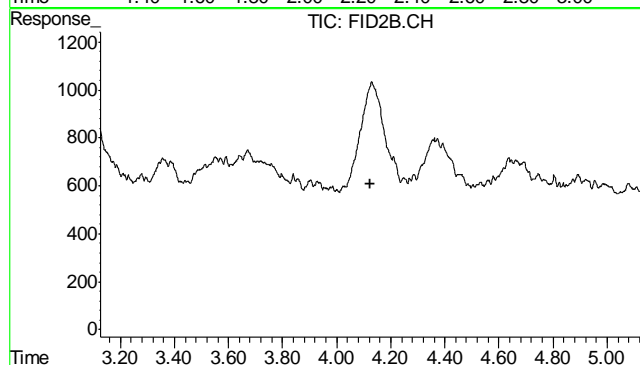
#2 1,2,4-Trichlorobenzene

R.T.: 14.347 min
Delta R.T.: 0.007 min
Response: 3168671
Conc: 101.13 %



#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.243 min
Response: 0
Conc: N.D.

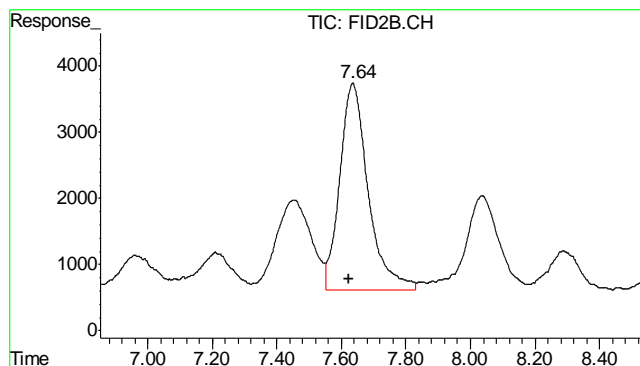


#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.125 min
Response: 0
Conc: N.D.

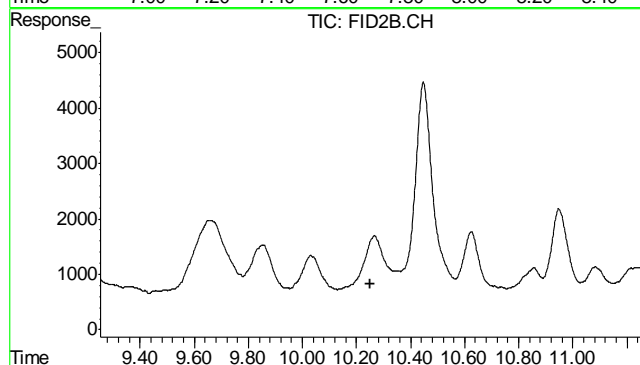
6.2.1

6



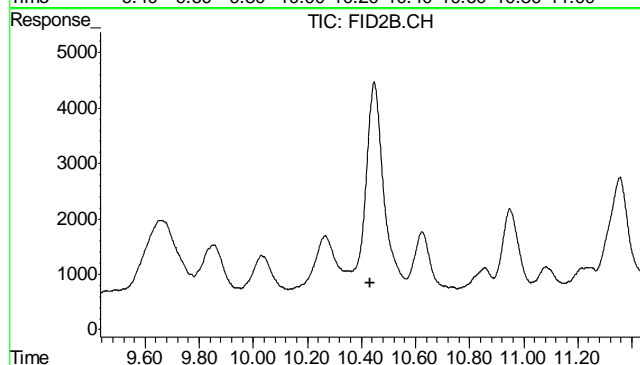
#6 Toluene

R.T.: 7.636 min
Delta R.T.: 0.013 min
Response: 189995
Conc: 0.48 ug/L



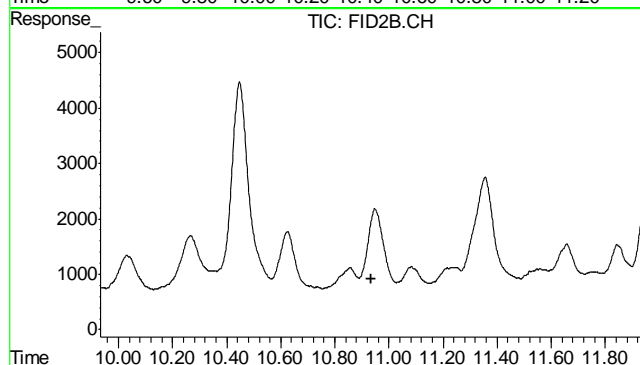
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.252 min
Response: 0
Conc: N.D.



