Mountain States ACCUTEST LABORATORIES

02/24/11

Technical Report for

KRW Consulting, Inc.

PCU 296-7A Cuttings Bottom

1007-02

Accutest Job Number: D21155

Sampling Date: 02/16/11

Report to:

KRW Consulting, Inc.
8000 West 14th Avenue Suite 200
Lakewood, CO 80214
gknell@krwconsulting.com; dknudson@krwconsulting.com;
jhess@krwconsulting.com; crachak@krwconsulting.com
ATTN: Dwayne Knudson

Total number of pages in report: **130**

ACCREDITED IN ACCORDANCE WITH nelac

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.

John Hamilton
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

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

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

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Sample Summary

KRW Consulting, Inc.

Job No: D21155

PCU 296-7A Cuttings Bottom
Project No: 1007-02

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D21155-1	02/16/11	12:00	BB	02/18/11	SO	Soil	PCU 296-7A CUTTING BOTTOM
D21155-1A	02/16/11	12:00	BB	02/18/11	SO	Soil	PCU 296-7A CUTTING BOTTOM

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	KRW Consulting, Inc.	**Job No**	D21155
Site:	PCU 296-7A Cuttings Bottom	**Report Dat**	2/24/2011 8:48:46 AM

On 02/18/2011, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.8°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D21155 was assigned to the project. The lab sample ID, client sample ID, 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 GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V5V775

- The sample was analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21155-1MS and D21155-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP3180

- The sample was extracted and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Sample D21155-1MS was used as the QC sample indicated.
- Sample D21155-1: Sample dilution was required due to matrix interference.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB516

- The sample was analyzed within the recommended method holding time.
- Samples D21158-1MS and D21158-1MSD were used as the QC samples indicated.
- The method blank for this batch meets method specific criteria.
- Samples D21158-1MS and D21158-1MSD have surrogates outside control limits. Probable cause due to matrix interference.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP3185

- The sample was extracted and analyzed within the recommended method holding time.
- Samples D21157-1MS and D21157-1MSD were used as the QC samples indicated.
- The method blank for this batch meets method specific criteria.

Metals By Method SW846 6010B

Matrix	AQ	Batch ID:	MP4073

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21167-3AMS and D21167-3AMSD were used as the QC samples for the metals analysis.

Matrix	SO	Batch ID:	MP4056

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21155-1MS, D21155-1MSD, and D21155-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery of Zinc is outside control limits. The spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike (MS) recovery of Barium is outside control limits. The spike amount is low relative to the sample amount. Refer to the lab control or spike blank for recovery information.
- The serial dilution RPDs for Cadmium, Copper, Lead, Nickel, Selenium, Silver, and Zinc are outside control limits for sample MP4056-SD1. The percent differences are acceptable for Cadmium, Copper, Selenium, and Silver due to low initial sample concentration (< 50 times IDL).
- MP4056-SD1 for Lead, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix	SO	Batch ID:	MP4057

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21155-1MS, D21155-1MSD, and D21155-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471A

Matrix	SO	Batch ID:	MP4061

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21155-1MS and D21155-1MSD were used as the QC samples for the Mercury analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix	SO	Batch ID:	M:GN34186

- The data for ASTM D1498-76M meets quality control requirements.
- Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method LADNR29B

Matrix	SO	Batch ID:	MP4073

- Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN8324

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix	SO	Batch ID:	R6308

- The data for SW846 3060/7196A M meets quality control requirements.
- Trivalent Chromium: Calculated as: (Chromium) - (Hexavalent Chromium)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	M:GP12639

- The data for SW846 3060A/7196A meets quality control requirements.
- Hexavalent Chromium: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix	SO	Batch ID:	GN8331

- The following samples were run outside of holding time for method SW846 9045C: D21155-1.

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 DELIVERY GROUP CASE NARRATIVE

Client:	Accutest Mountain States	**Job No**	D21155
Site:	KRWCCOL: PCU 296-7A Cuttings Bottom	**Report Date**	2/23/2011 5:14:03 PM

1 Sample was collected on 02/16/2011 and were received at Accutest on 02/18/2011 properly preserved, at 6.0 Deg. C and intact. These Samples received an Accutest job number of D21155. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN34186

- Sample(s) D21167-2DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP12639

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21155-1DUP, D21155-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D21155).

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
Method:	SW846 8260B	**Percent Solids:**	74.0
Project:	PCU 296-7A Cuttings Bottom		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13319.D	1	02/21/11	DC	n/a	n/a	V5V775
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	50.8	85	26	ug/kg	J
108-88-3	Toluene	169	170	85	ug/kg	J
100-41-4	Ethylbenzene	46.6	170	34	ug/kg	J
	m,p-Xylene	176	340	60	ug/kg	J
95-47-6	o-Xylene	ND	170	60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	89%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%
17060-07-0	1,2-Dichloroethane-D4	106%		70-130%

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

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
Method:	SW846 8270C BY SIM SW846 3540C	**Percent Solids:**	74.0
Project:	PCU 296-7A Cuttings Bottom		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3G02890.D	5	02/22/11	TMB	02/18/11	OP3180	E3G103
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	45	42	ug/kg	
208-96-8	Acenaphthylene	ND	230	46	ug/kg	
120-12-7	Anthracene	ND	45	29	ug/kg	
56-55-3	Benzo(a)anthracene	ND	45	44	ug/kg	
50-32-8	Benzo(a)pyrene	ND	45	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	45	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	45	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	45	28	ug/kg	
218-01-9	Chrysene	ND	45	23	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	33	ug/kg	
206-44-0	Fluoranthene	ND	45	28	ug/kg	
86-73-7	Fluorene	ND	45	44	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	45	30	ug/kg	
90-12-0	1-Methylnaphthalene	ND	45	40	ug/kg	
91-57-6	2-Methylnaphthalene	ND	230	69	ug/kg	
91-20-3	Naphthalene	ND	230	50	ug/kg	
85-01-8	Phenanthrene	ND	45	36	ug/kg	
129-00-0	Pyrene	ND	45	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		10-193%
321-60-8	2-Fluorobiphenyl	45%		20-138%
1718-51-0	Terphenyl-d14	46%		17-174%

(a) Dilution required due to matrix interference.

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

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
Method:	SW846 8015B	**Percent Solids:**	74.0
Project:	PCU 296-7A Cuttings Bottom		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB9568.D	1	02/19/11	BR	n/a	n/a	GGB516
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	17	17	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	94%		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

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
Method:	SW846-8015B SW846 3550B	**Percent Solids:**	74.0
Project:	PCU 296-7A Cuttings Bottom		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE5940.D	1	02/21/11	JB	02/21/11	OP3185	GFE298
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)	37.4	18	12	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	117%		63-130%

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:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
		Percent Solids:	74.0
Project:	PCU 296-7A Cuttings Bottom		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.3	0.55	mg/kg	5	02/21/11	02/22/11	GJ	SW846 6020 [3]	SW846 3050B [5]
Barium	1490	1.4	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Cadmium	< 1.4	1.4	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Chromium	29.3	1.4	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Copper	8.9	1.4	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Lead	12.0	6.8	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Mercury	< 0.12	0.12	mg/kg	1	02/21/11	02/21/11	JY	SW846 7471A [1]	SW846 7471A [6]
Nickel	12.7	4.1	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Selenium	< 6.8	6.8	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Silver	< 4.1	4.1	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]
Zinc	38.8	4.1	mg/kg	1	02/21/11	02/21/11	JB	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA1331
(2) Instrument QC Batch: MA1333
(3) Instrument QC Batch: MA1334
(4) Prep QC Batch: MP4056
(5) Prep QC Batch: MP4057
(6) Prep QC Batch: MP4061

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
		Percent Solids:	74.0
Project:	PCU 296-7A Cuttings Bottom		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.52	0.52	mg/kg	1	02/21/11 16:05	AMA	SW846 3060A/7196A
Chromium, Trivalent [b]	29.3	1.9	mg/kg	1	02/21/11 16:05	AMA	SW846 3060/7196A M
Redox Potential Vs H2 [a]	307		mv	1	02/21/11	AMA	ASTM D1498-76M
Solids, Percent	74		%	1	02/18/11	SWT	SM19 2540B M
Specific Conductivity	4310	1.0	umhos/cm	1	02/22/11	JD	DEPT.OF AG, BOOK N9
pH	9.32		su	1	02/18/11 14:20	JD	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1A	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
		Percent Solids:	74.0
Project:	PCU 296-7A Cuttings Bottom		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	44.1	2.0	mg/l	1	02/22/11	02/22/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Magnesium	12.6	1.0	mg/l	1	02/22/11	02/22/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Sodium	123	2.0	mg/l	1	02/22/11	02/22/11	JB	SW846 6010B [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA1335
(2) Prep QC Batch: MP4073

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PCU 296-7A CUTTING BOTTOM		
Lab Sample ID:	D21155-1A	**Date Sampled:**	02/16/11
Matrix:	SO - Soil	**Date Received:**	02/18/11
		Percent Solids:	74.0
Project:	PCU 296-7A Cuttings Bottom		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	4.20		ratio	1	02/22/11 15:25	JB	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L) + (Mg meq/L)/2]

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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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 # D21155

Client / Reporting Information

Company Name: KRW Consulting
Street Address: 8000 W 14th Ave suite 200
City: Lakewood State: CO Zip: 80214
Project Contact: Dwayne Knudson E-mail:
Phone #: 303 239 9011 Fax #: 303 239 0745
Sampler(s) Name(s): Brent Berger Phone #: 9707564205

Project Information

Project Name: PCU 296-7A cuttings bottom
Street:
City:
Project#: 1007-02
Client PO#:
Project Manager: Joe Hess

Billing Information (If different from Report to)

Company Name:
Street Address:
City State Zip:
Attention: PO#:

Requested Analysis (see TEST CODE sheet)

Table 910-1

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB- Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfite	LAB USE ONLY
	PCU 296-7A cutting bottom		02/16/2011	1200	BB	SO	5					5				5	01
	Please attach GC chromatogram																

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] Std. 5 Business Days (By Contract only)
- [ ] 5 Day RUSH
- [x] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] Commercial "B" +Narrative
- [ ] FULLT1 (Level 3+4)
- [ ] State Forms
- [ ] EDD Format
- [x] PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

email Results to
dknudson@krwconsulting.com
jhess@rrgnic.com gknell@

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Brent Berger	02/17/2011 1100	1 2/18/11 0700	2		2
3		3	4		4
5		5			

Custody Seal # | Intact | Not Intact | Preserved where applicable N/A | On Ice | Cooler Temp. 3.8

Fedex

D21155: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D21155 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 2/18/2011 7:00:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: PCU 296-7A CUTTING BOTTOM **Airbill #'s:** Fedex

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D21155: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V775-MB1	5V13317.D	1	02/21/11	DC	n/a	n/a	V5V775

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21155-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.40	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
	m,p-Xylene	ND	4.0	0.70	ug/kg	
95-47-6	o-Xylene	ND	2.0	0.70	ug/kg	

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	91%	70-130%
460-00-4	4-Bromofluorobenzene	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	106%	70-130%

Blank Spike Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V775-BS1	5V13318.D	1	02/21/11	DC	n/a	n/a	V5V775

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21155-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	56.0	112	68-130
100-41-4	Ethylbenzene	50	54.7	109	70-130
108-88-3	Toluene	50	50.4	101	70-130
	m,p-Xylene	50	49.0	98	53-130
95-47-6	o-Xylene	50	47.5	95	61-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	95%	70-130%
460-00-4	4-Bromofluorobenzene	103%	70-130%
17060-07-0	1,2-Dichloroethane-D4	108%	70-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21155-1MS	5V13320.D	1	02/21/11	DC	n/a	n/a	V5V775
D21155-1MSD	5V13321.D	1	02/21/11	DC	n/a	n/a	V5V775
D21155-1	5V13319.D	1	02/21/11	DC	n/a	n/a	V5V775

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21155-1

CAS No.	Compound	D21155-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	50.8	J	4250	4650	108	5080	118	9	55-140/30
100-41-4	Ethylbenzene	46.6	J	4250	4400	102	4880	114	10	56-139/30
108-88-3	Toluene	169	J	4250	4070	92	4540	103	11	57-144/30
	m,p-Xylene	176	J	4250	4120	93	4560	103	10	47-130/30
95-47-6	o-Xylene	ND		4250	3950	93	4330	102	9	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21155-1	Limits
2037-26-5	Toluene-D8	90%	94%	89%	70-130%
460-00-4	4-Bromofluorobenzene	109%	113%	98%	70-130%
17060-07-0	1,2-Dichloroethane-D4	103%	106%	106%	70-130%

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022111.S\
Data File : 5V13319.D
Acq On : 21 Feb 2011 11:40 am
Operator : DONC
Sample : D21155-1, 50x
Misc : MS1842,V5V775,5.008,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 22 11:03:16 2011
Quant Method : C:\msdchem\1\METHODS\V5hsl744tvh744.M
Quant Title : 8260
QLast Update : Mon Jan 24 12:30:33 2011
Response via : Initial Calibration

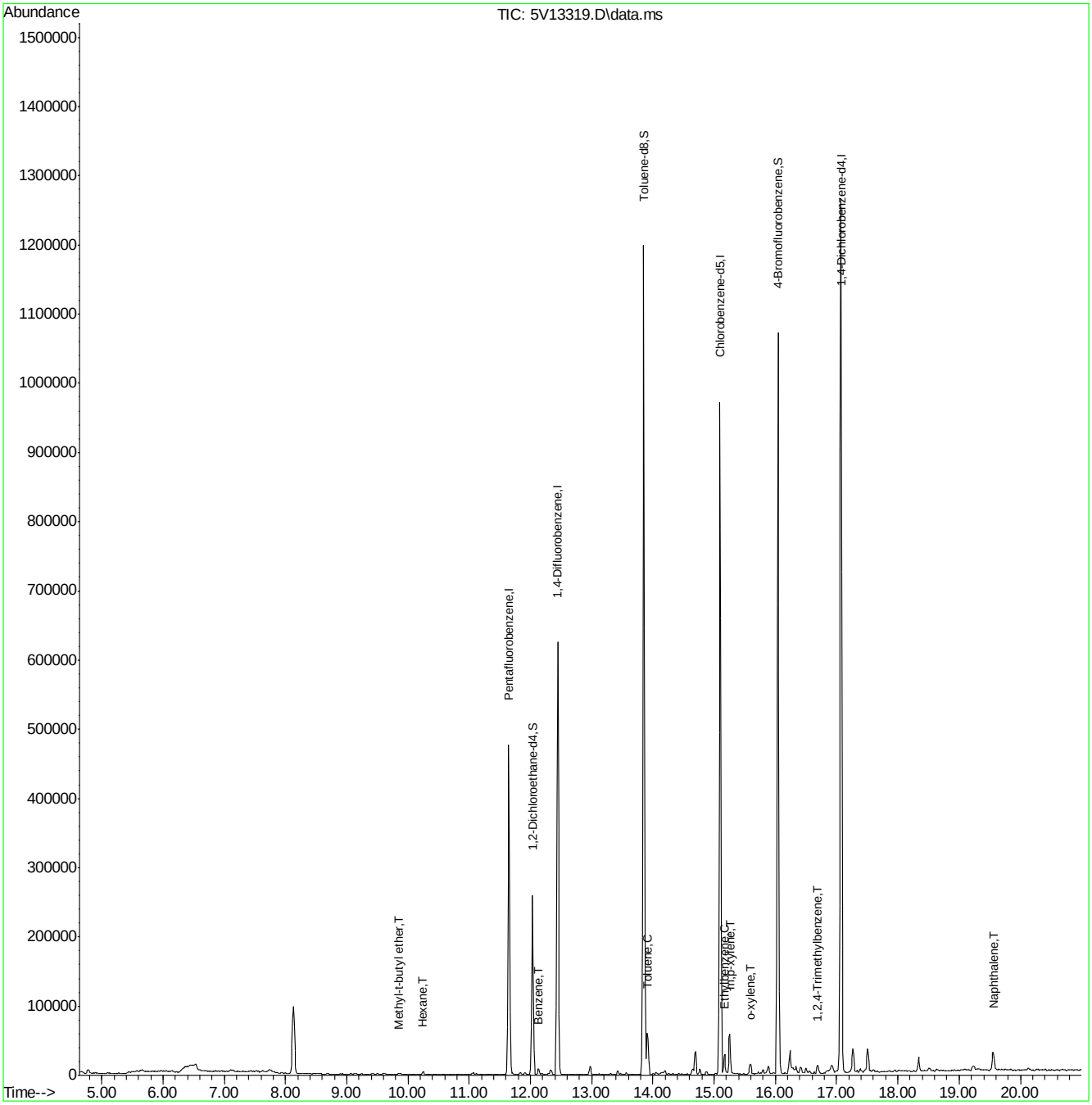
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	344099	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	496839	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	578618	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	424928	50.00	ug/l	0.00
System Monitoring Compounds						
30) 1,2-Dichloroethane-d4	12.035	102	41040	53.21	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 106.42%			
55) Toluene-d8	13.851	98	749648	44.63	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.26%			
59) 4-Bromofluorobenzene	16.043	95	348610	49.12	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.24%			
Target Compounds						Qvalue
13) Methyl-t-butyl ether	9.855	73	1073	1.30	ug/l #	1
37) Hexane	10.243	57	1841	1.29	ug/l	100
45) Benzene	12.127	78	8378	0.60	ug/l	100
56) Toluene	13.908	92	22943	1.99	ug/l	99
58) Ethylbenzene	15.175	91	11761	0.55	ug/l	99
61) m,p-xylene	15.255	106	19457	2.07	ug/l	99
62) o-xylene	15.597	106	2734	0.29	ug/l	87
66) 1,2,4-Trimethylbenzene	16.682	105	7848	0.33	ug/l	97
72) Naphthalene	19.559	128	13406	0.75	ug/l	100

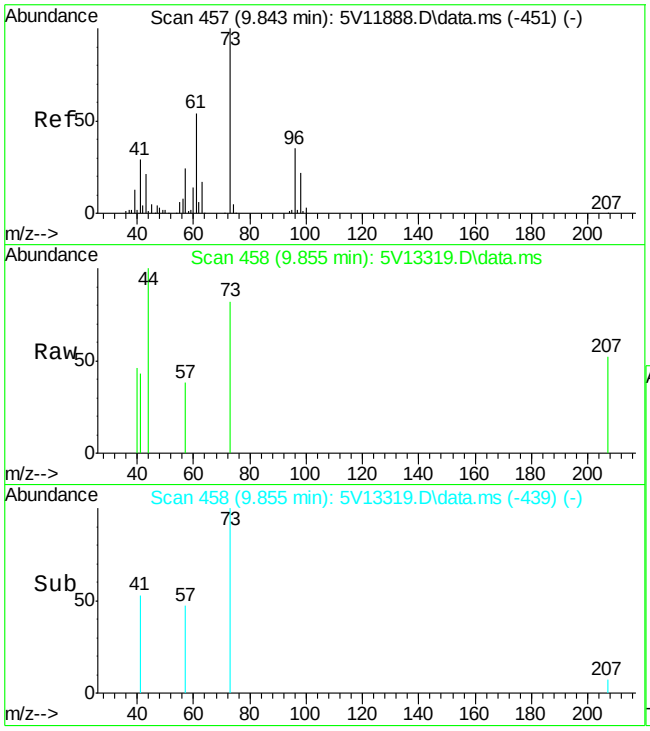
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022111.S\
Data File : 5V13319.D
Acq On : 21 Feb 2011 11:40 am
Operator : DONC
Sample : D21155-1, 50x
Misc : MS1842,V5V775,5.008,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 22 11:03:16 2011
Quant Method : C:\msdchem\1\METHODS\V5hsl744tvh744.M
Quant Title : 8260
QLast Update : Mon Jan 24 12:30:33 2011
Response via : Initial Calibration

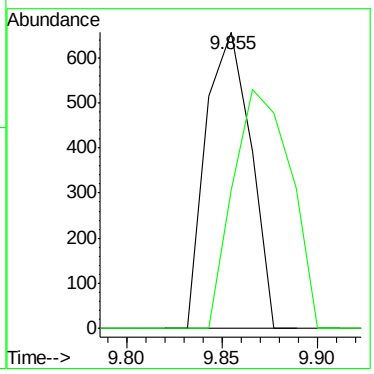


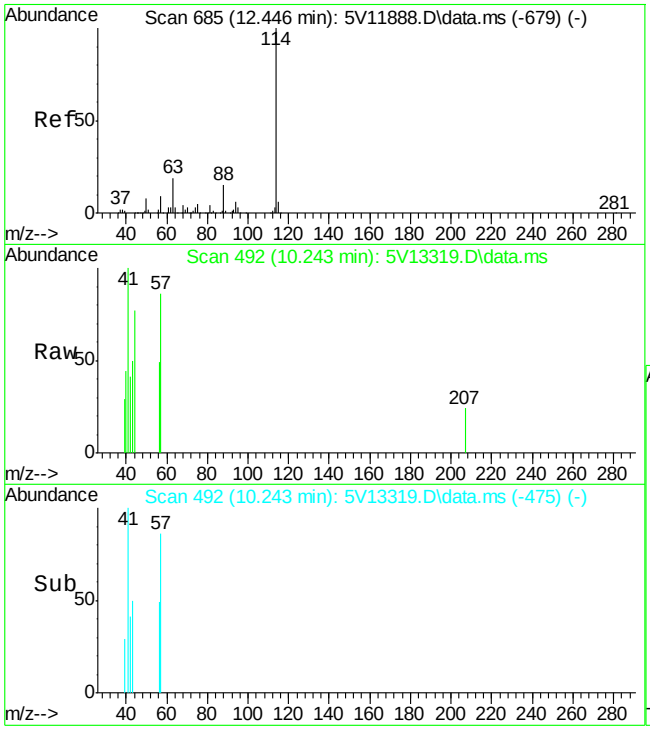


#13
Methyl-t-butyl ether
Concen: 1.30 ug/l
RT: 9.855 min Scan# 458
Delta R.T. 0.012 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion: 73 Resp: 1073