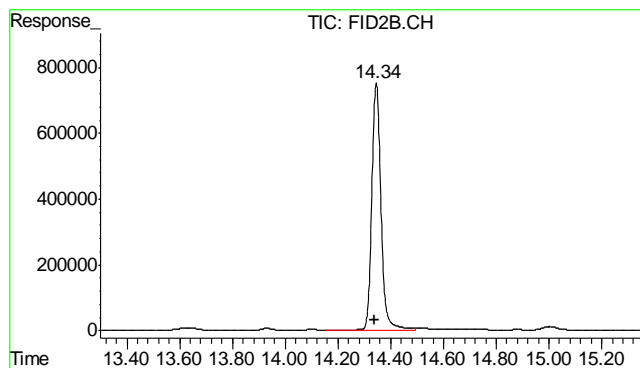
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.434 min
Response: 0
Conc: N.D.



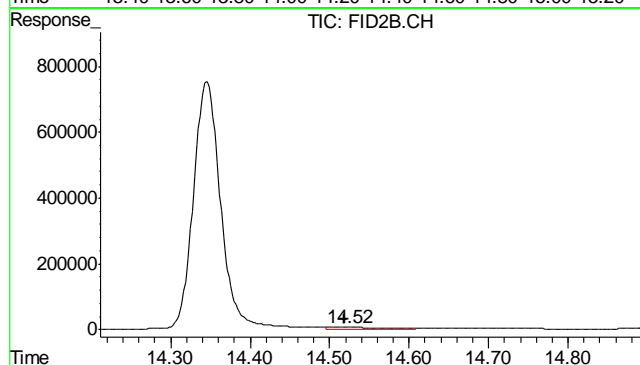
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.933 min
Response: 0
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.346 min
Delta R.T.: 0.008 min
Response: 18132914
Conc: 111.57 %



#11 Naphthalene

R.T.: 14.523 min
Delta R.T.: 0.005 min
Response: 255864
Conc: 1.30 ug/L

6.2.1

6

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D35040
Account: XTOKRWR XTO Energy
Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6010-MB	FH005143.D	1	06/08/12	AV	06/06/12	OP6010	GFH285

The QC reported here applies to the following samples:

Method: SW846-8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	111% 43-136%

Blank Spike Summary

Job Number: D35040
Account: XTOKRWR XTO Energy
Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6010-BS	FH005145.D	1	06/08/12	AV	06/06/12	OP6010	GFH285

The QC reported here applies to the following samples: Method: SW846-8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	589	88	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	111%	43-136%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35040
Account: XTOKRWR XTO Energy
Project: PCU F31-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6010-MS	FH005147.D	1	06/08/12	AV	06/06/12	OP6010	GFH285
OP6010-MSD	FH005149.D	1	06/08/12	AV	06/06/12	OP6010	GFH285
D35039-1	FH005151.D	1	06/08/12	AV	06/06/12	OP6010	GFH285

The QC reported here applies to the following samples: Method: SW846-8015B

D35040-1, D35040-2, D35040-3

CAS No.	Compound	D35039-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	178		723	795	85	726	76	9	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D35039-1	Limits
84-15-1	o-Terphenyl	97%	91%	91%	43-136%

GC Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005185.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 9:37 pm
Operator : ashleyv
Sample : D35040-1
Misc : OP6010,GFH285,30.15,,,2,1
ALS Vial : 78 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 11 08:25:25 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	11.673	1092919716	924.292 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	9.333	7012483493	5732.695 ug/ml

(f)=RT Delta > 1/2 Window

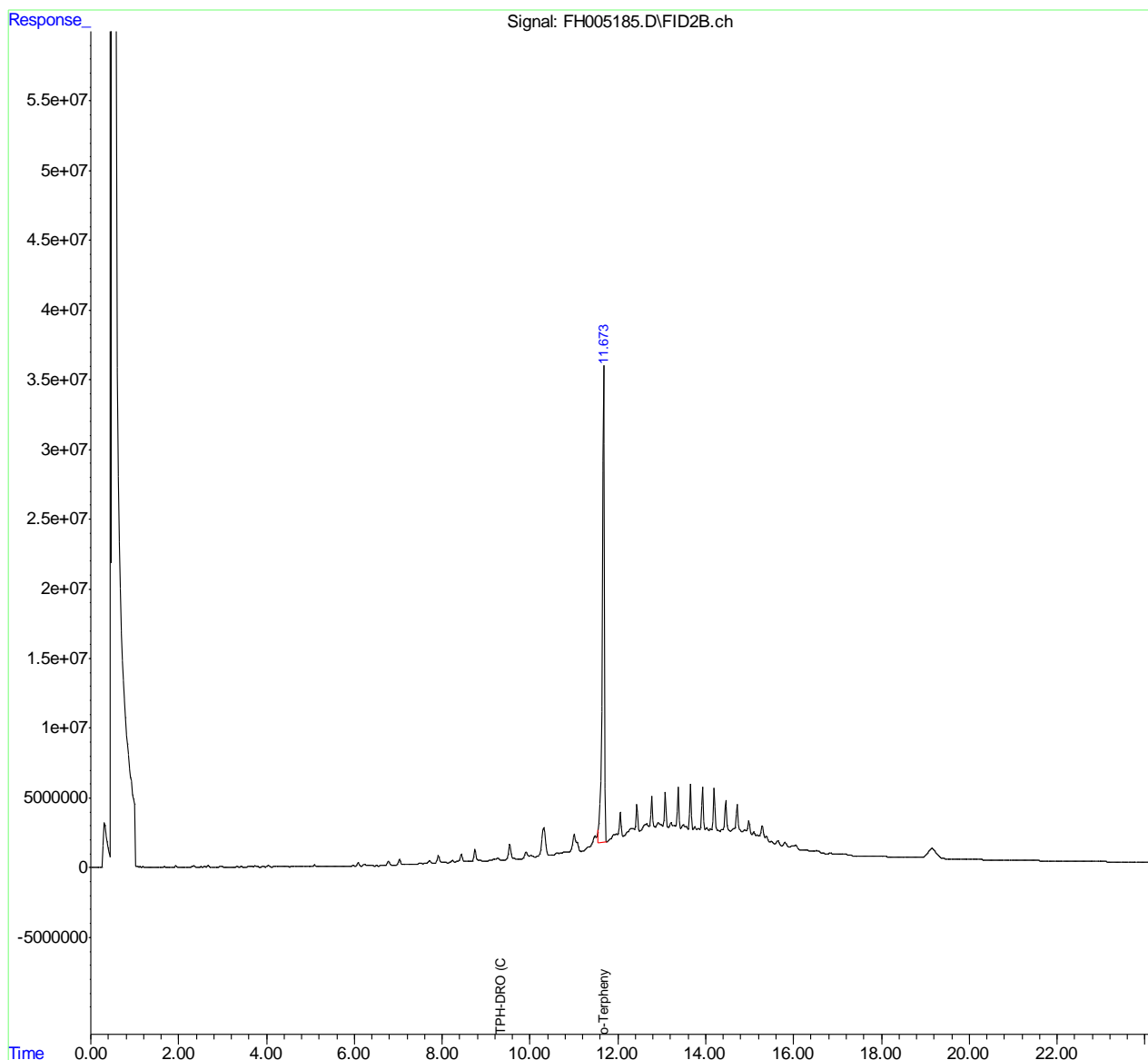
(m)=manual int.

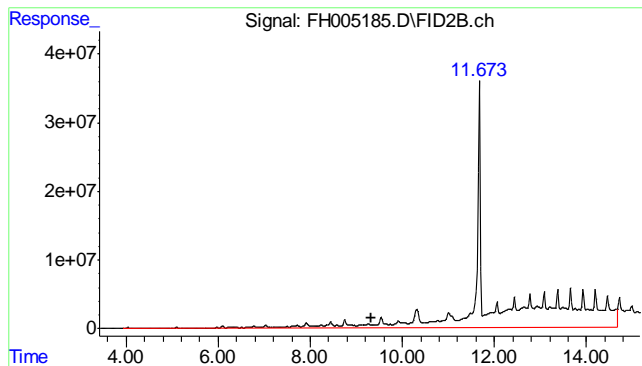
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005185.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 9:37 pm
Operator : ashleyv
Sample : D35040-1
Misc : OP6010,GFH285,30.15,,,2,1
ALS Vial : 78 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 11 08:25:25 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