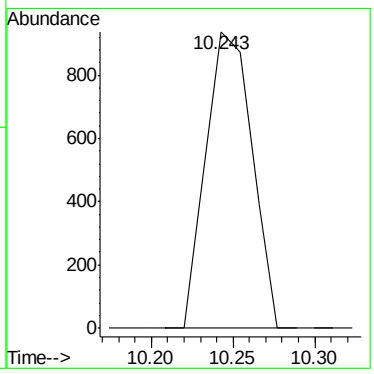
Ion	Ratio	Lower	Upper
73	100		
57	103.6	18.9	28.3#

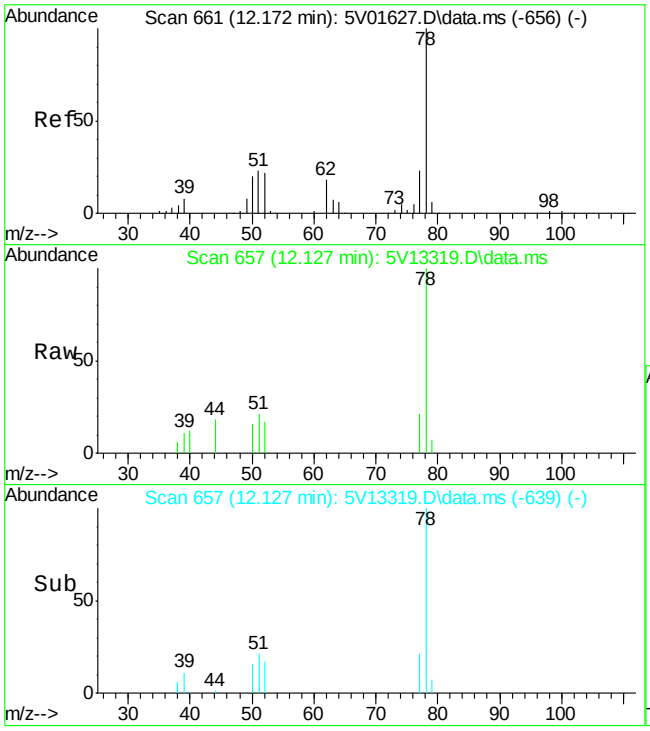




#37
Hexane
Concen: 1.29 ug/l
RT: 10.243 min Scan# 492
Delta R.T. -0.011 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

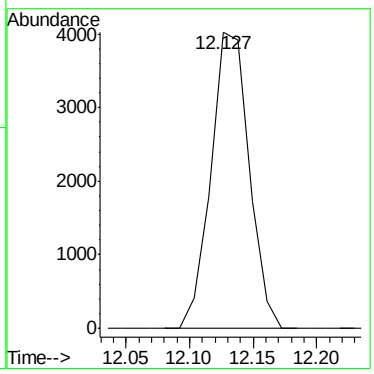
Tgt Ion: 57 Resp: 1841

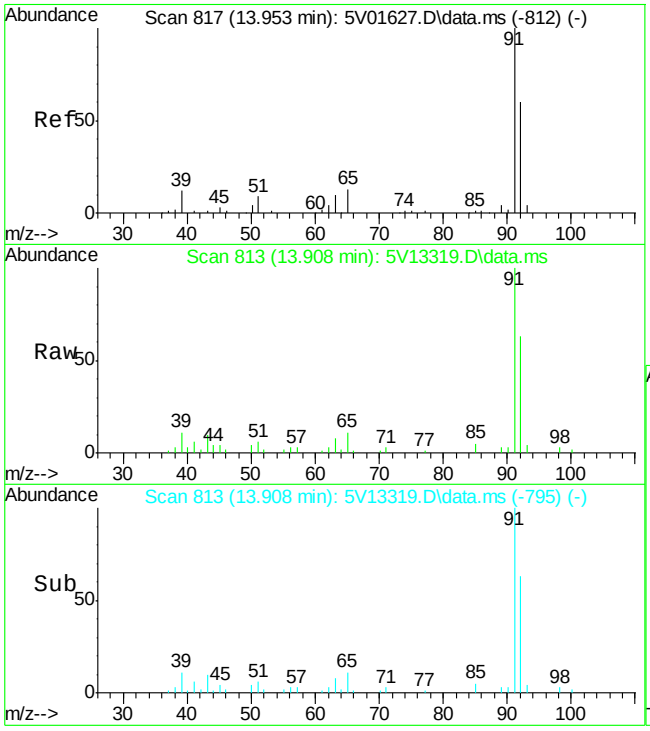




#45
Benzene
Concen: 0.60 ug/l
RT: 12.127 min Scan# 657
Delta R.T. -0.000 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion: 78 Resp: 8378

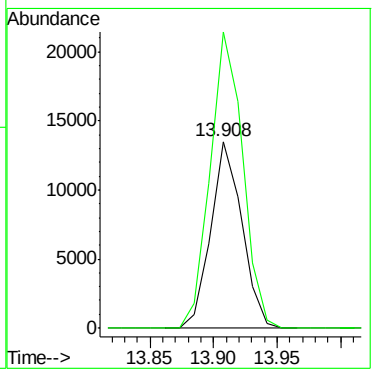


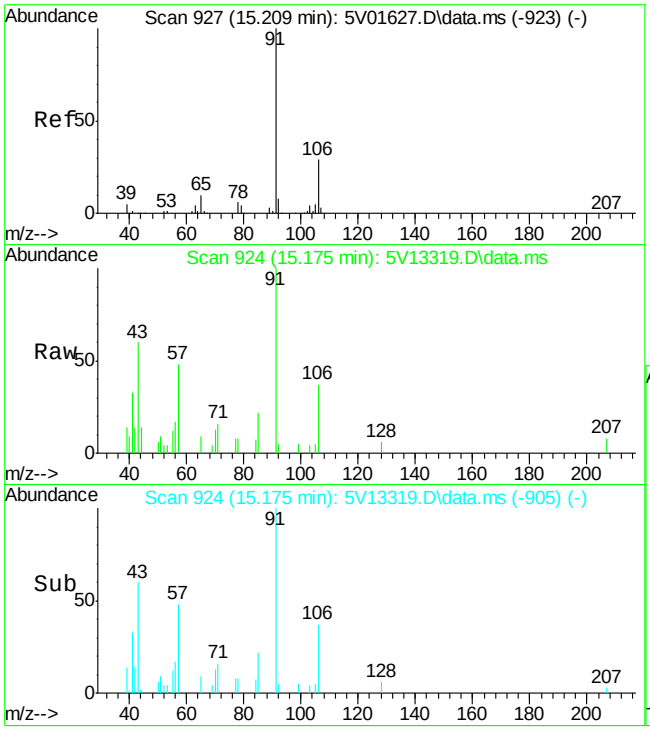


#56
Toluene
Concen: 1.99 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.001 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion: 92 Resp: 22943

Ion	Ratio	Lower	Upper
92	100		
91	165.6	146.5	186.5

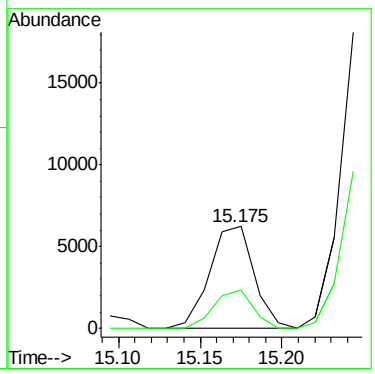


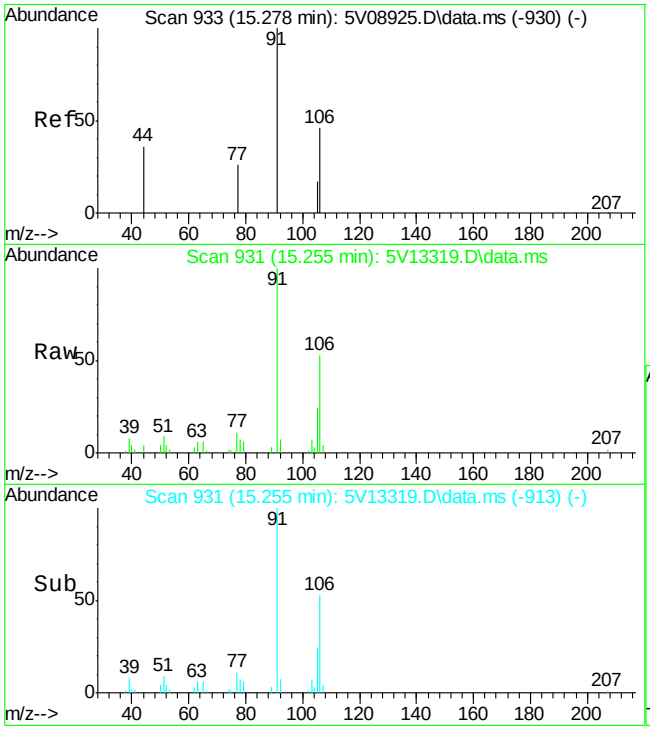


#58
Ethylbenzene
Concen: 0.55 ug/l
RT: 15.175 min Scan# 924
Delta R.T. 0.011 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion: 91 Resp: 11761

Ion	Ratio	Lower	Upper
91	100		
106	32.9	12.1	52.1

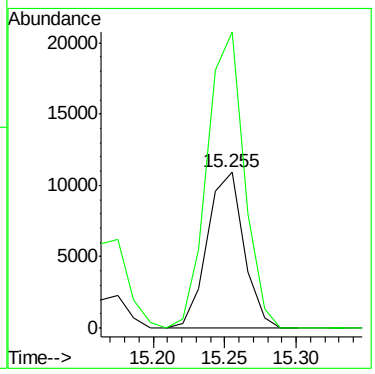


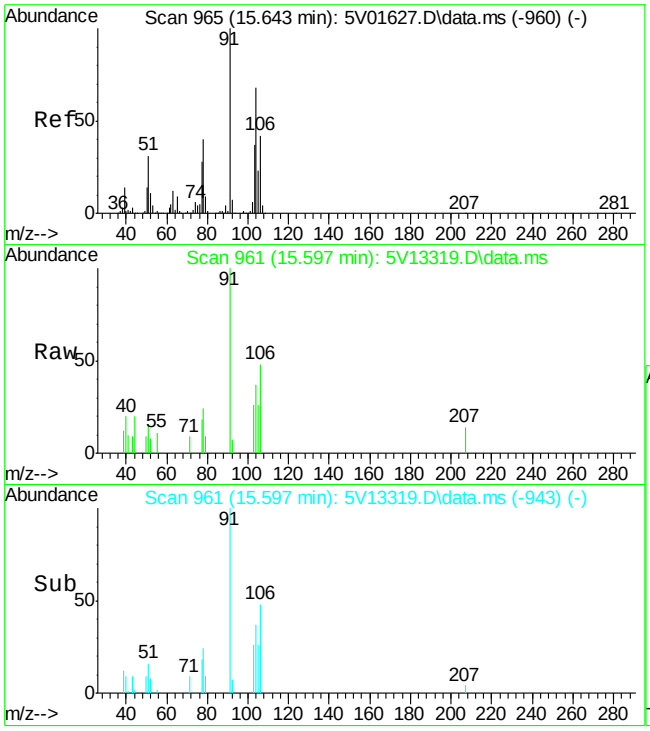


#61
m,p-xylene
Concen: 2.07 ug/l
RT: 15.255 min Scan# 931
Delta R.T. -0.000 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion:106 Resp: 19457

Ion	Ratio	Lower	Upper
106	100		
91	191.5	169.4	209.4

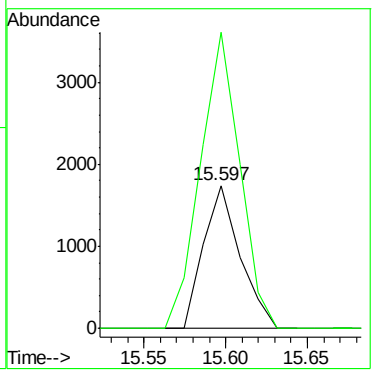


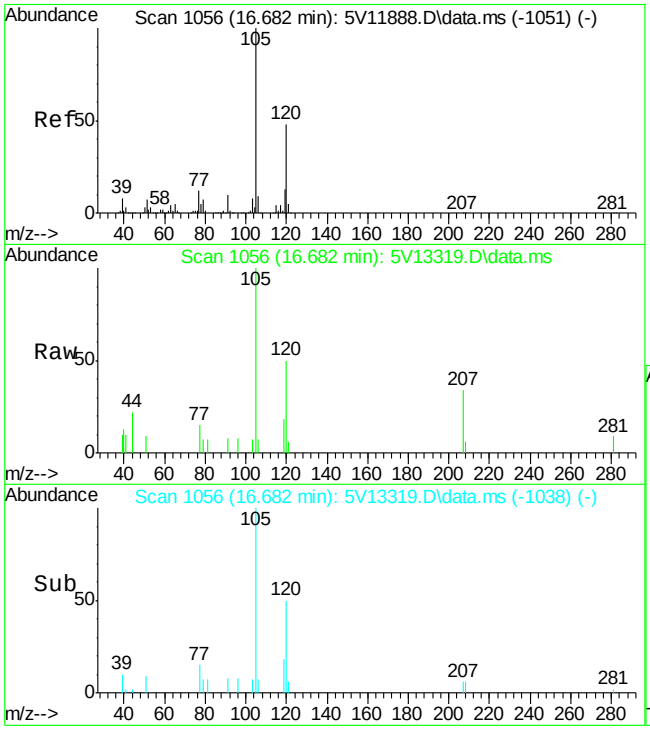


#62
o-xylene
Concen: 0.29 ug/l
RT: 15.597 min Scan# 961
Delta R.T. -0.000 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion:106 Resp: 2734

Ion	Ratio	Lower	Upper
106	100		
91	223.0	162.9	244.3

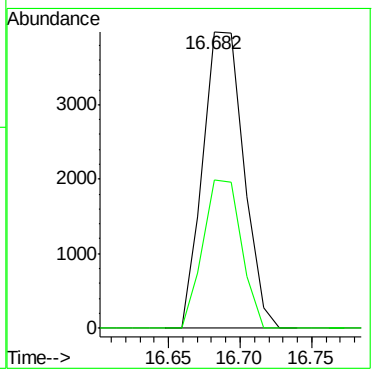


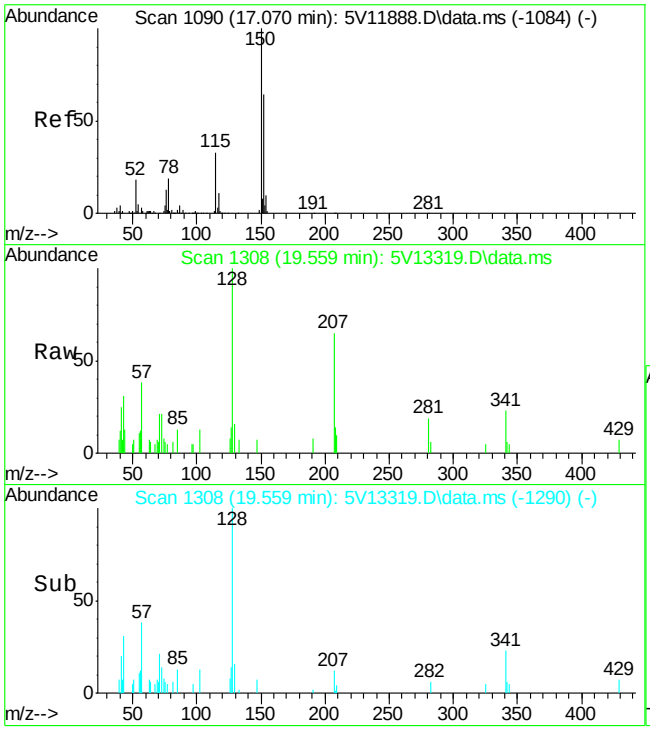


#66
1,2,4-Trimethylbenzene
Concen: 0.33 ug/l
RT: 16.682 min Scan# 1056
Delta R.T. 0.001 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion:105 Resp: 7848

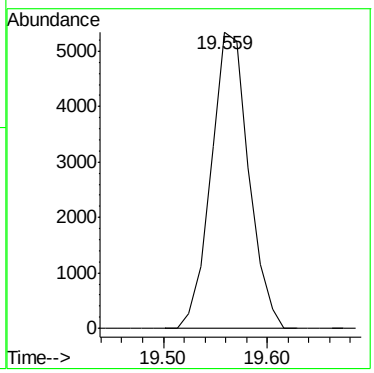
Ion	Ratio	Lower	Upper
105	100		
120	47.1	39.3	58.9





#72
Naphthalene
Concen: 0.75 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. -0.000 min
Lab File: 5V13319.D
Acq: 21 Feb 2011 11:40 am

Tgt Ion:128 Resp: 13406



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022111.S\
Data File : 5V13317.D
Acq On : 21 Feb 2011 10:37 am
Operator : DONC
Sample : MB1
Misc : MS1842,V5V775,,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 22 11:01:05 2011
Quant Method : C:\msdchem\1\METHODS\V5hsl744tvh744.M
Quant Title : 8260
QLast Update : Mon Jan 24 12:30:33 2011
Response via : Initial Calibration

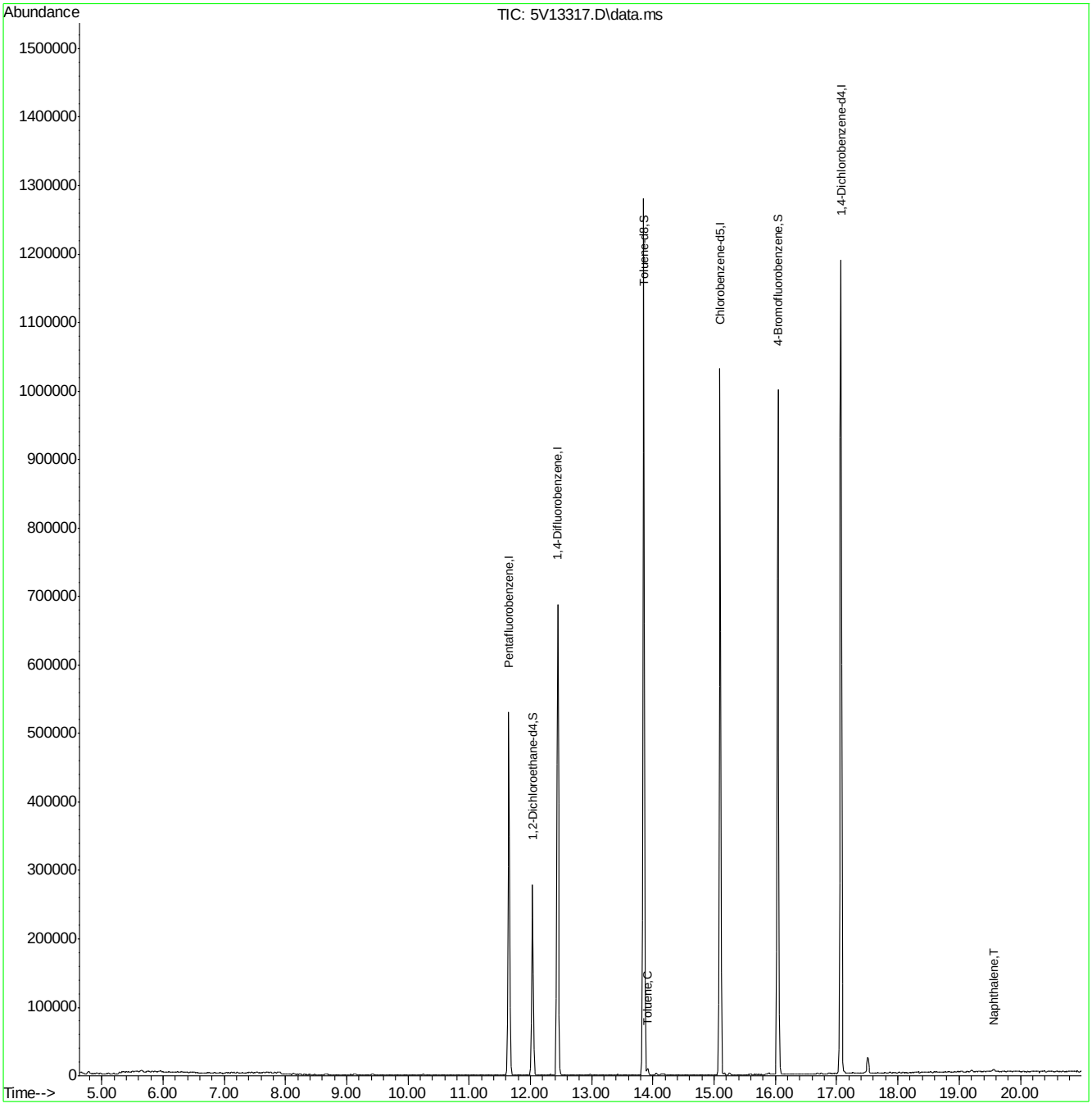
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	372793	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	552387	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	608899	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	402394	50.00	ug/l	0.00
System Monitoring Compounds						
30) 1,2-Dichloroethane-d4	12.035	102	44344	53.06	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 106.12%			
55) Toluene-d8	13.850	98	802821	45.41	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.82%			
59) 4-Bromofluorobenzene	16.043	95	329992	44.18	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 88.36%			
Target Compounds						Qvalue
56) Toluene	13.908	92	2941	0.24	ug/l #	77
72) Naphthalene	19.570	128	5331	0.31	ug/l	100