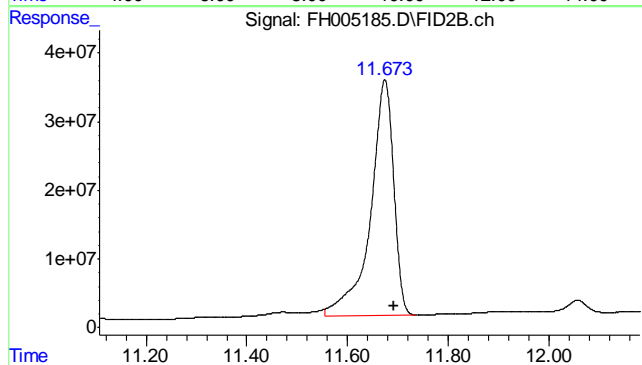
#1 TPH-DRO (C10-C28)

R.T.: 9.333 min

Delta R.T.: 0.000 min

Response: 7012483493

Conc: 5732.69 ug/ml m



#2 o-Terphenyl

R.T.: 11.673 min

Delta R.T.: -0.019 min

Response: 1092919716

Conc: 924.29 ug/ml m

8.1.1

8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005187.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 10:12 pm
Operator : ashleyv
Sample : D35040-2
Misc : OP6010,GFH285,30.12,,,2,1
ALS Vial : 79 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 11 08:25:57 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	11.675	1065411008	901.028 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	9.333	3840496081	3139.600 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