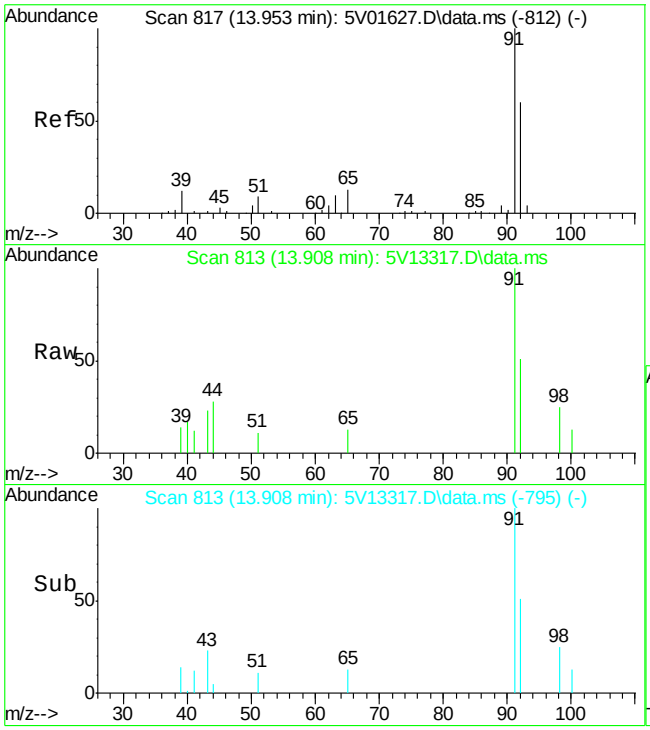
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022111.S\
Data File : 5V13317.D
Acq On : 21 Feb 2011 10:37 am
Operator : DONC
Sample : MB1
Misc : MS1842,V5V775,,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 22 11:01:05 2011
Quant Method : C:\msdchem\1\METHODS\V5hsl744tvh744.M
Quant Title : 8260
QLast Update : Mon Jan 24 12:30:33 2011
Response via : Initial Calibration

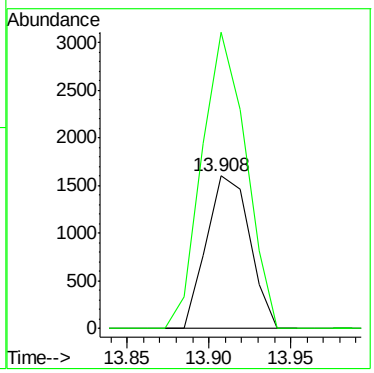


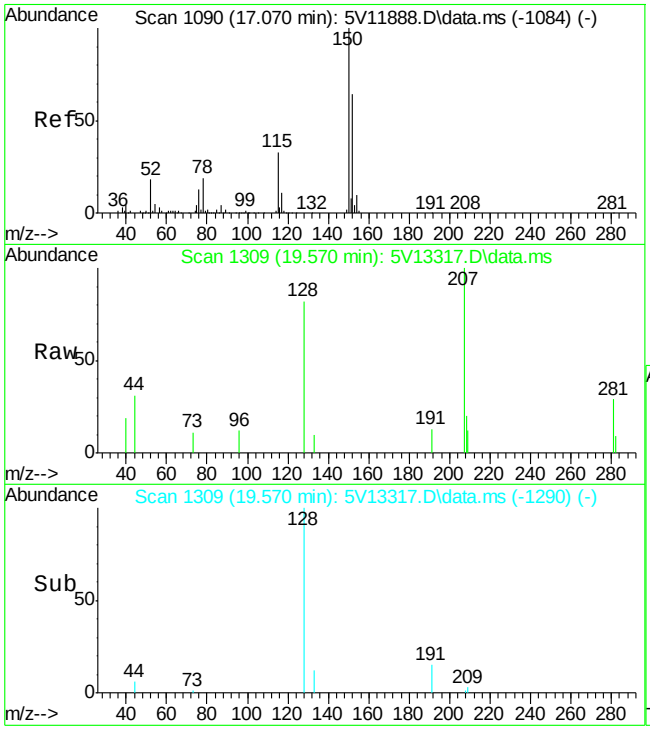


#56
Toluene
Concen: 0.24 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.001 min
Lab File: 5V13317.D
Acq: 21 Feb 2011 10:37 am

Tgt Ion: 92 Resp: 2941

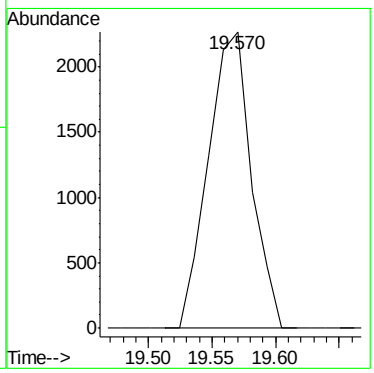
Ion	Ratio	Lower	Upper
92	100		
91	197.8	146.5	186.5#





#72
Naphthalene
Concen: 0.31 ug/l
RT: 19.570 min Scan# 1309
Delta R.T. 0.011 min
Lab File: 5V13317.D
Acq: 21 Feb 2011 10:37 am

Tgt Ion:128 Resp: 5331



Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3180-MB	3G02888.D	1	02/22/11	TMB	02/18/11	OP3180	E3G103

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21155-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	6.2	ug/kg	
208-96-8	Acenaphthylene	ND	33	6.9	ug/kg	
120-12-7	Anthracene	ND	6.7	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	6.5	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	4.2	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	4.8	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	4.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	4.2	ug/kg	
218-01-9	Chrysene	ND	6.7	3.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	4.9	ug/kg	
206-44-0	Fluoranthene	ND	6.7	4.1	ug/kg	
86-73-7	Fluorene	ND	6.7	6.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	4.4	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6.7	5.9	ug/kg	
91-57-6	2-Methylnaphthalene	ND	33	10	ug/kg	
91-20-3	Naphthalene	ND	33	7.4	ug/kg	
85-01-8	Phenanthrene	ND	6.7	5.3	ug/kg	
129-00-0	Pyrene	ND	6.7	4.5	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	65%	10-193%
321-60-8	2-Fluorobiphenyl	51%	20-138%
1718-51-0	Terphenyl-d14	60%	17-174%

Blank Spike Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3180-BS	3G02889.D	1	02/22/11	TMB	02/18/11	OP3180	E3G103

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21155-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	44.3	53	40-136
208-96-8	Acenaphthylene	83.3	43.2	52	42-139
120-12-7	Anthracene	83.3	44.5	53	40-141
56-55-3	Benzo(a)anthracene	83.3	46.2	55	38-143
50-32-8	Benzo(a)pyrene	83.3	40.7	49	39-145
205-99-2	Benzo(b)fluoranthene	83.3	38.1	46	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	40.6	49	35-136
207-08-9	Benzo(k)fluoranthene	83.3	44.7	54	38-147
218-01-9	Chrysene	83.3	44.6	54	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	39.9	48	35-139
206-44-0	Fluoranthene	83.3	47.6	57	34-132
86-73-7	Fluorene	83.3	44.5	53	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	40.4	48	31-144
90-12-0	1-Methylnaphthalene	83.3	43.4	52	36-130
91-57-6	2-Methylnaphthalene	83.3	43.0	52	40-131
91-20-3	Naphthalene	83.3	47.1	57	36-130
85-01-8	Phenanthrene	83.3	42.8	51	40-135
129-00-0	Pyrene	83.3	42.1	51	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	61%	10-193%
321-60-8	2-Fluorobiphenyl	45%	20-138%
1718-51-0	Terphenyl-d14	51%	17-174%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3180-MS	3G02891.D	5	02/22/11	TMB	02/18/11	OP3180	E3G103
OP3180-MSD	3G02892.D	5	02/22/11	TMB	02/18/11	OP3180	E3G103
D21155-1 [a]	3G02890.D	5	02/22/11	TMB	02/18/11	OP3180	E3G103

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21155-1

CAS No.	Compound	D21155-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		113	52.7	47	54.5	49	3	20-151/30
208-96-8	Acenaphthylene	ND		113	67.6	60	72.3	65	7	23-156/30
120-12-7	Anthracene	ND		113	68.3	61	71.7	64	5	25-149/30
56-55-3	Benzo(a)anthracene	ND		113	87.5	78	88.9	79	2	22-157/30
50-32-8	Benzo(a)pyrene	ND		113	77.4	69	78.9	70	2	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		113	67.9	60	70.7	63	4	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		113	55.6	49	56.6	51	2	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		113	73.7	65	66.1	59	11	17-161/30
218-01-9	Chrysene	ND		113	51.1	45	51.6	46	1	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		113	56.4	50	63.1	56	11	21-154/30
206-44-0	Fluoranthene	ND		113	88.5	79	90.8	81	3	16-140/30
86-73-7	Fluorene	ND		113	61.9	55	64.3	57	4	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		113	63.7	57	51.9	46	20	21-159/30
90-12-0	1-Methylnaphthalene	ND		113	64.9	58	73.0	65	12	10-148/30
91-57-6	2-Methylnaphthalene	ND		113	80.2	71	97.0	87	19	10-181/30
91-20-3	Naphthalene	ND		113	70.9	63	74.2	66	5	10-176/30
85-01-8	Phenanthrene	ND		113	56.6	50	58.6	52	3	22-152/30
129-00-0	Pyrene	ND		113	55.8	50	57.3	51	3	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D21155-1	Limits
4165-60-0	Nitrobenzene-d5	48%	49%	57%	10-193%
321-60-8	2-Fluorobiphenyl	38%	39%	45%	20-138%
1718-51-0	Terphenyl-d14	42%	42%	46%	17-174%

(a) Dilution required due to matrix interference.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022211\
Data File : 3g02890.D
Acq On : 22 Feb 2011 12:55 pm
Operator : TamiB
Sample : D21155-1,5x
Misc : OP3180,E3G103,30,,,1,5
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 23 10:46:28 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G98.M
Quant Title : PAHSIM BASE
QLast Update : Tue Feb 08 09:13:56 2011
Response via : Initial Calibration

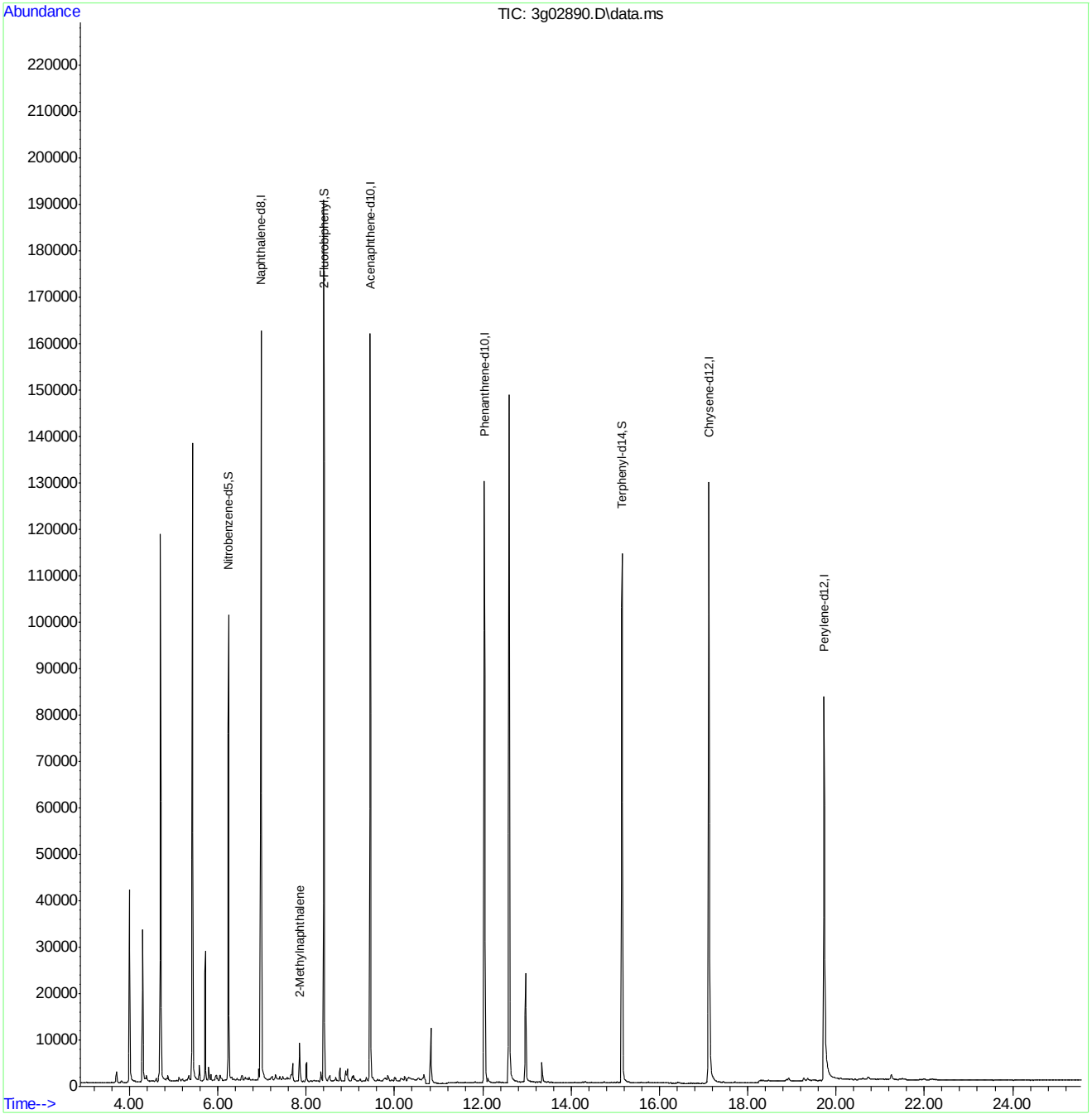
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.979	136	157559	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.452	164	88075	4.00	ug/mL	0.00
14) Phenanthrene-d10	12.036	188	151244	4.00	ug/mL	0.00
18) Chrysene-d12	17.120	240	157727	4.00	ug/mL	0.00
23) Perylene-d12	19.729	264	128704	4.00	ug/mL	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	6.244	82	71531	5.68	ug/mL	0.00
7) 2-Fluorobiphenyl	8.400	172	176667	4.45	ug/mL	-0.01
20) Terphenyl-d14	15.155	244	137184	4.56	ug/mL	0.00
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	7.857	142	4858	0.16	ug/mL	95
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

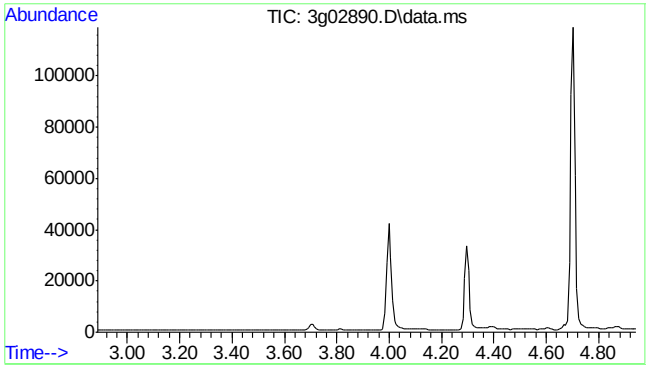
Data Path : C:\msdchem\1\DATA\022211\
Data File : 3g02890.D
Acq On : 22 Feb 2011 12:55 pm
Operator : TamiB
Sample : D21155-1,5x
Misc : OP3180,E3G103,30,,,1,5
ALS Vial : 7 Sample Multiplier: 1

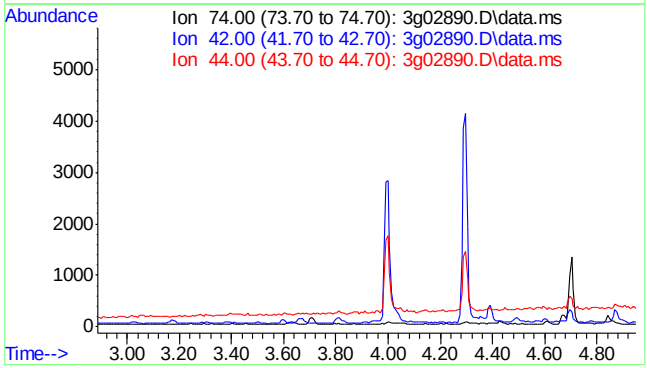
Quant Time: Feb 23 10:46:28 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G98.M
Quant Title : PAHSIM BASE
QLast Update : Tue Feb 08 09:13:56 2011
Response via : Initial Calibration



SIMPE3G98.M Wed Feb 23 11:18:35 2011 3G

Page: 2



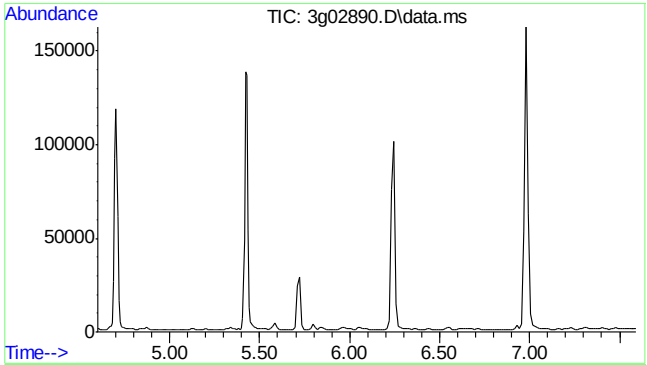


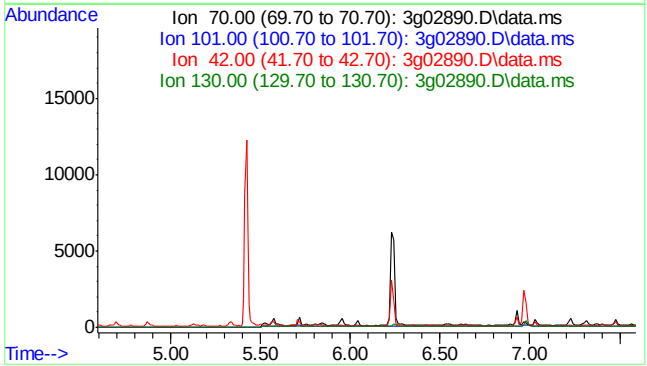
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.45 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	58.9
44	3.5



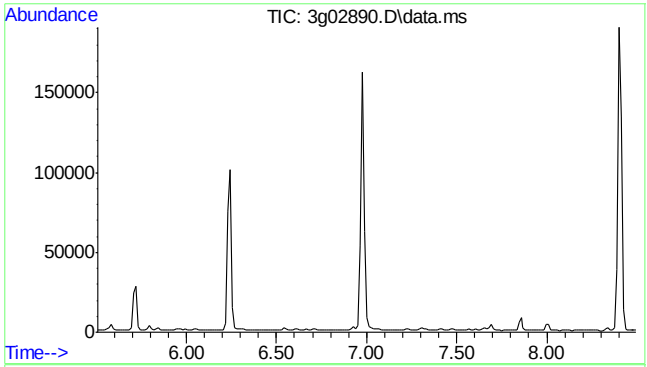


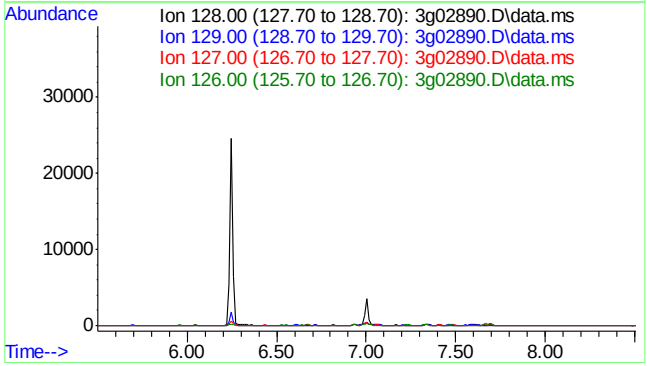
#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 6.09 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 70

Sig	Exp Ratio
70	100
101	10.2
42	40.9
130	23.0



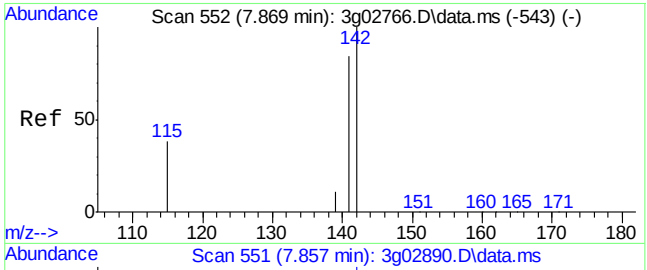


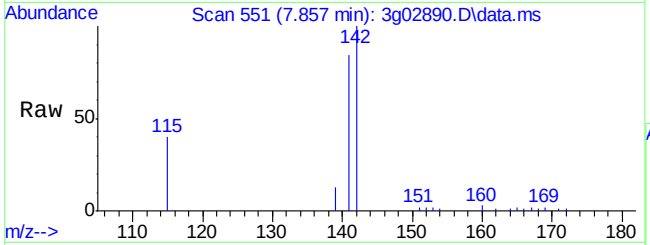
#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 7.00 min

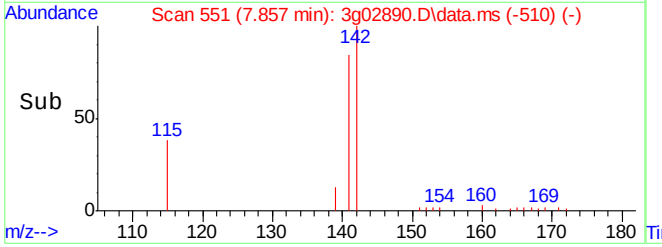
Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 128

Sig	Exp Ratio
128	100
129	10.8
127	12.6
126	7.2



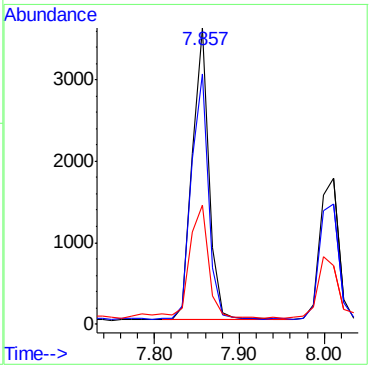


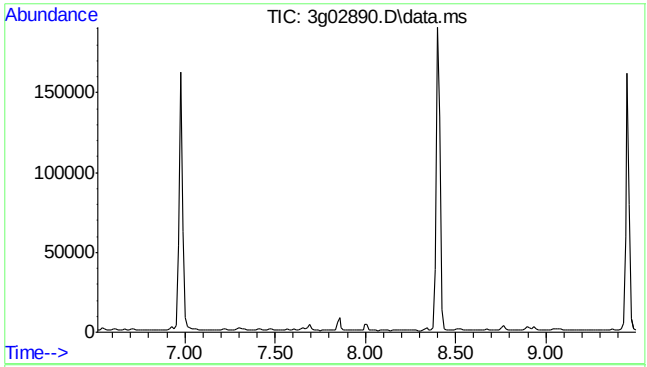


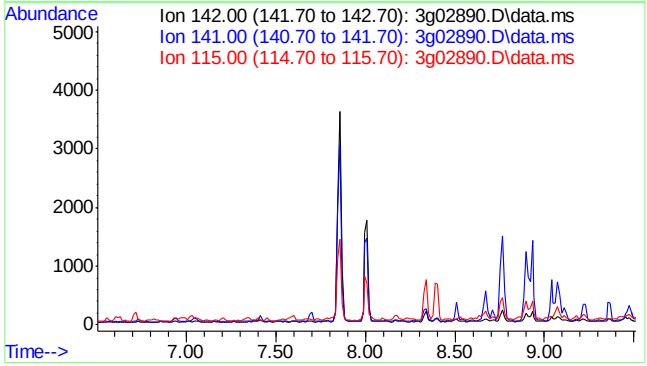
#8
2-Methylnaphthalene
Concen: 0.16 ug/mL
RT: 7.857 min Scan# 551
Delta R.T. -0.000 min
Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion:142 Resp: 4858

Ion	Ratio	Lower	Upper
142	100		
141	86.5	62.9	102.9
115	44.2	19.3	59.3





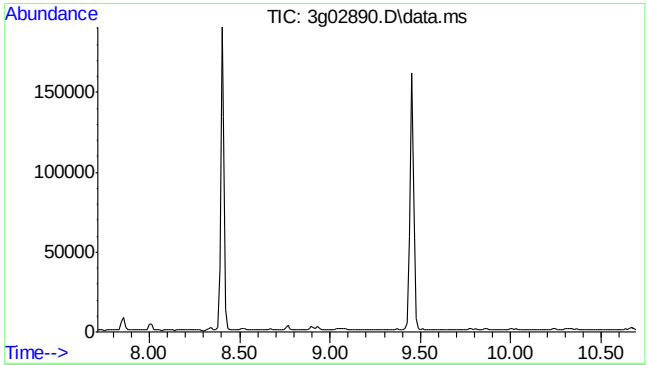


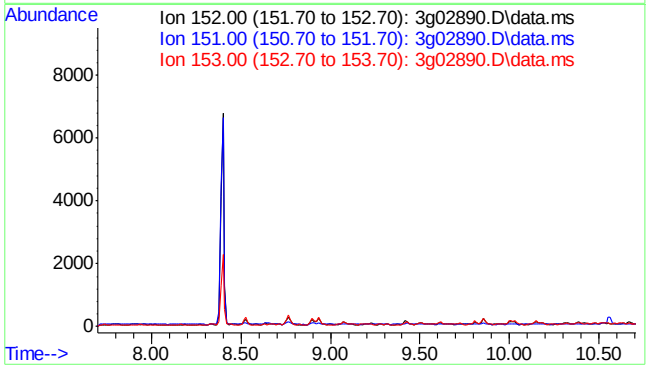
#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 8.01 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	86.3
115	41.0



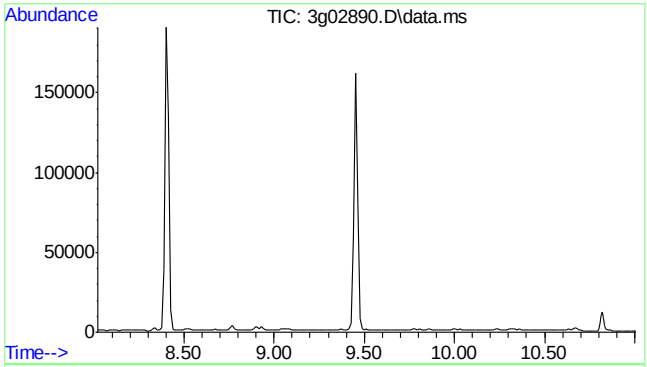


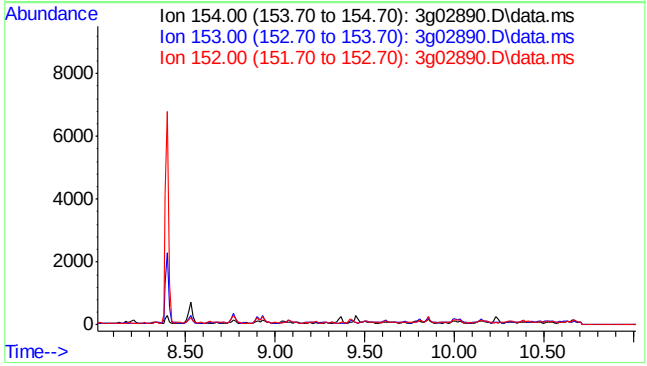
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 9.20 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.1
153	12.9



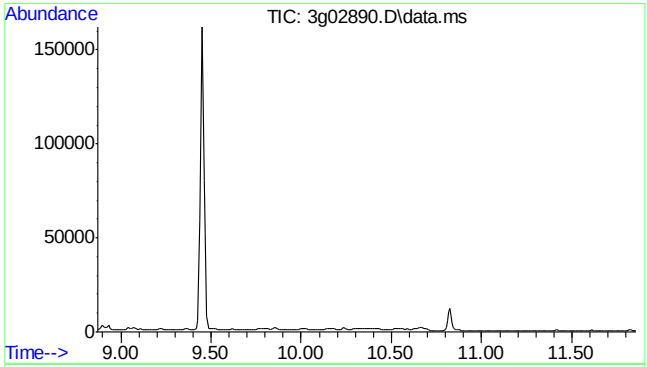


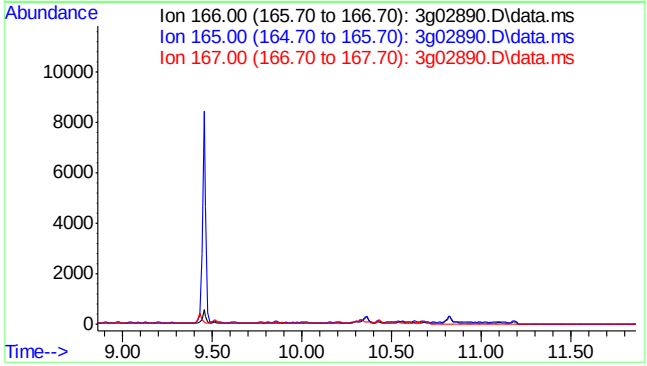
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.51 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	104.7
152	49.8



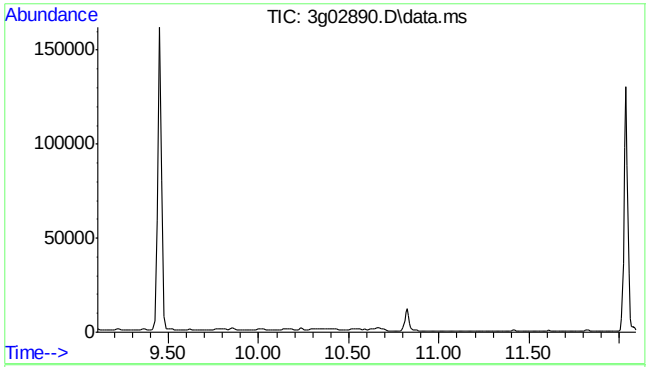


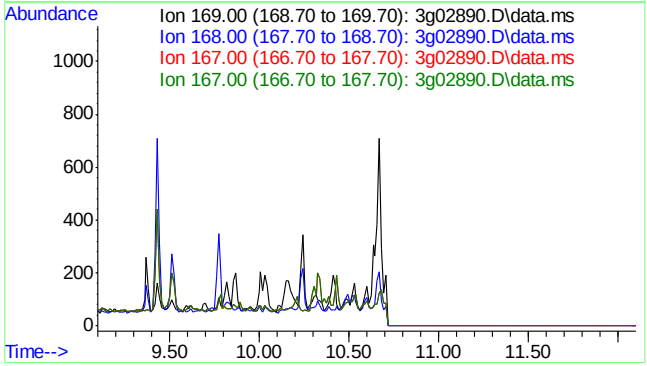
#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 10.36 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	90.4
167	13.4



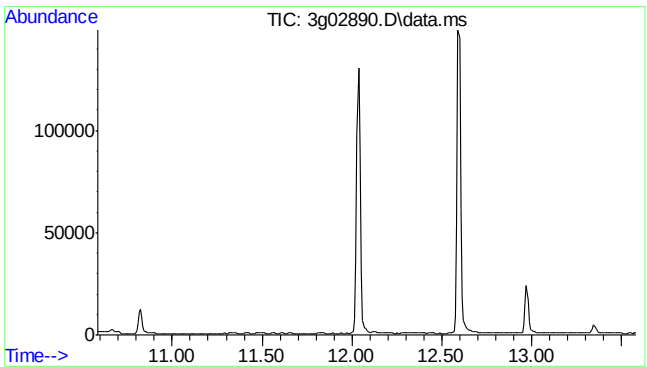


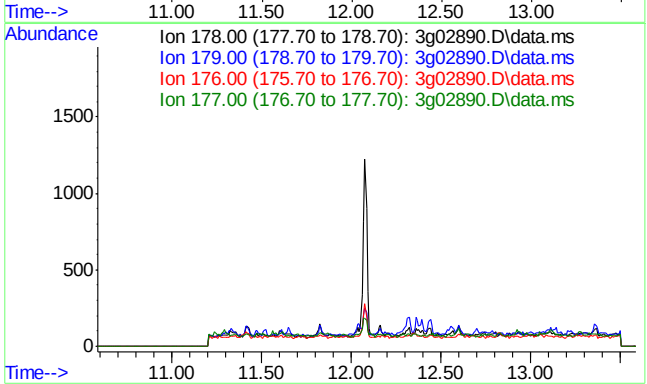
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.60 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	60.7
167	33.0
167	33.0



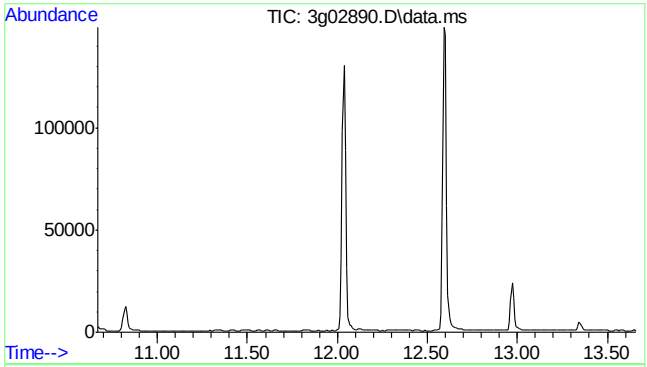


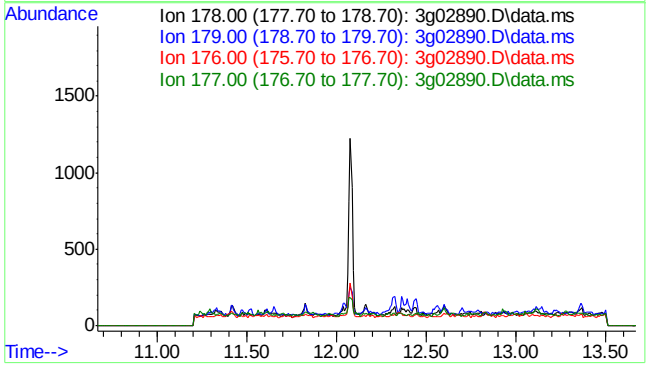
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 12.08 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.2
176	18.4
177	10.4



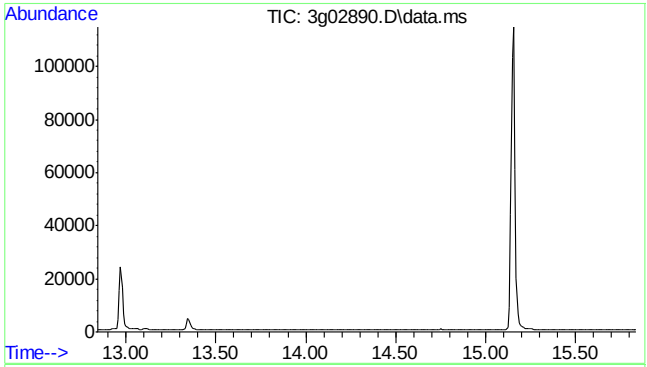


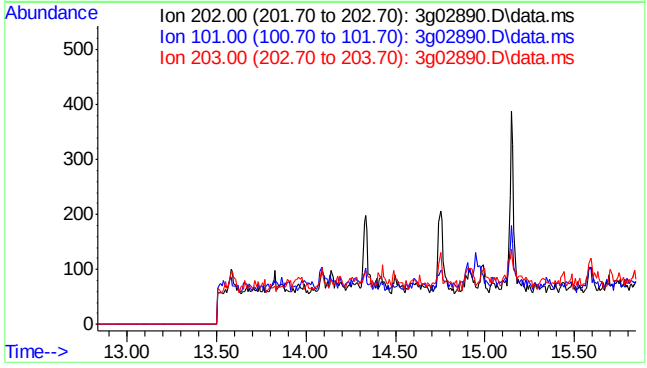
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 12.16 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.4
176	17.6
177	8.7



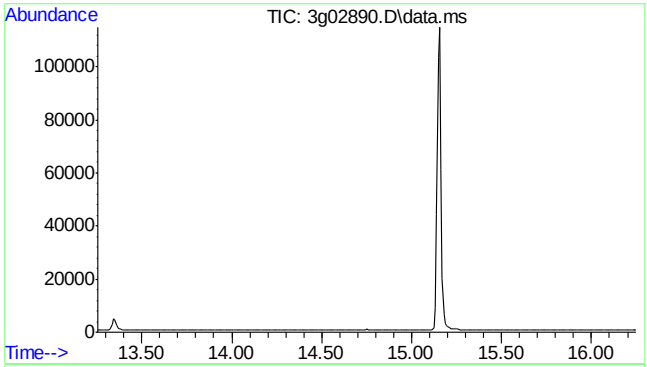


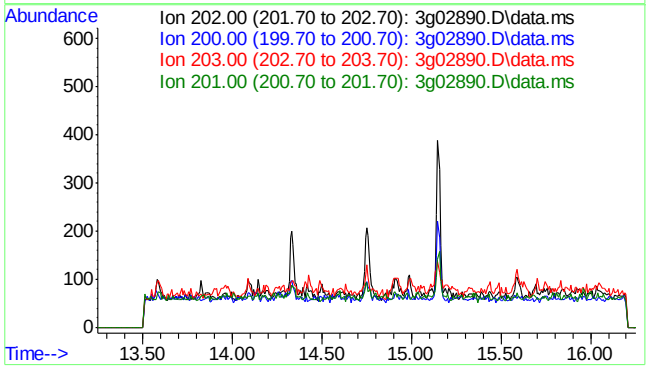
#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 14.34 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 202

Sig	Exp Ratio
202	100
101	16.4
203	17.2



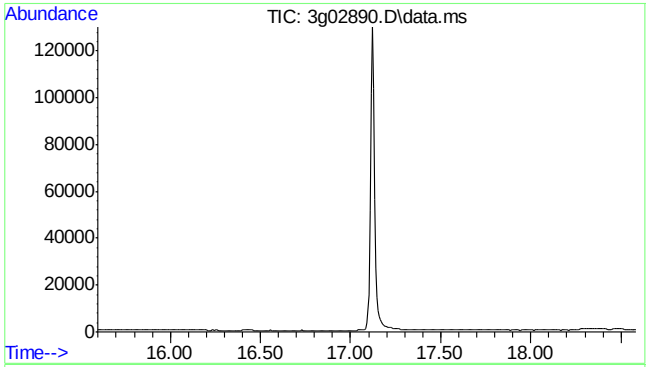


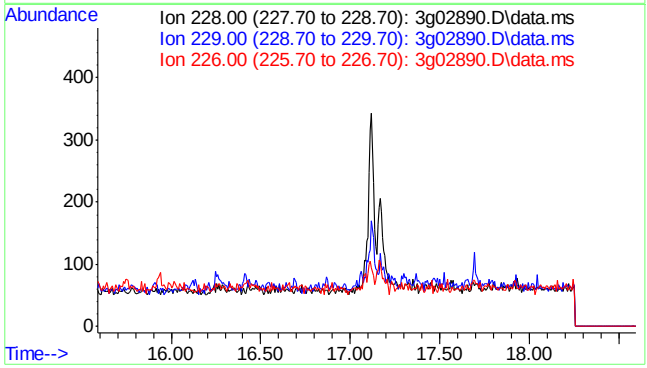
#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.75 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 202

Sig	Exp Ratio
202	100
200	20.0
203	17.6
201	16.6



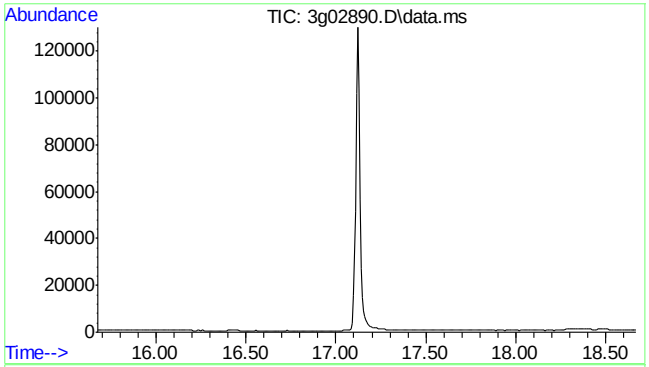


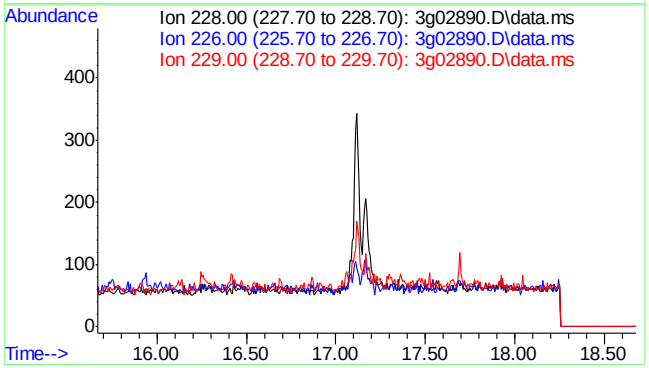
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 17.09 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 228

Sig	Exp Ratio
228	100
229	19.5
226	25.9



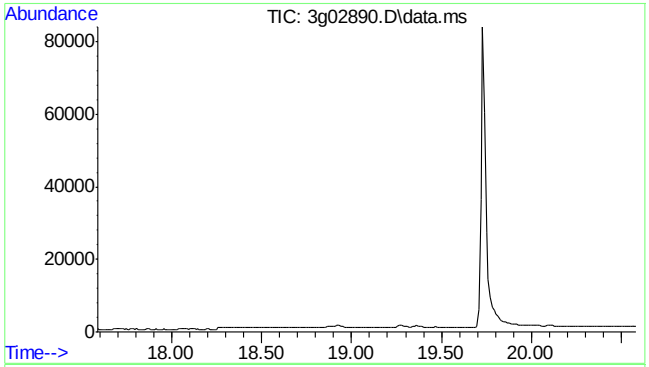


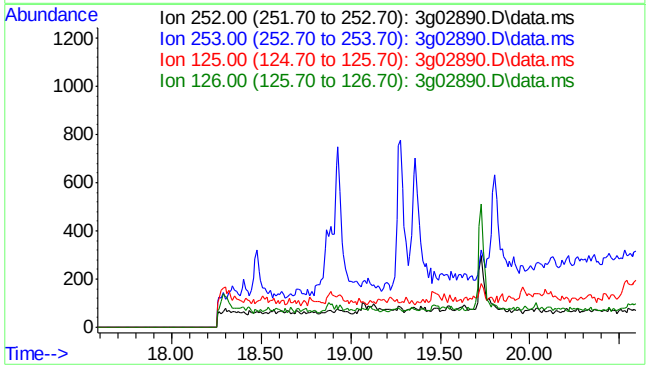
#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 17.17 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 228