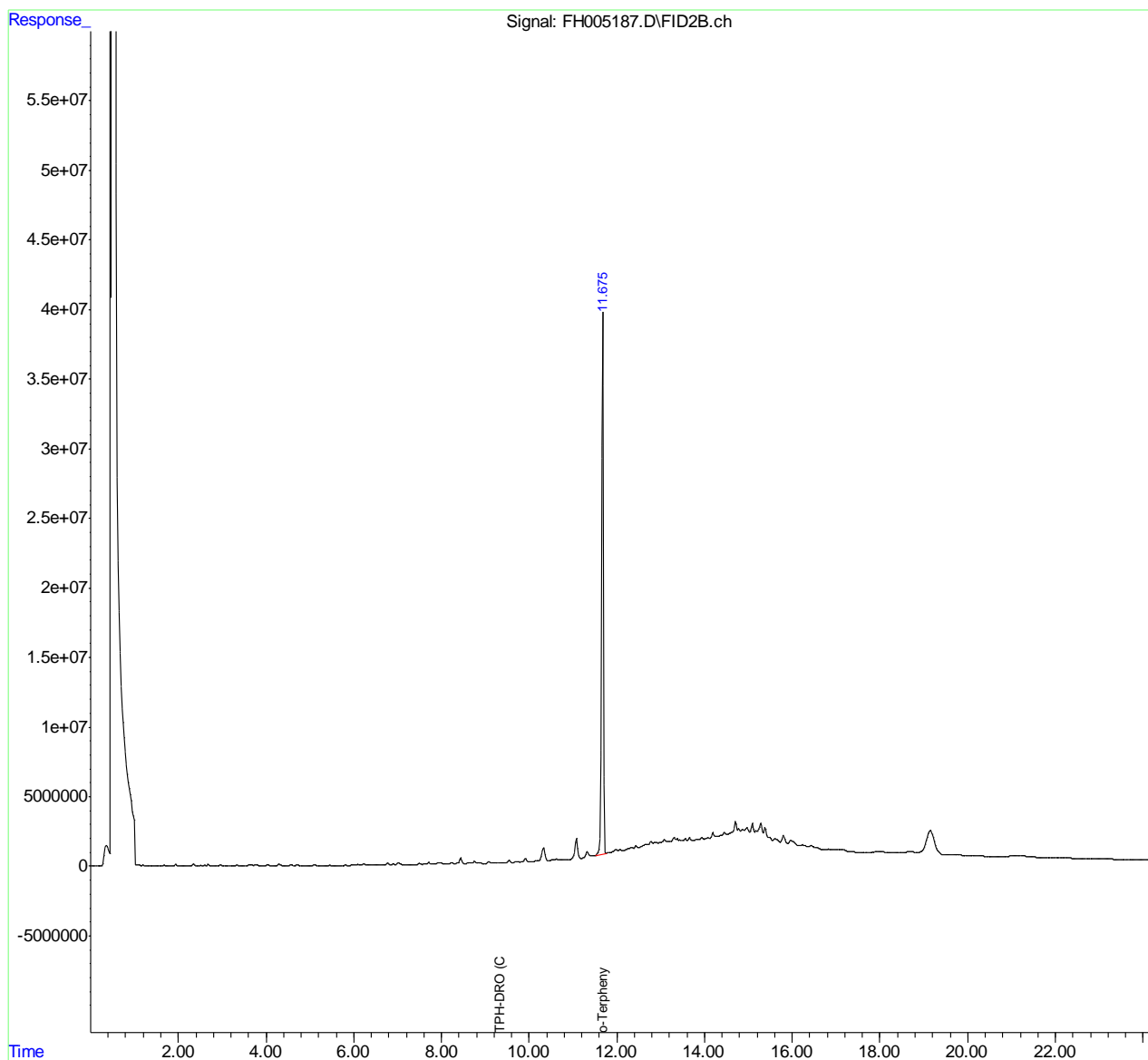
8.12
8

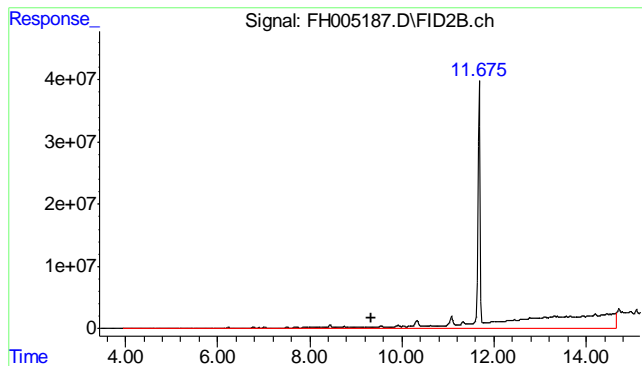
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005187.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 10:12 pm
Operator : ashleyv
Sample : D35040-2
Misc : OP6010,GFH285,30.12,,,2,1
ALS Vial : 79 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 11 08:25:57 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





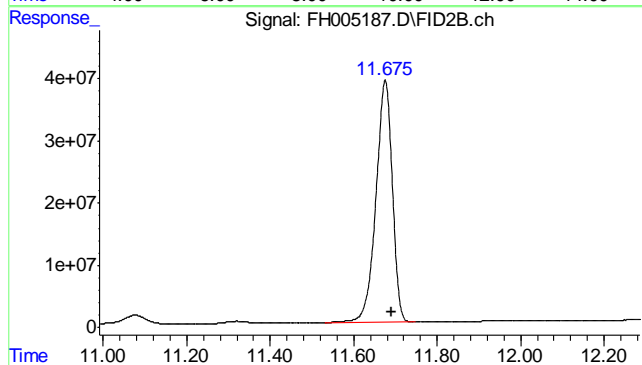
#1 TPH-DRO (C10-C28)

R.T.: 9.333 min

Delta R.T.: 0.000 min

Response: 3840496081

Conc: 3139.60 ug/ml m



#2 o-Terphenyl

R.T.: 11.675 min

Delta R.T.: -0.017 min

Response: 1065411008

Conc: 901.03 ug/ml m

8.1.2
8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005189.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 10:47 pm
Operator : ashleyv
Sample : D35040-3
Misc : OP6010,GFH285,30.02,,,2,1
ALS Vial : 80 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 11 08:26:33 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	11.675	1208130621	1021.727 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	9.333	6852884006	5602.222 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