Sig	Exp Ratio
228	100
226	28.1
229	19.4



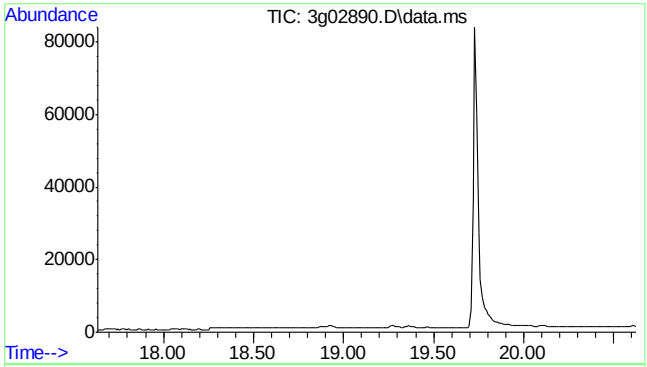


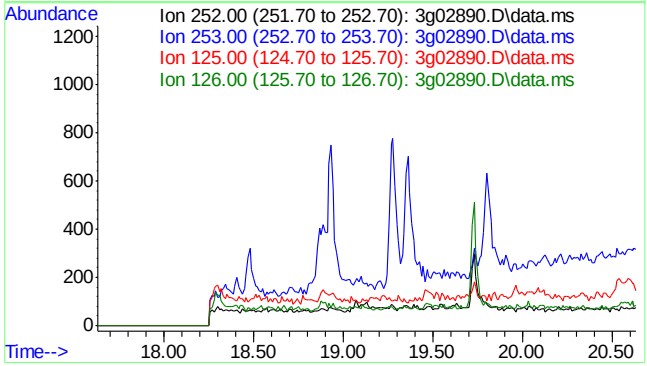
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 19.09 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.5
125	12.1
126	17.0



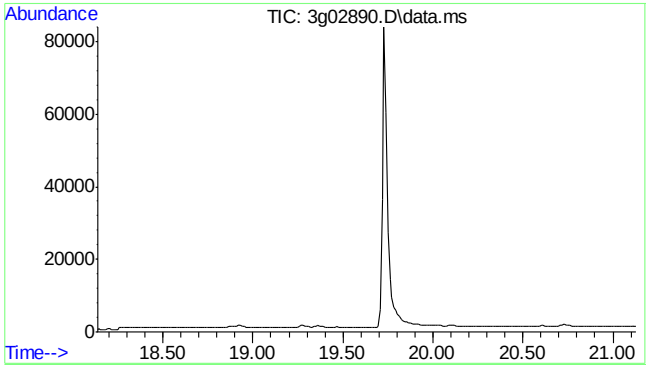


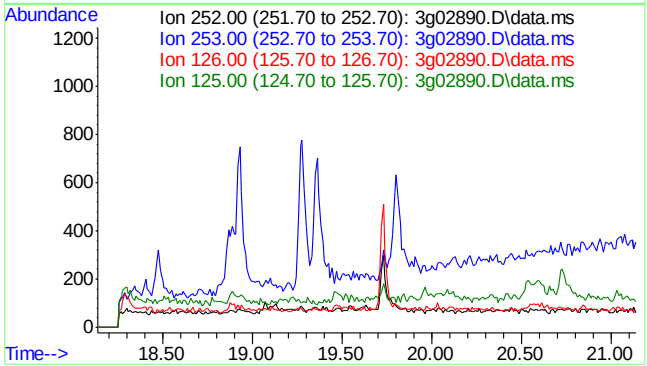
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 19.13 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	20.7
125	14.3
126	21.5



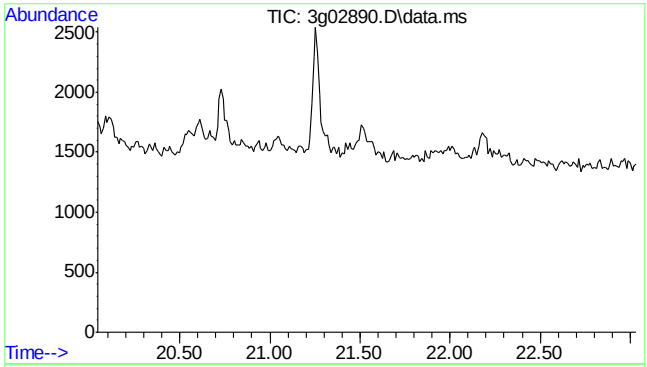


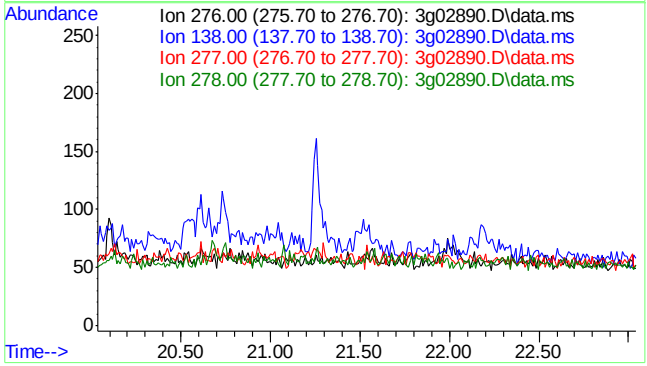
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.63 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.2
126	20.0
125	14.9



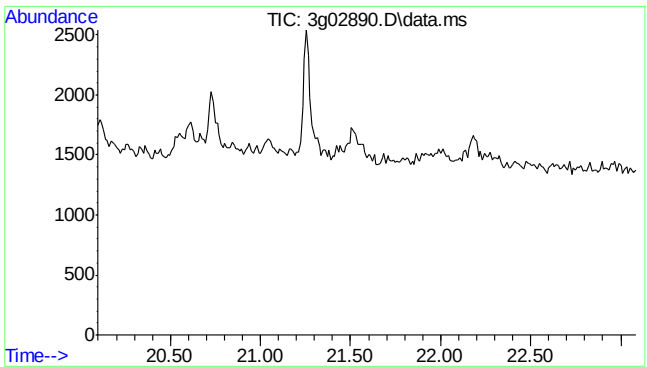


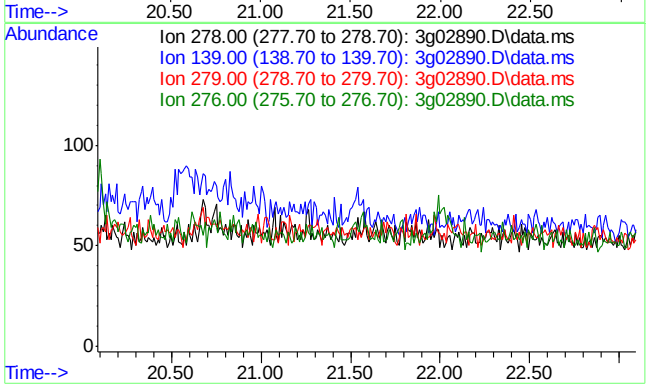
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 21.54 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	24.8
277	51.1
278	165.8



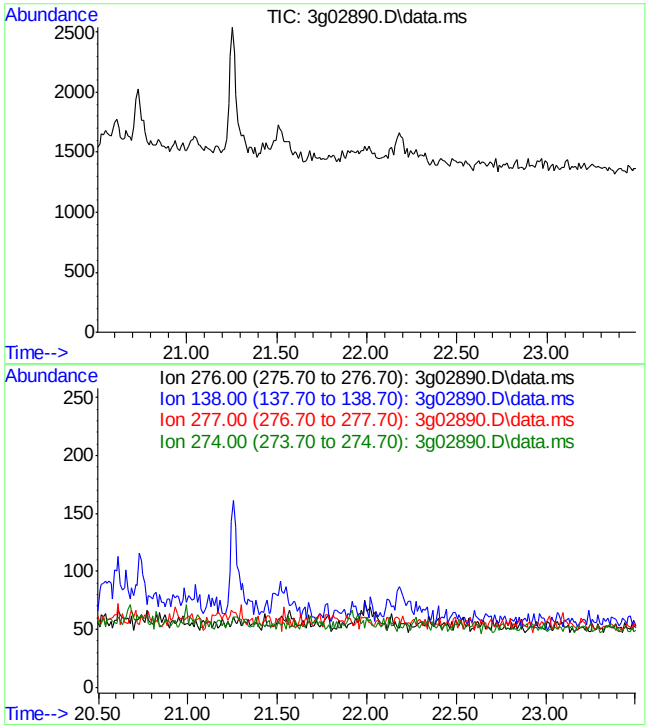


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.59 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	20.7
279	23.4
276	124.7



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 22.00 min

Lab File: 3g02890.D
Acq: 22 Feb 11 12:55 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	27.3
277	24.4
274	21.2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022211\
Data File : 3g02888.D
Acq On : 22 Feb 2011 11:39 am
Operator : TamiB
Sample : OP3180-MB
Misc : OP3180,E3G103,30,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 23 10:45:16 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G98.M
Quant Title : PAHSIM BASE
QLast Update : Tue Feb 08 09:13:56 2011
Response via : Initial Calibration

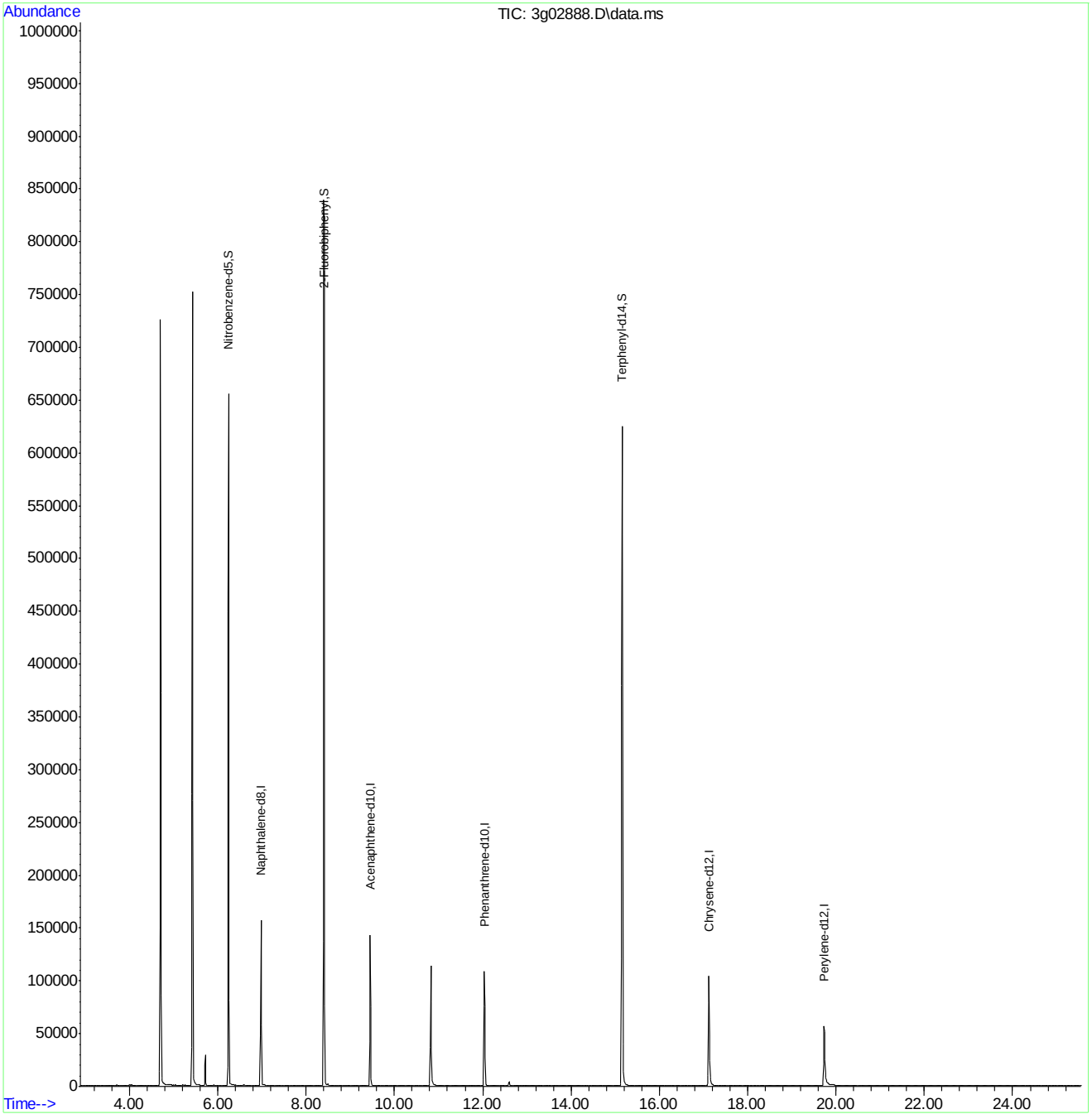
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.980	136	148928	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.452	164	76668	4.00	ug/mL	0.00
14) Phenanthrene-d10	12.037	188	120866	4.00	ug/mL	0.00
18) Chrysene-d12	17.120	240	124756	4.00	ug/mL	0.00
23) Perylene-d12	19.729	264	98760	4.00	ug/mL	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	6.244	82	443468	32.43	ug/mL	0.00
7) 2-Fluorobiphenyl	8.412	172	875862	25.36	ug/mL	0.00
20) Terphenyl-d14	15.155	244	715755	30.06	ug/mL	0.00
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.		
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

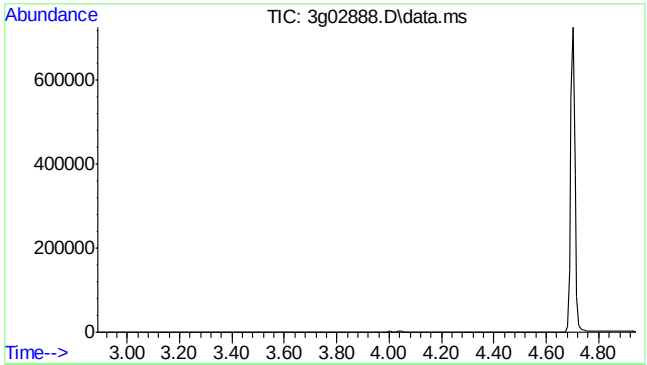
(#) = qualifier out of range (m) = manual integration (+) = signals summed

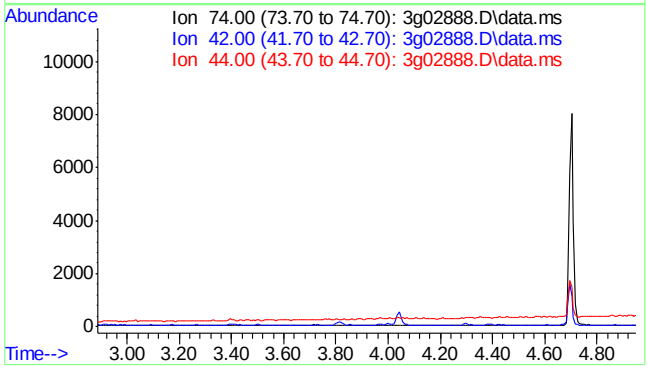
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022211\
Data File : 3g02888.D
Acq On : 22 Feb 2011 11:39 am
Operator : TamiB
Sample : OP3180-MB
Misc : OP3180,E3G103,30,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 23 10:45:16 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G98.M
Quant Title : PAHSIM BASE
QLast Update : Tue Feb 08 09:13:56 2011
Response via : Initial Calibration





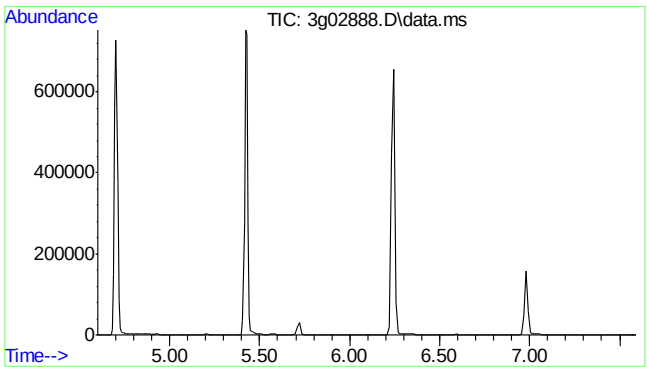


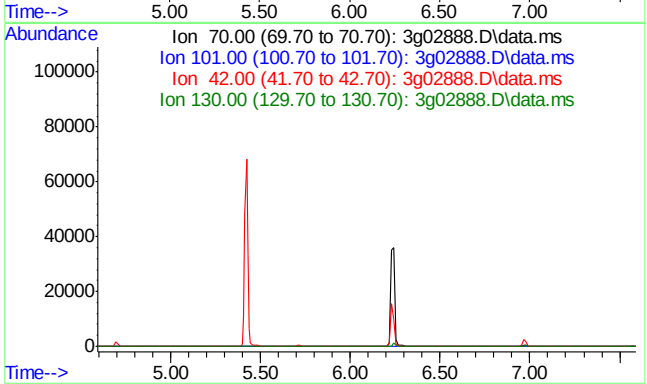
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.45 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	58.9
44	3.5



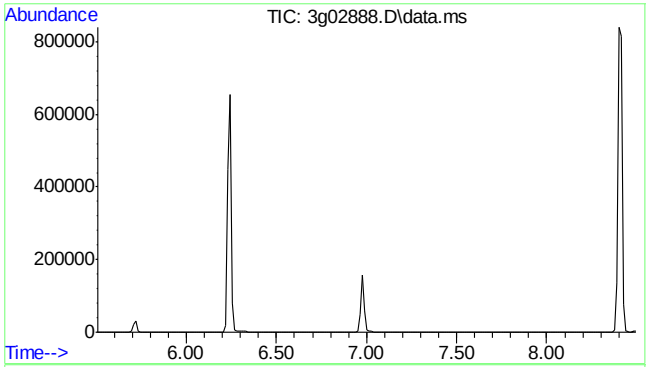


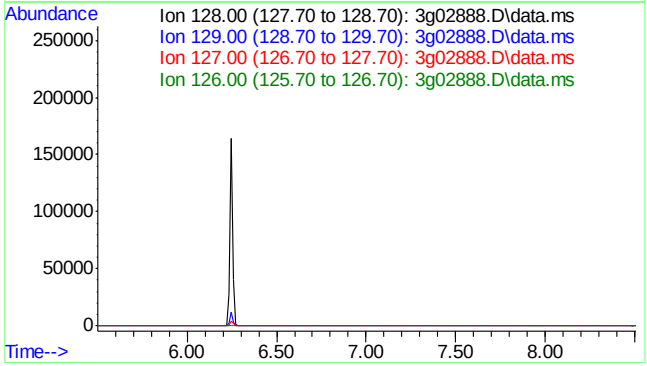
#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 6.09 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 70

Sig	Exp Ratio
70	100
101	10.2
42	40.9
130	23.0



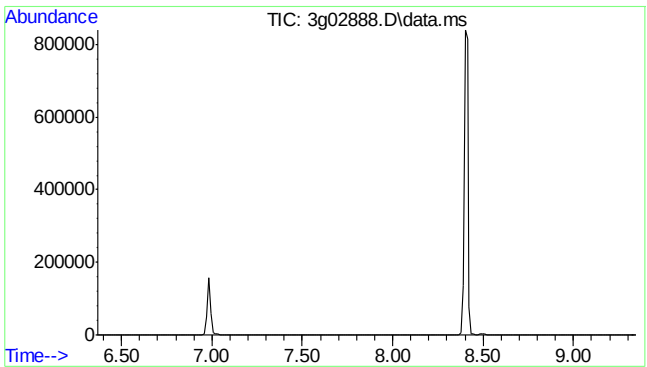


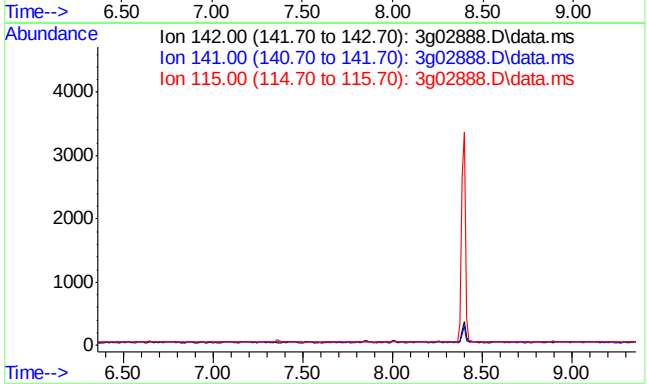
#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 7.00 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 128

Sig	Exp Ratio
128	100
129	10.8
127	12.6
126	7.2



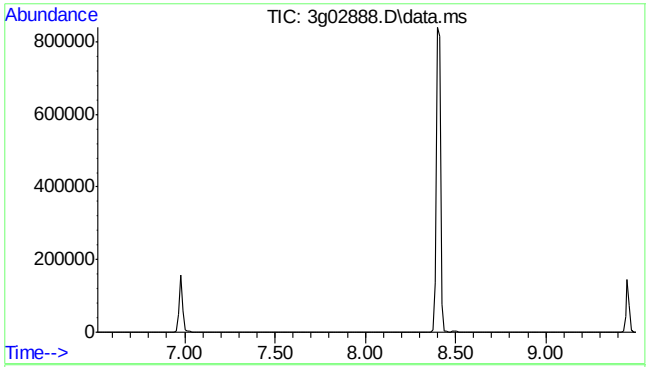


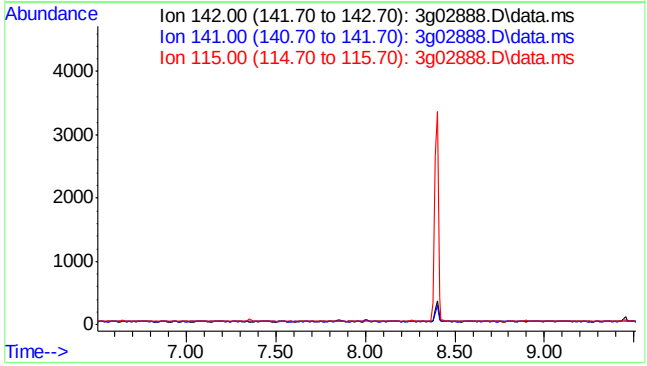
#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.86 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	82.9
115	39.3