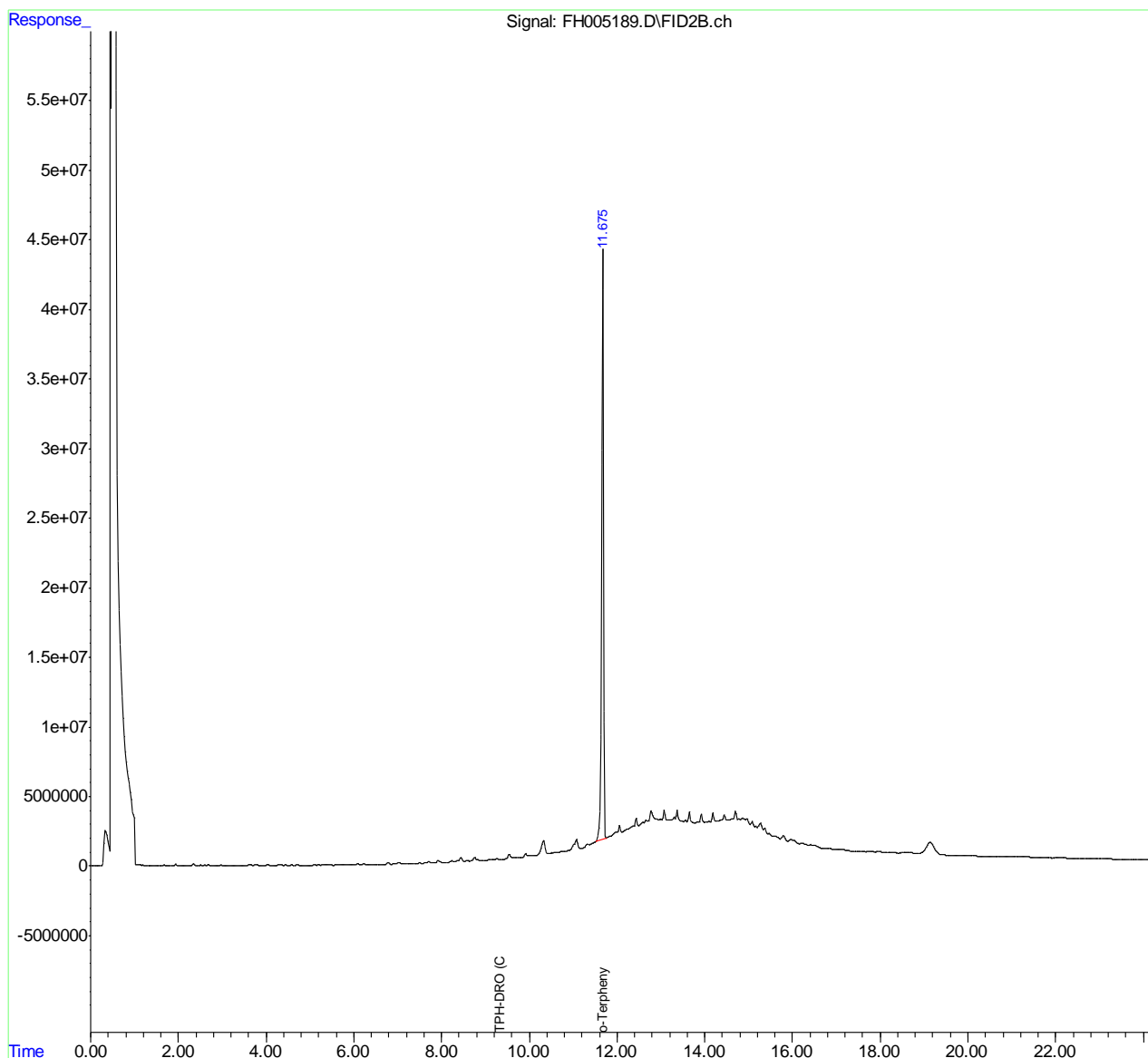
8.1.3
8

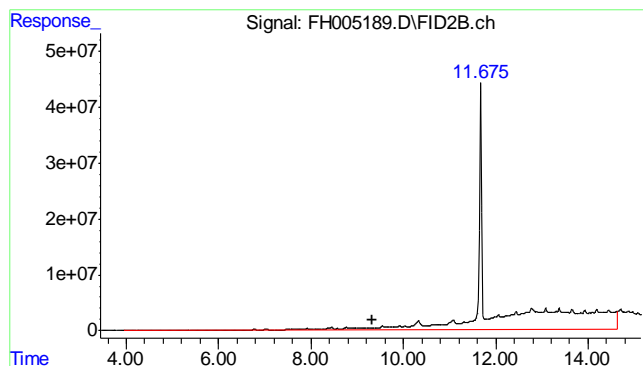
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
 Data File : FH005189.D
 Signal(s) : FID2B.ch
 Acq On : 8 Jun 2012 10:47 pm
 Operator : ashleyv
 Sample : D35040-3
 Misc : OP6010,GFH285,30.02,,,2,1
 ALS Vial : 80 Sample Multiplier: 1

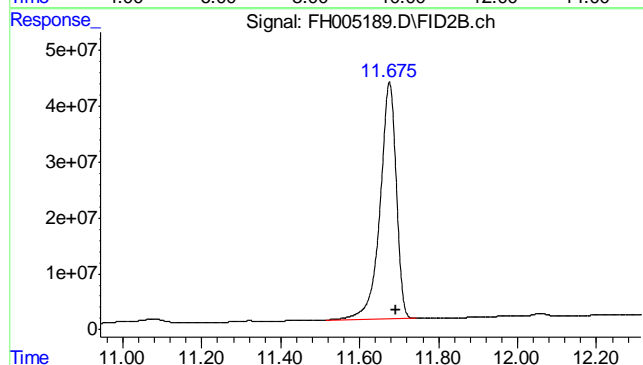
Integration File: events.e
 Quant Time: Jun 11 08:26:33 2012
 Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
 Quant Title : DRO-ORO REAR
 QLast Update : Tue Jun 05 12:21:36 2012
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal Phase :
 Signal Info :





#1 TPH-DRO (C10-C28)
 R.T.: 9.333 min
 Delta R.T.: 0.000 min
 Response: 6852884006
 Conc: 5602.22 ug/ml m



#2 o-Terphenyl
 R.T.: 11.675 min
 Delta R.T.: -0.017 min
 Response: 1208130621
 Conc: 1021.73 ug/ml

8.1.3

8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005143.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 9:10 am
Operator : ashleyv
Sample : OP6010-MB
Misc : OP6010,GFH285,30.00,,,2,1
ALS Vial : 58 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 08 10:20:31 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	11.679	1312233100	1109.768 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	9.333	73143573	59.795 ug/ml

(f)=RT Delta > 1/2 Window

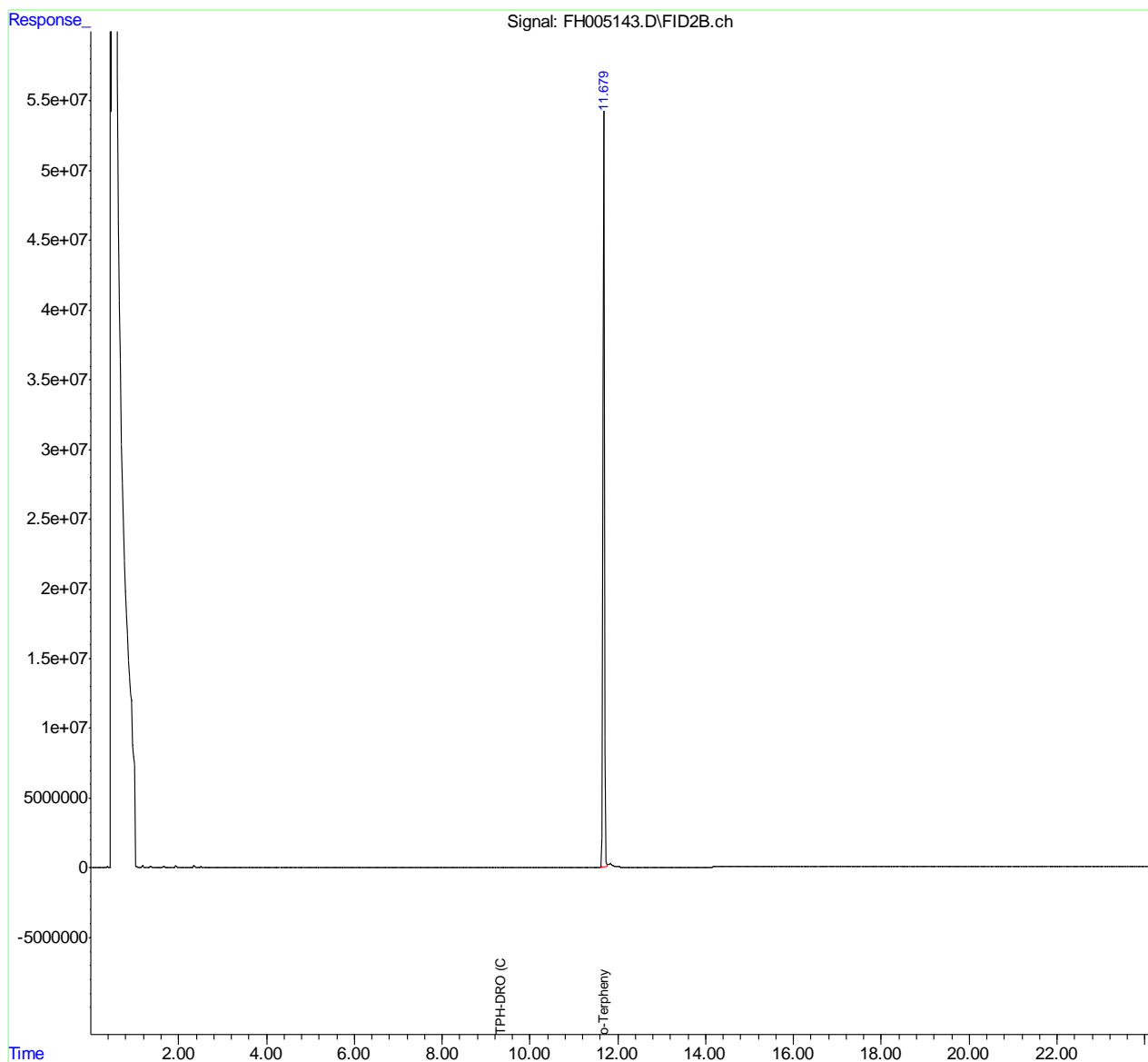
(m)=manual int.