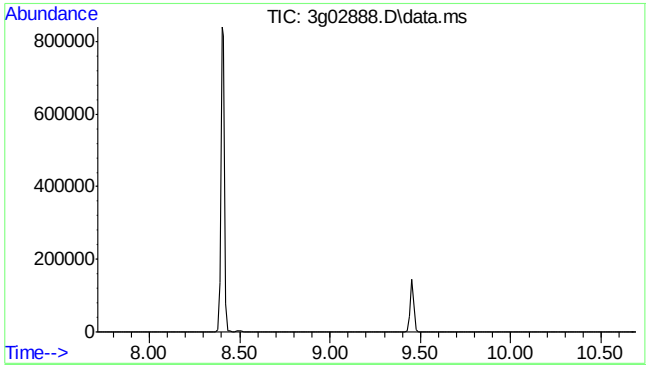


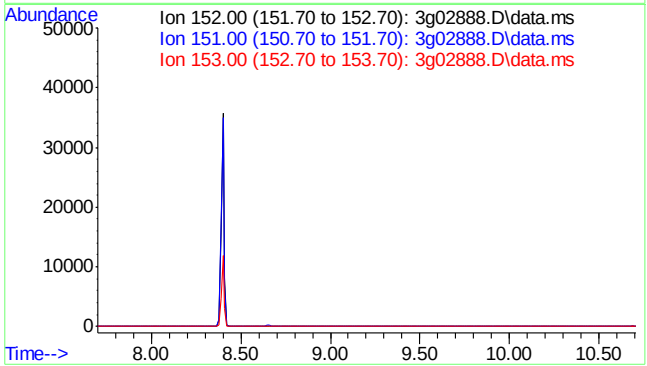
#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 8.01 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	86.3
115	41.0



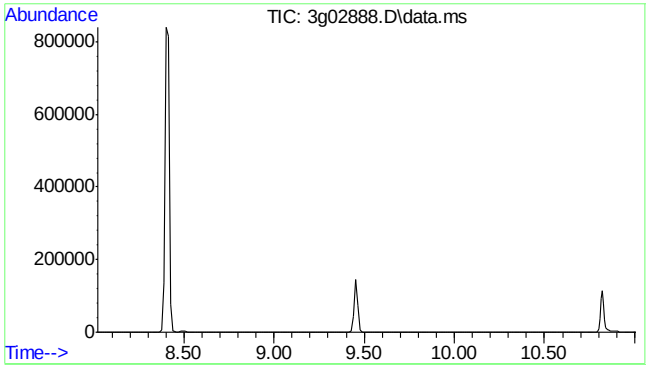


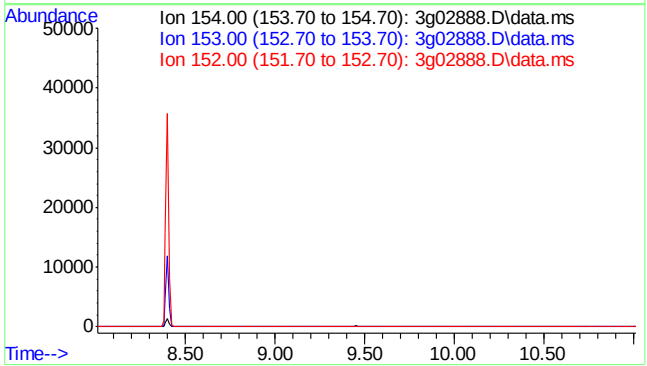
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 9.20 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.1
153	12.9



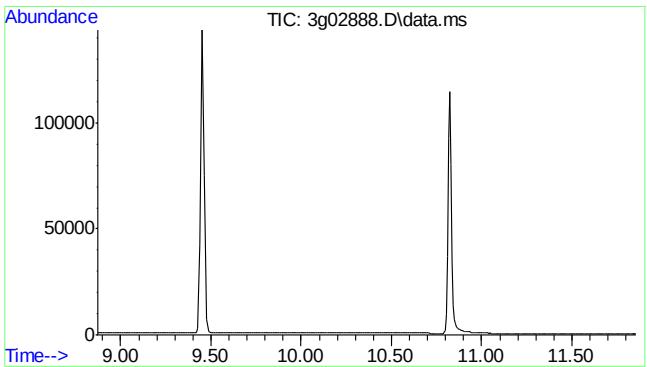


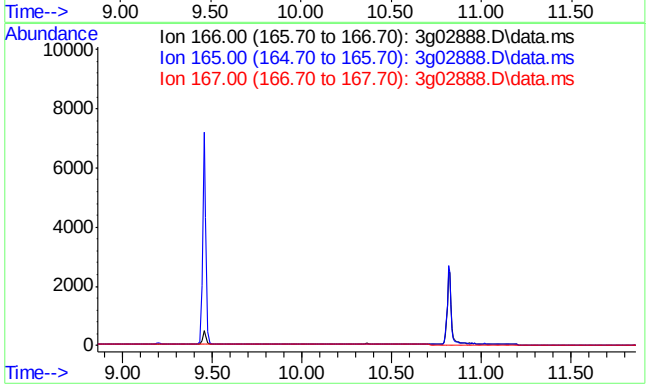
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.51 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	104.7
152	49.8



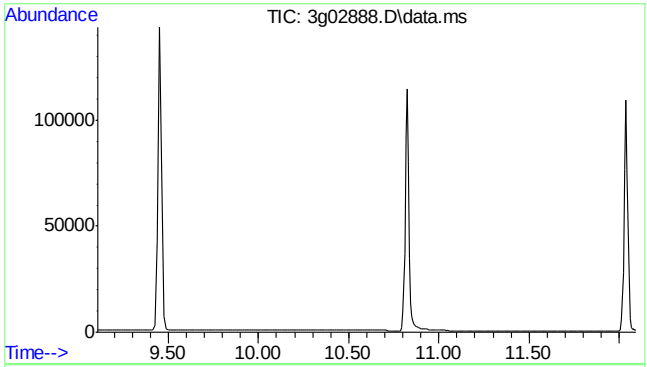


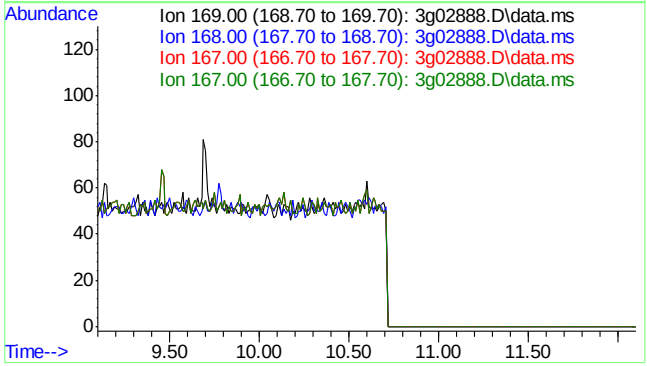
#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 10.36 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	90.4
167	13.4



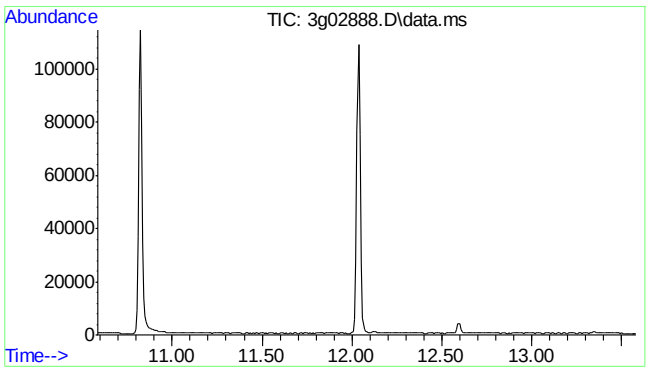


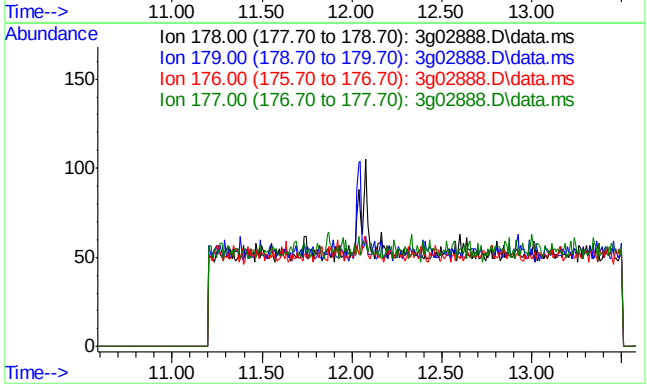
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.60 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	60.7
167	33.0
167	33.0



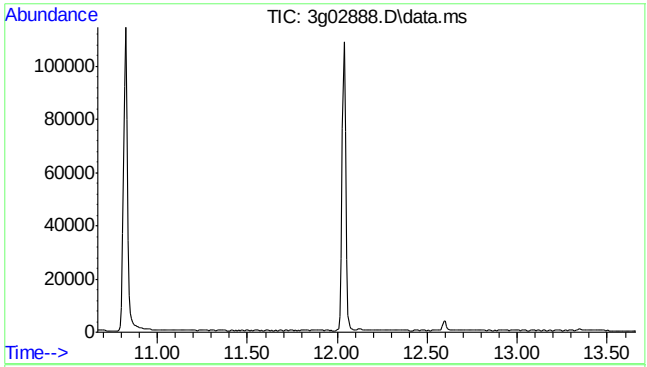


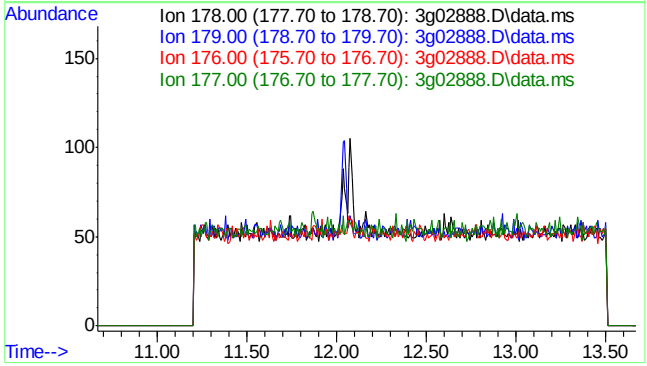
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 12.08 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.2
176	18.4
177	10.4



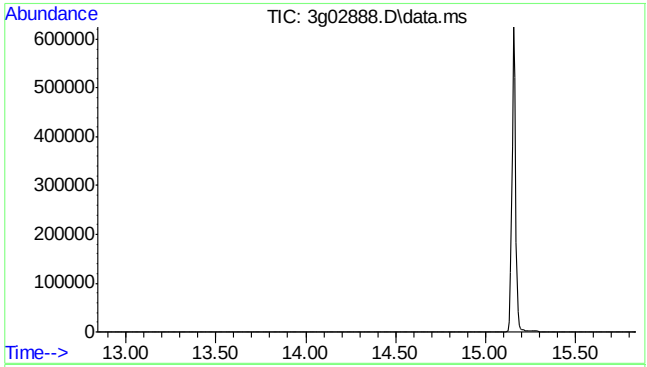


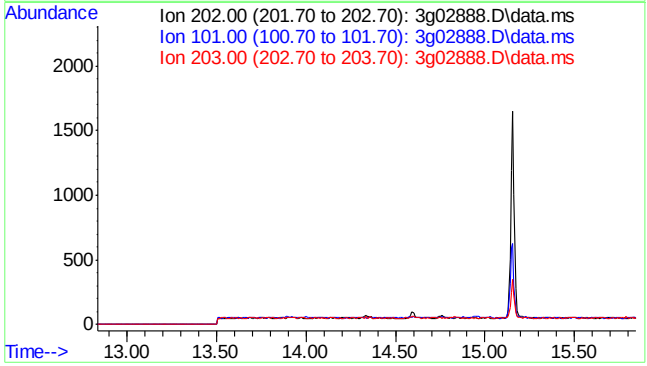
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 12.16 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.4
176	17.6
177	8.7



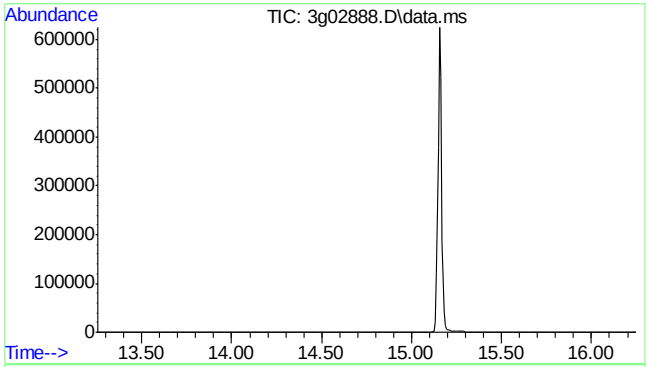


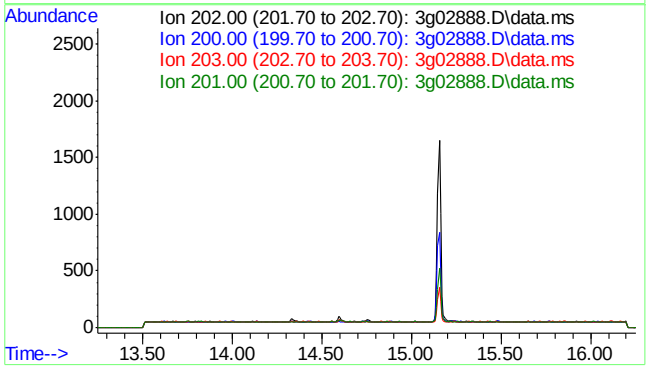
#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 14.34 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 202

Sig	Exp Ratio
202	100
101	16.4
203	17.2



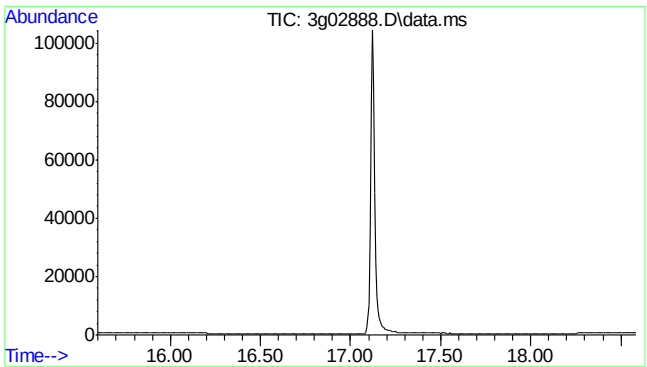


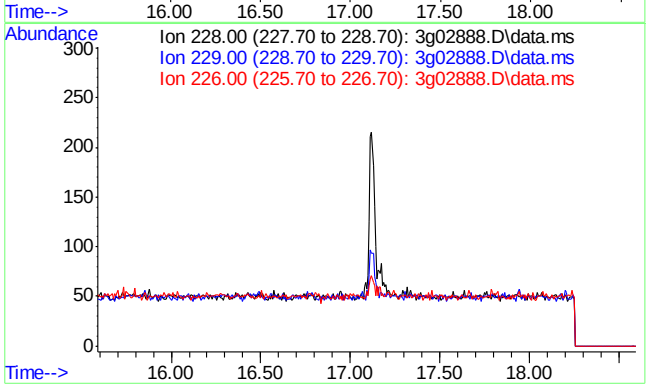
#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.75 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 202

Sig	Exp Ratio
202	100
200	20.0
203	17.6
201	16.6



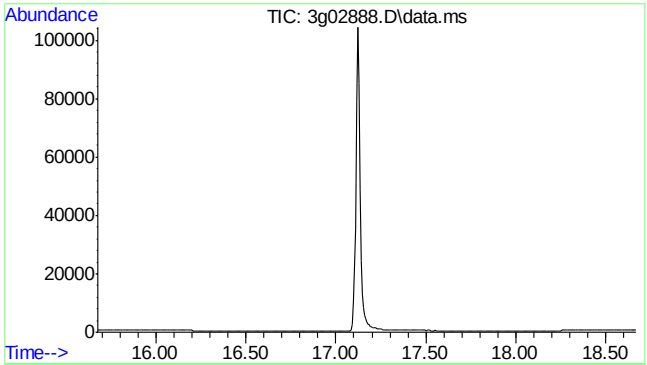


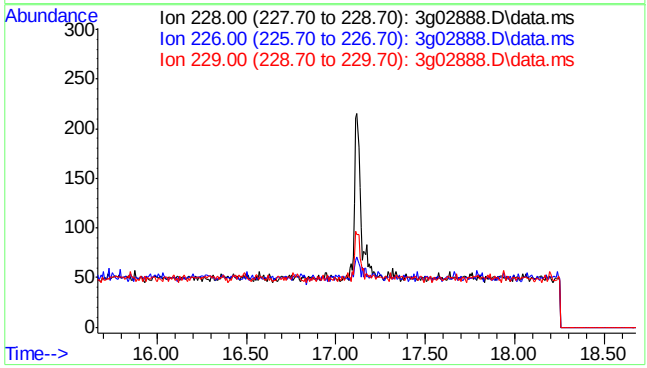
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 17.09 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 228

Sig	Exp Ratio
228	100
229	19.5
226	25.9



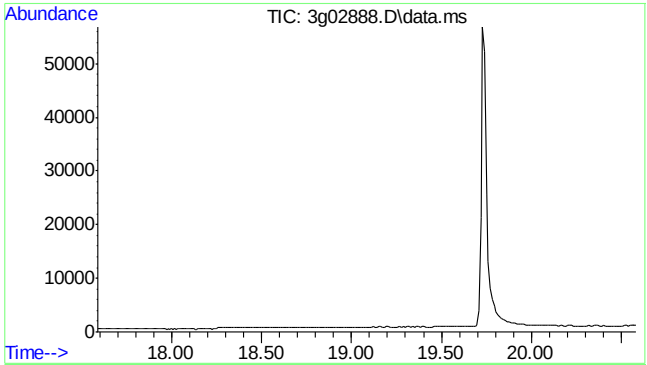


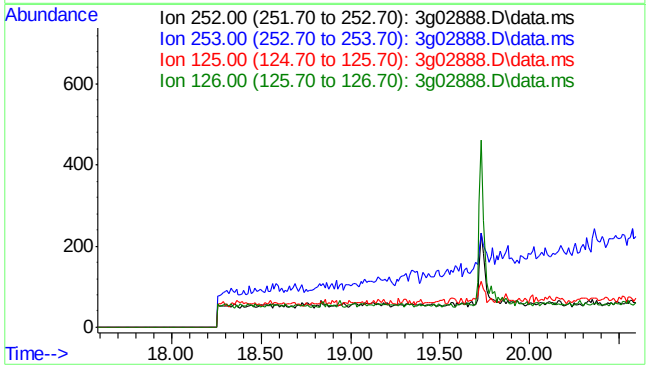
#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 17.17 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 228

Sig	Exp Ratio
228	100
226	28.1
229	19.4



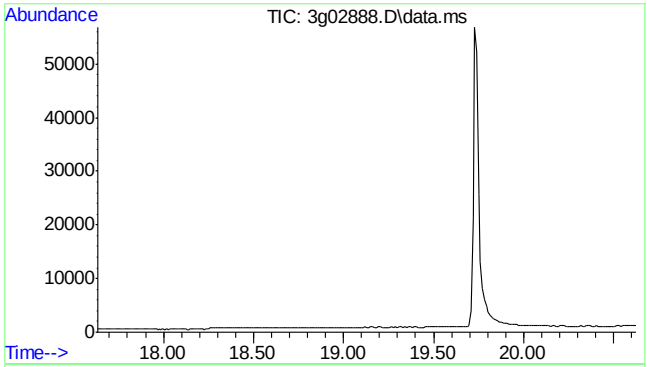


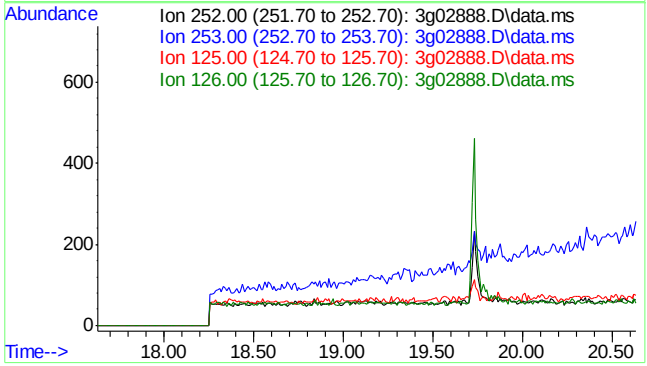
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 19.09 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.5
125	12.1
126	17.0



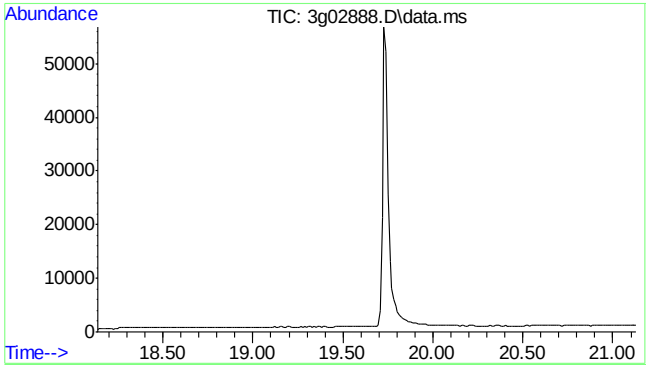


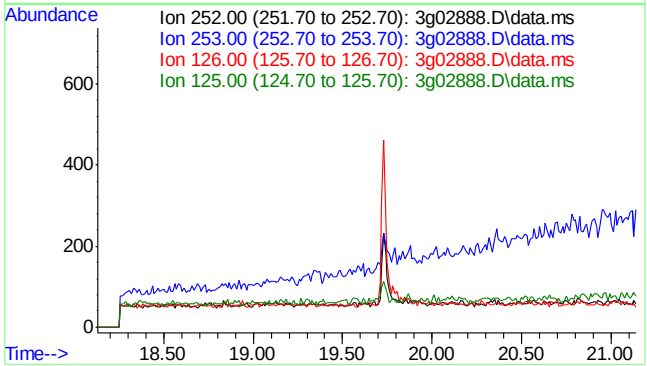
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 19.13 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	20.7
125	14.3
126	21.5



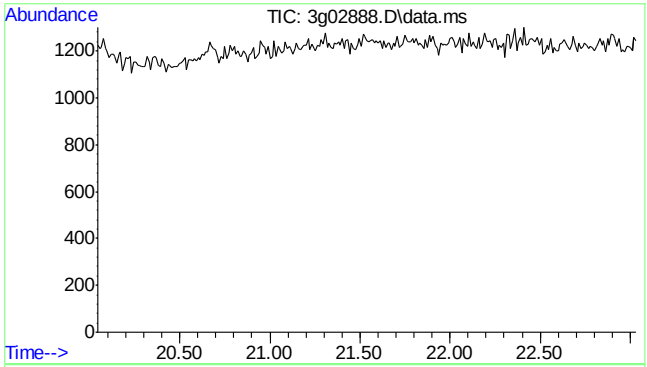


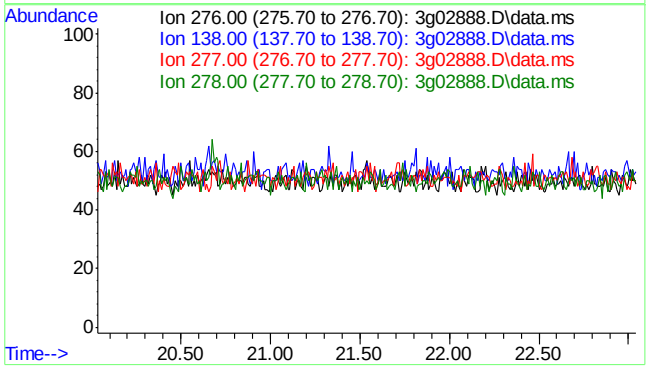
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.63 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.2
126	20.0
125	14.9



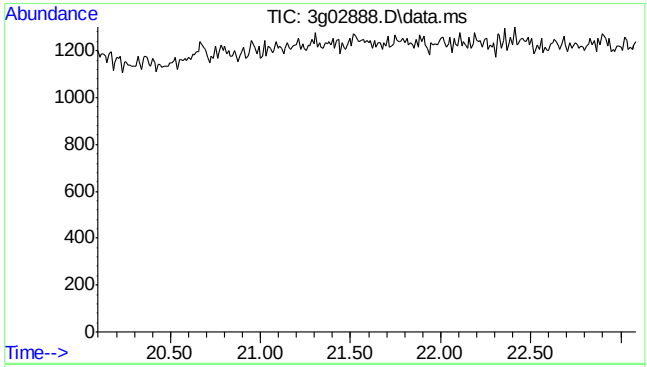


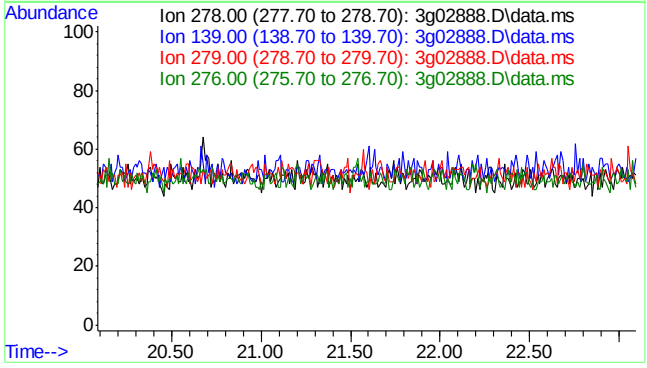
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 21.54 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	24.8
277	51.1
278	165.8



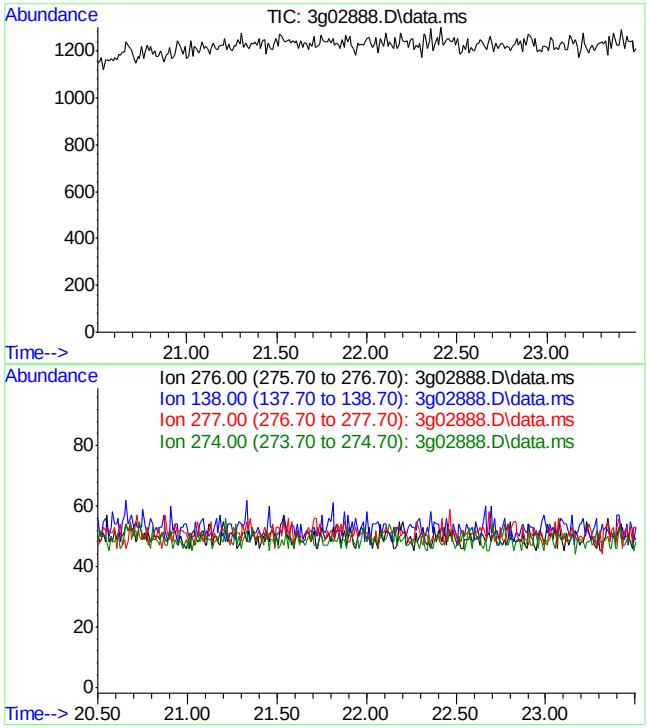


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.59 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	20.7
279	23.4
276	124.7



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 22.00 min

Lab File: 3g02888.D
Acq: 22 Feb 11 11:39 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	27.3
277	24.4
274	21.2

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB516-MB	GB9558.D	1	02/18/11	BR	n/a	n/a	GGB516

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

D21155-1

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

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	98%	60-140%

Blank Spike Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB516-BS	GB9559.D	1	02/18/11	BR	n/a	n/a	GGB516

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

D21155-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	108	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	102%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21158-1MS	GB9561.D	1	02/18/11	BR	n/a	n/a	GGB516
D21158-1MSD	GB9562.D	1	02/18/11	BR	n/a	n/a	GGB516
D21158-1	GB9560.D	1	02/18/11	BR	n/a	n/a	GGB516

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

D21155-1

CAS No.	Compound	D21158-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	43.5		185	206	88	198	83	4	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21158-1	Limits
120-82-1	1,2,4-Trichlorobenzene	149%* [a]	152%* [a]	158%* [a]	60-140%

(a) Outside control limits due to possible matrix interference.

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 02/21/11 14:46

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\021811\GB9568.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\021811\GB9568.D\FID2B.CH
Acq On : 19 Feb 2011 12:07 am Operator: BrianR
Sample : D21155-1, 50X Inst : GC/MS Ins
Misc : GC1673,GGB516,5.008,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 19 13:00:31 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Feb 18 12:40:15 2011
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	14.28	3236899	93.942	%	m
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
	Target Compounds					
1) H	TVH-Gasoline	7.21	5248077	0.084	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	0.00	0	N.D.	ug/L	d
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	0.00	0	N.D.	ug/L	d

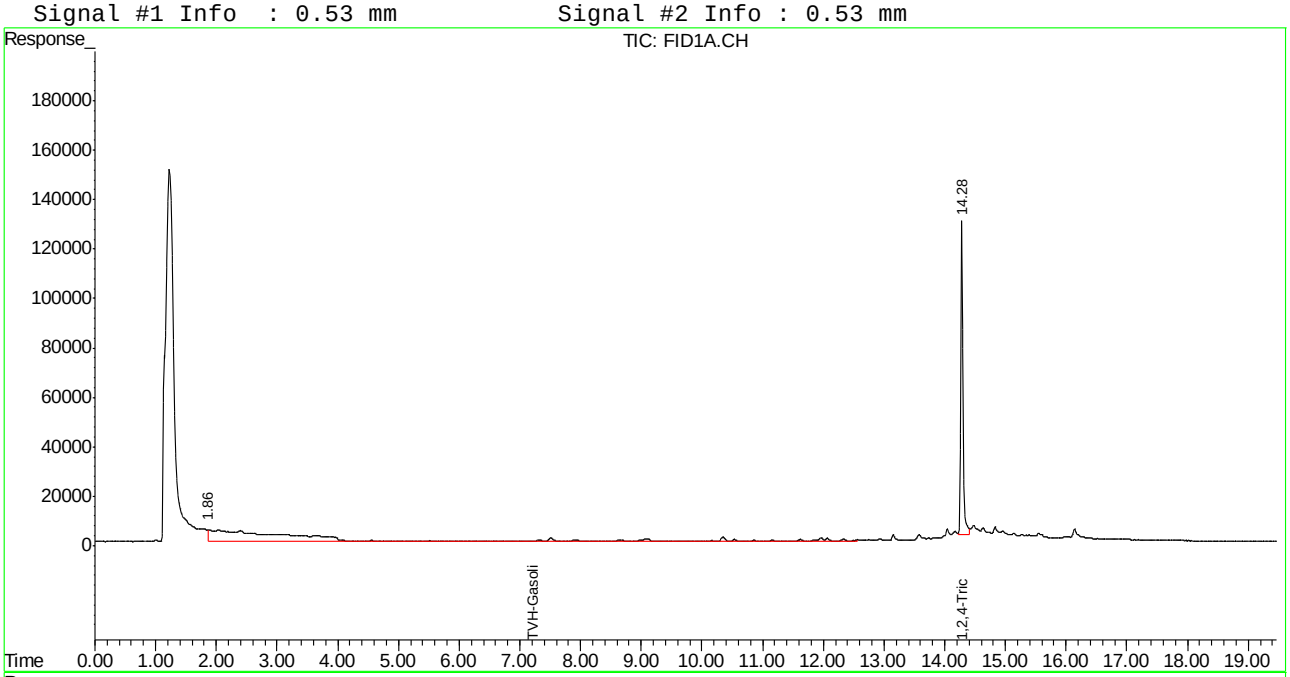
(f)=RT Delta > 1/2 Window (m)=manual int.
GB9568.D TB510GB510.M Sat Feb 19 13:18:10 2011 GC Page 1

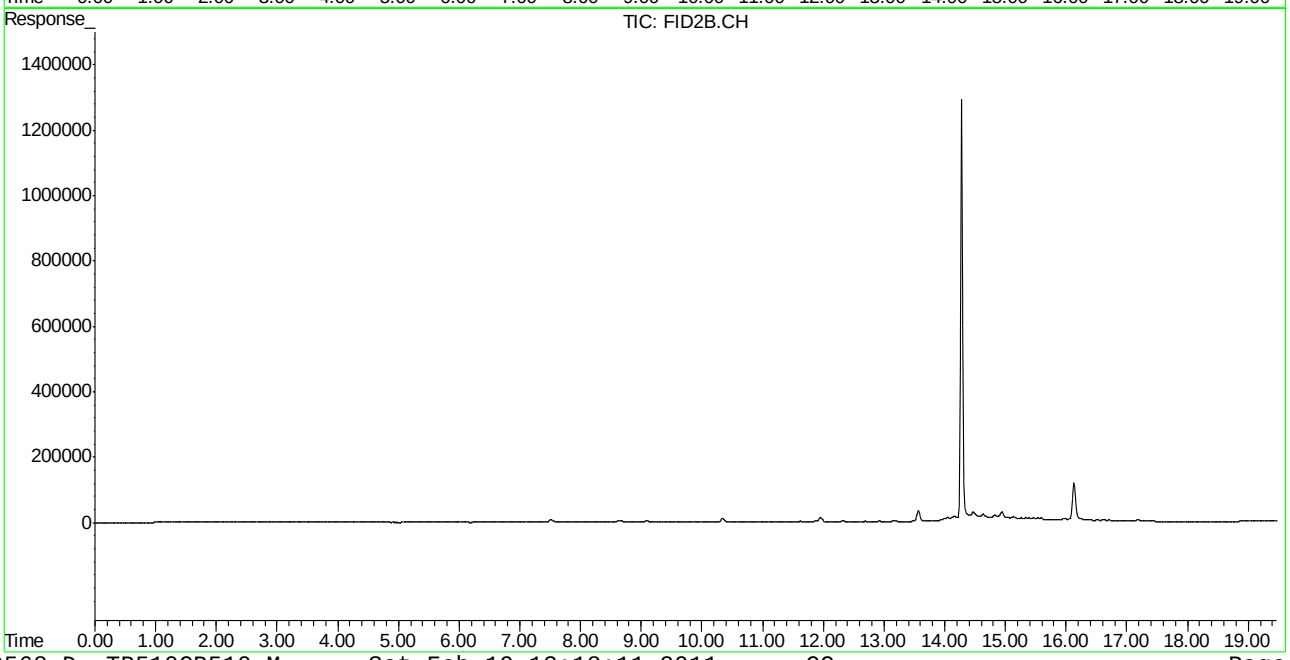
Quantitation Report (QT Reviewed)

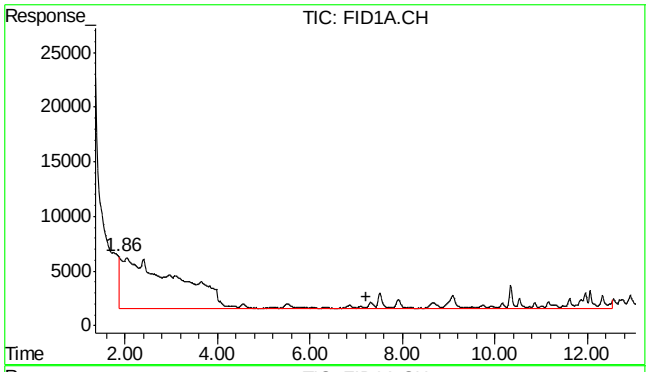
Signal #1 : Y:\1\DATA\021811\GB9568.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\021811\GB9568.D\FID2B.CH
Acq On : 19 Feb 2011 12:07 am Operator: BrianR
Sample : D21155-1, 50X Inst : GC/MS Ins
Misc : GC1673,GGB516,5.008,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 19 12:08 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Feb 18 12:40:15 2011
Response via : Single 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

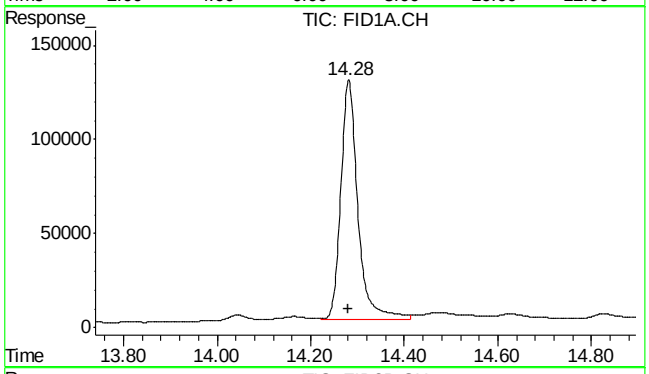






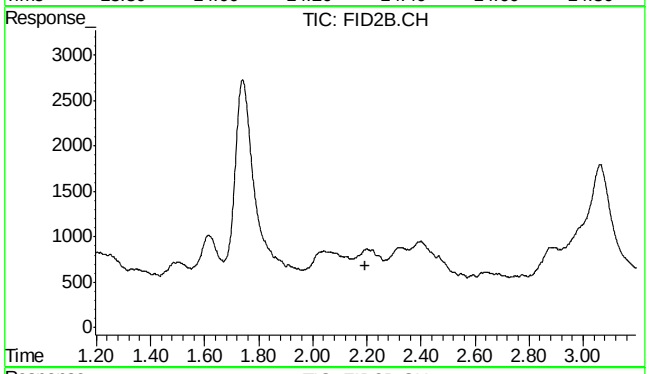
#1 TVH-Gasoline

R.T.: 7.205 min
Delta R.T.: 0.000 min
Response: 5248077
Conc: 0.08 mg/L m



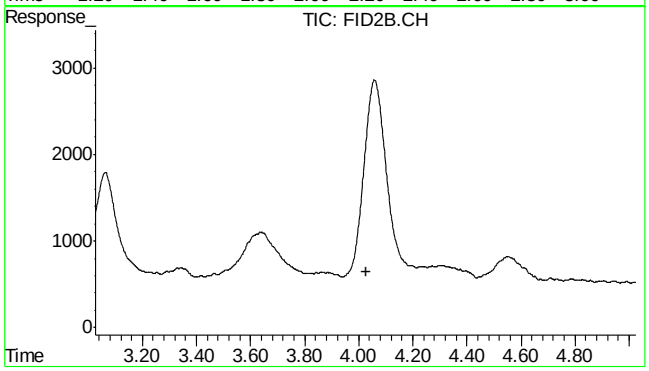
#2 1,2,4-Trichlorobenzene

R.T.: 14.281 min
Delta R.T.: 0.001 min
Response: 3236899
Conc: 93.94 % m



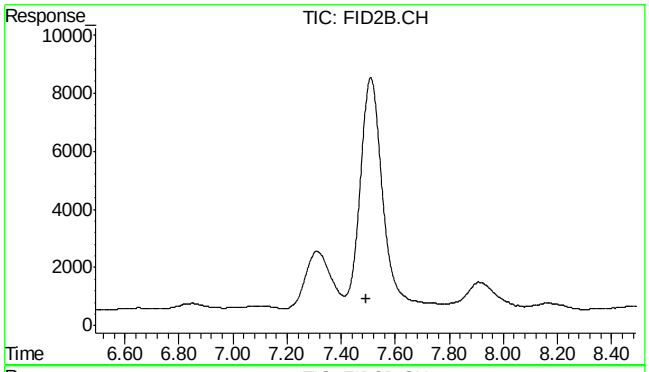
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.195 min
Response: 0
Conc: N.D.



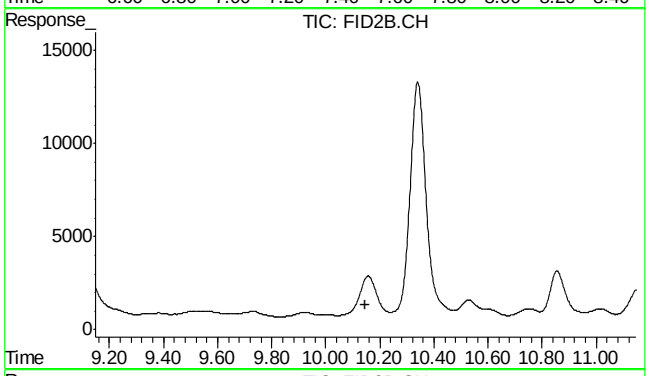
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.026 min
Response: 0
Conc: N.D.



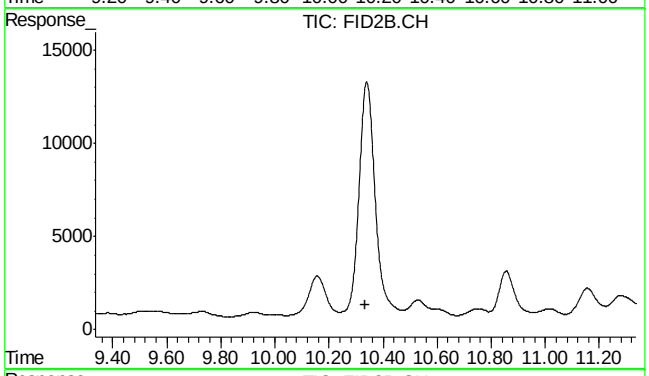
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 7.491 min
Response: 0
Conc: N.D.



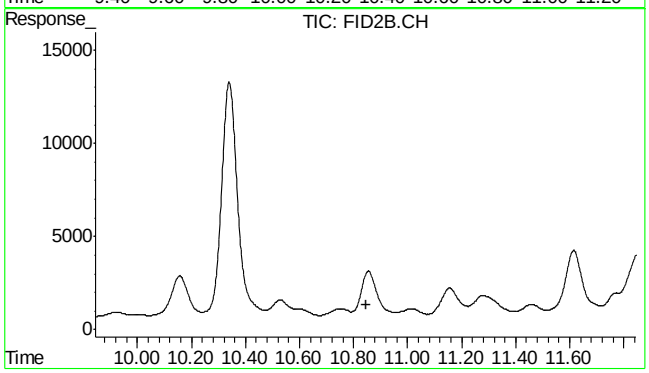
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.147 min
Response: 0
Conc: N.D.



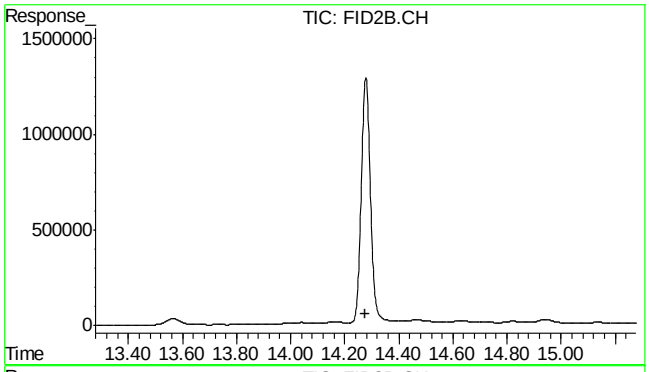
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.336 min
Response: 0
Conc: N.D.



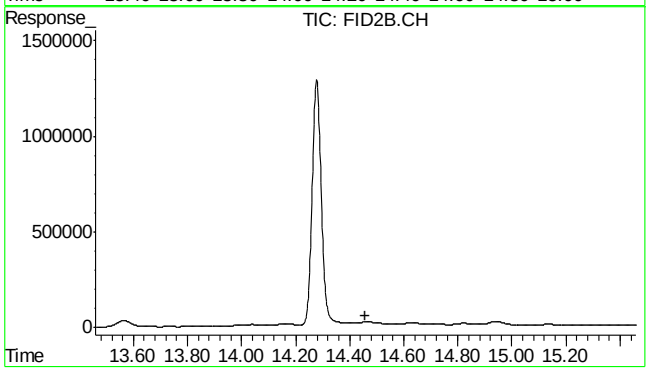
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.845 min
Response: 0
Conc: N.D.



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

R.T.: 0.000 min
Exp R.T. : 14.277 min
Response: 0
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min
Exp R.T. : 14.459 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\021811\GB9558.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\021811\GB9558.D\FID2B.CH
Acq On : 18 Feb 2011 6:09 pm Operator: BrianR
Sample : MB, S Inst : GC/MS Ins
Misc : GC1673,GGB516,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 19 13:00:01 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Feb 18 12:40:15 2011
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

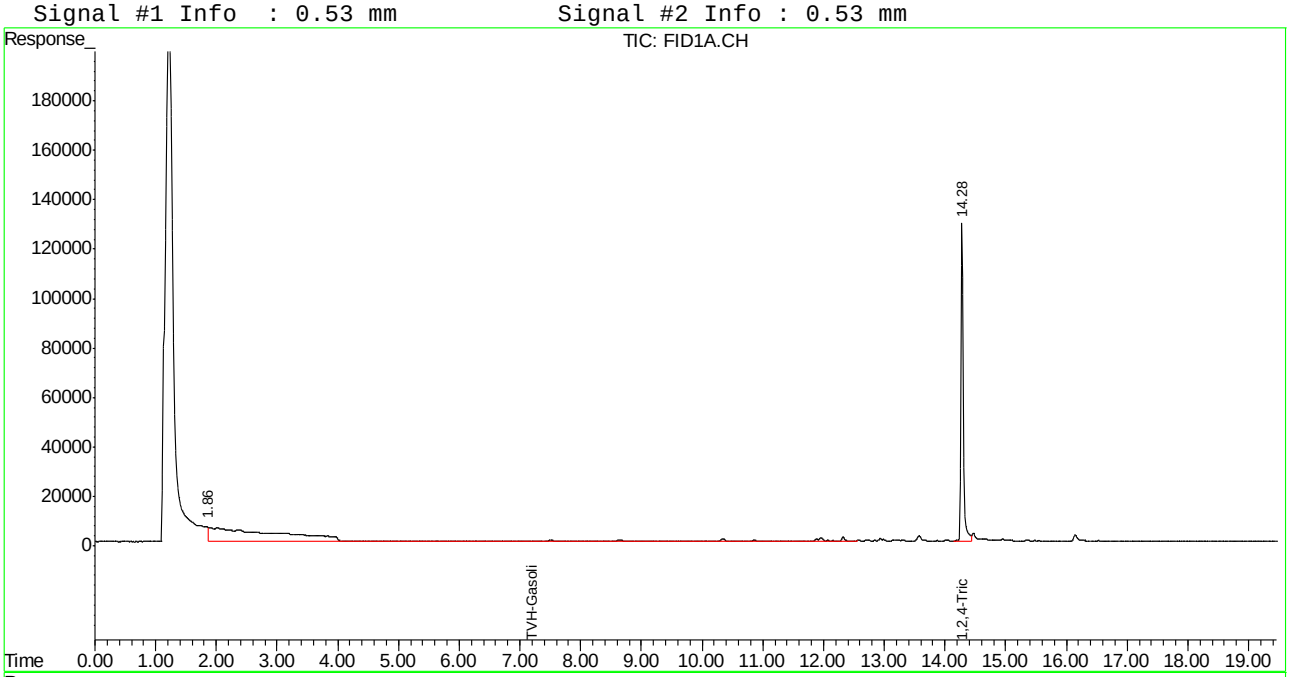
	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.28	3372768	97.885	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
	Target Compounds					
1) H	TVH-Gasoline	7.21	5310330	0.085	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
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	0.00	0	N.D.	ug/L	d

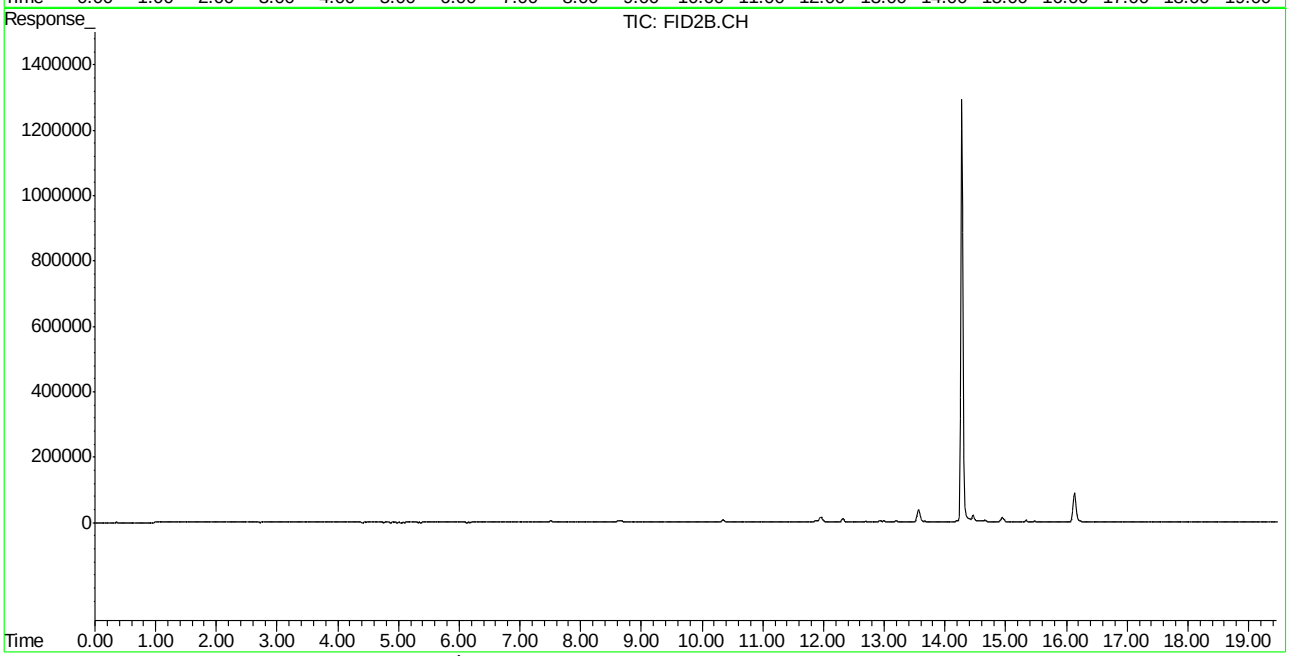
Quantitation Report (QT Reviewed)

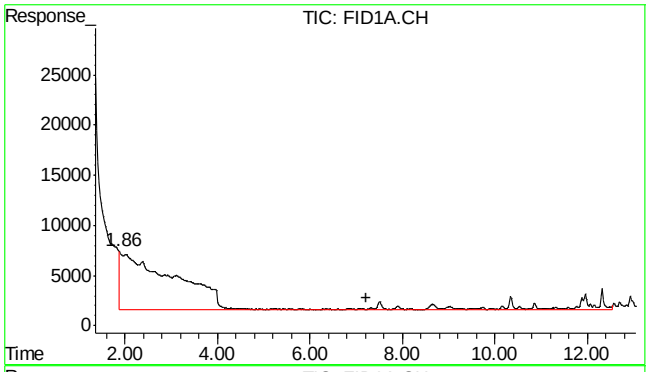
Signal #1 : Y:\1\DATA\021811\GB9558.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\021811\GB9558.D\FID2B.CH
Acq On : 18 Feb 2011 6:09 pm Operator: BrianR
Sample : MB, S Inst : GC/MS Ins
Misc : GC1673,GGB516,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 19 12:02 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Feb 18 12:40:15 2011
Response via : Single 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

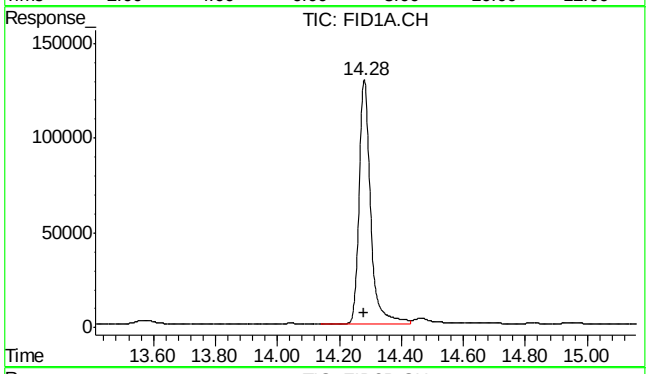






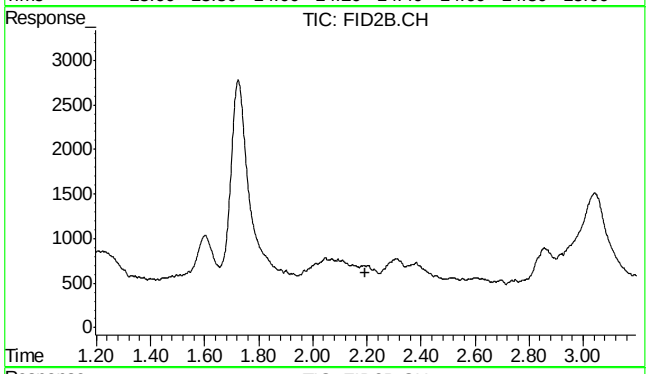
#1 TVH-Gasoline

R.T.: 7.205 min
Delta R.T.: 0.000 min
Response: 5310330
Conc: 0.08 mg/L m



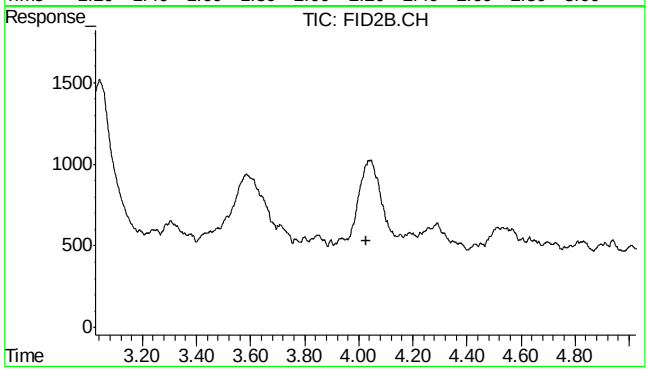
#2 1,2,4-Trichlorobenzene

R.T.: 14.281 min
Delta R.T.: 0.000 min
Response: 3372768
Conc: 97.89 %



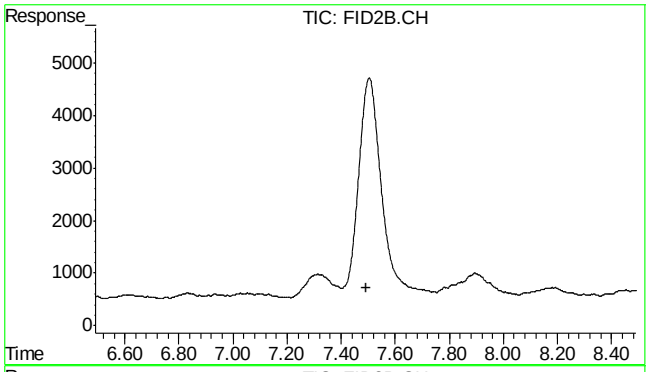
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.195 min
Response: 0
Conc: N.D.



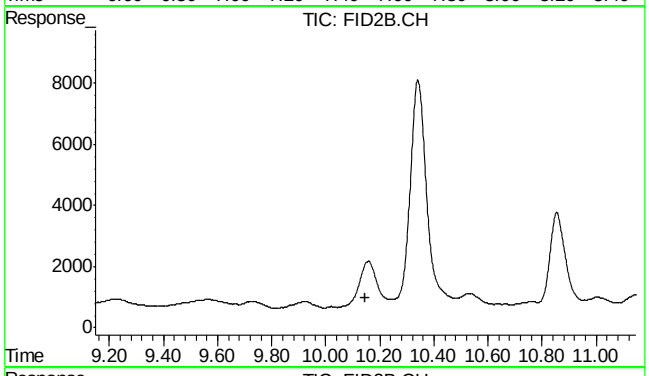
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.026 min
Response: 0
Conc: N.D.



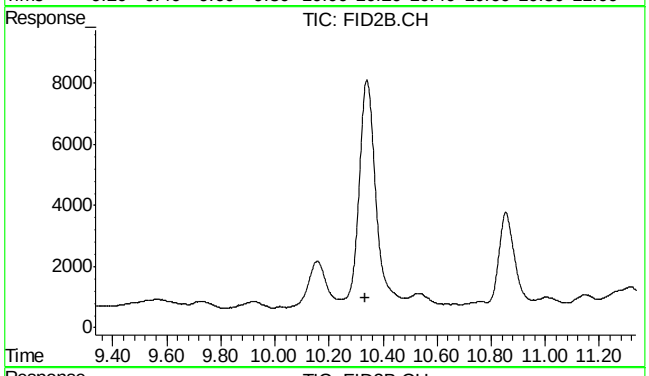
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 7.491 min
Response: 0
Conc: N.D.



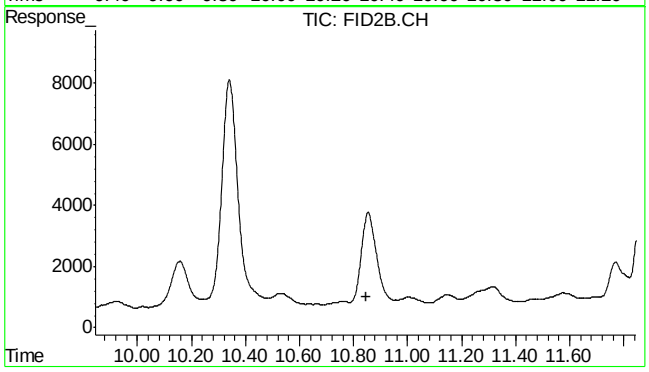
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.147 min
Response: 0
Conc: N.D.



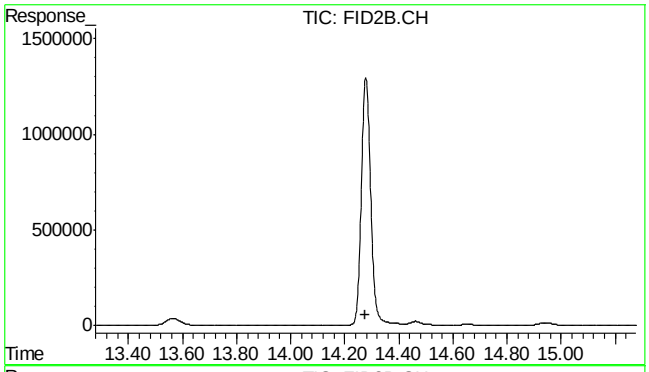
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.336 min
Response: 0
Conc: N.D.



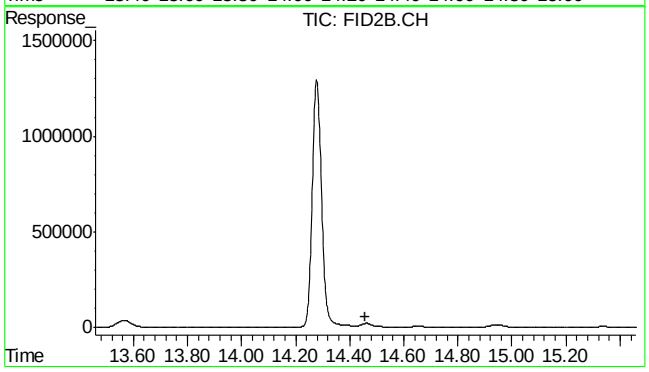
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.845 min
Response: 0
Conc: N.D.



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

R.T.: 0.000 min
Exp R.T. : 14.277 min
Response: 0
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min
Exp R.T. : 14.459 min
Response: 0
Conc: N.D.

Mountain States ACCUTEST LABORATORIES

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

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3185-MB	FE5957.D	1	02/22/11	JB	02/21/11	OP3185	GFE298

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

D21155-1

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	129%	63-130%

Blank Spike Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3185-BS	FE5931.D	1	02/21/11	JB	02/21/11	OP3185	GFE298

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

D21155-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	645	97	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	125%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21155
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3185-MS	FE5932.D	1	02/21/11	JB	02/21/11	OP3185	GFE298
OP3185-MSD	FE5933.D	1	02/21/11	JB	02/21/11	OP3185	GFE298
D21157-1	FE5934.D	1	02/21/11	JB	02/21/11	OP3185	GFE298

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

D21155-1

CAS No.	Compound	D21157-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	114		821	803	84	902	96	12	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21157-1	Limits
84-15-1	o-Terphenyl	120%	128%	118%	63-130%

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 02/22/11 13:45

Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE298\FE5940.D Vial: 17
Acq On : 21 Feb 2011 11:23 pm Operator: JacobB
Sample : D21155-1 Inst : FID6
Misc : OP3185,GFE298,30.08,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Feb 22 09:14:39 2011 Quant Results File: DF-GFE284.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE284.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Feb 17 12:13:48 2011
Response via : Initial Calibration
DataAcq Meth : FR_BASE2.M

Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
1) S	O-Terphenyl	13.34	80061370	1174.985	mg/L	m
	Target Compounds					
2) H	Diesel Fuel (No. 2)	11.52	29596721	416.041	mg/L	

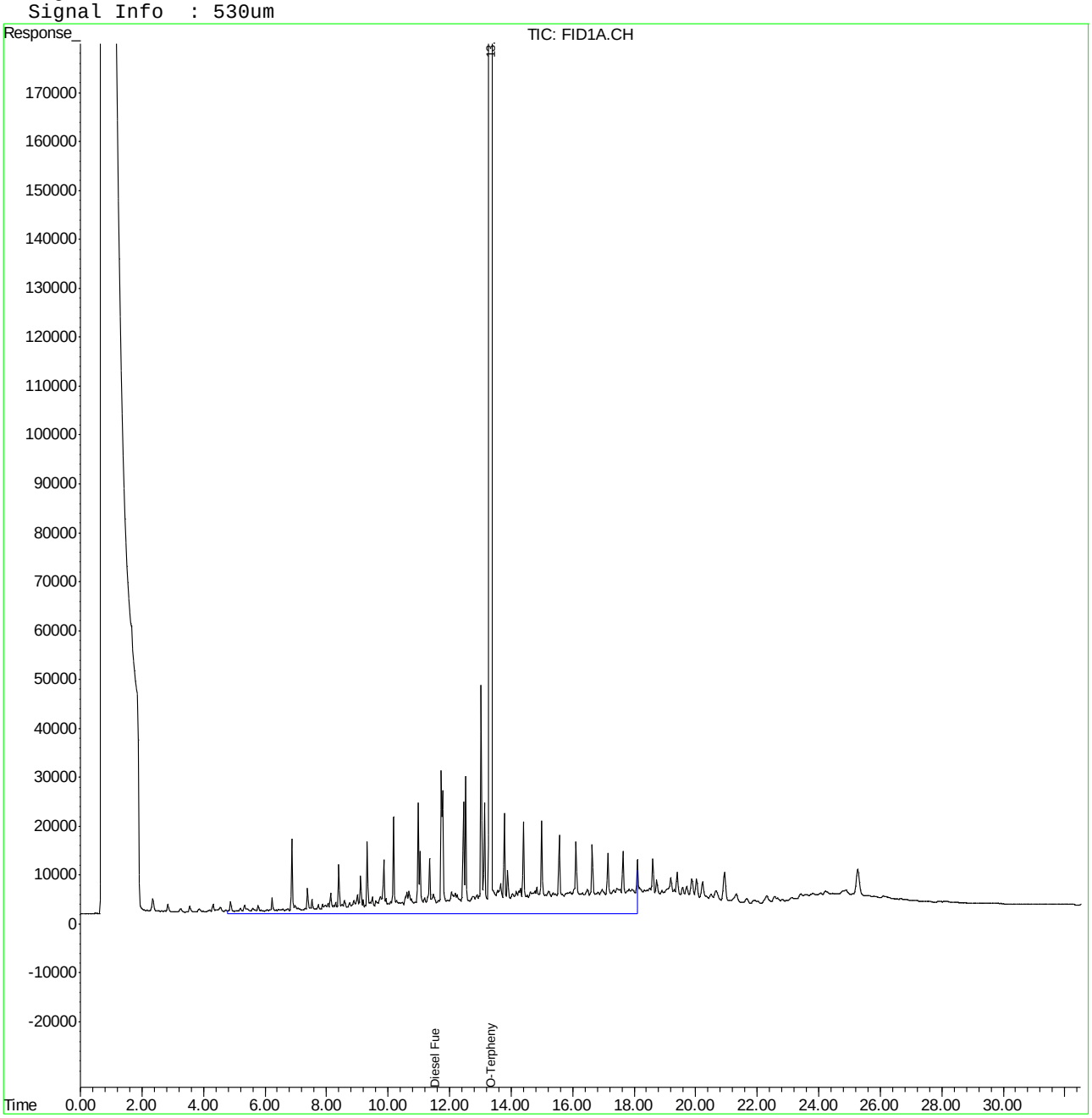
(f)=RT Delta > 1/2 Window (m)=manual int.
FE5940.D DF-GFE284.M Tue Feb 22 10:26:32 2011 TEH Page 1