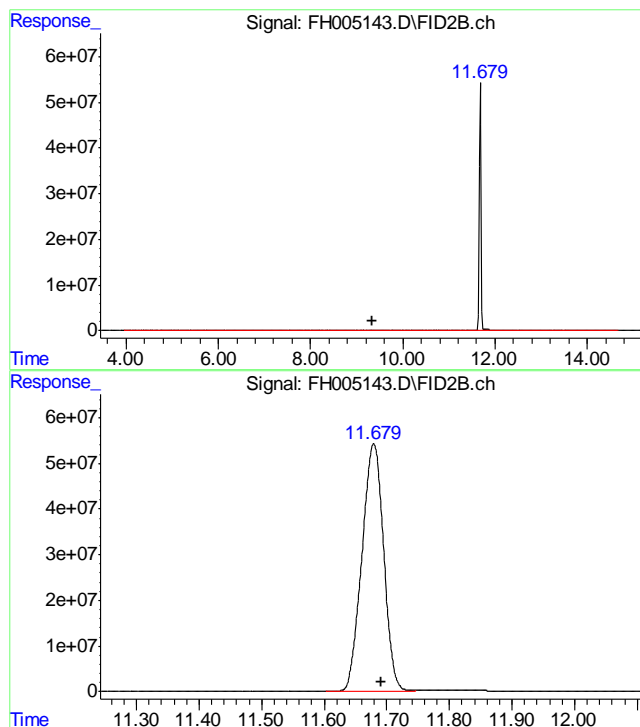
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH060812.SEC\
Data File : FH005143.D
Signal(s) : FID2B.ch
Acq On : 8 Jun 2012 9:10 am
Operator : ashleyv
Sample : OP6010-MB
Misc : OP6010,GFH285,30.00,,,2,1
ALS Vial : 58 Sample Multiplier: 1

Integration File: events.e
Quant Time: Jun 08 10:20:31 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH281R.M
Quant Title : DRO-ORO REAR
QLast Update : Tue Jun 05 12:21:36 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)

R.T.: 9.333 min
Delta R.T.: 0.000 min
Response: 73143573
Conc: 59.79 ug/ml m

#2 o-Terphenyl

R.T.: 11.679 min
Delta R.T.: -0.013 min
Response: 1312233100
Conc: 1109.77 ug/ml m

8.2.1

8

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35040
Account: XTOKRWR - XTO Energy
Project: PCU F31-19G

QC Batch ID: MP7585
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/05/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.042	.06	-0.015	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP7585: D35040-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35040
Account: XTOKRWR - XTO Energy
Project: PCU F31-19G

QC Batch ID: MP7585
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/05/12

Metal	D35034-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	19.4	127	104	103.3
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7585: D35040-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35040
Account: XTOKRWR - XTO Energy
Project: PCU F31-19G

QC Batch ID: MP7585
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/05/12

Metal	D35034-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	19.4	122	104	98.5	4.0	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7585: D35040-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35040
Account: XTOKRWR - XTO Energy
Project: PCU F31-19G

QC Batch ID: MP7585
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/05/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	114	100	114.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7585: D35040-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35040
 Account: XTOKRWR - XTO Energy
 Project: PCU F31-19G

QC Batch ID: MP7585
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 06/05/12

Metal	D35034-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	192	207	7.8	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7585: D35040-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested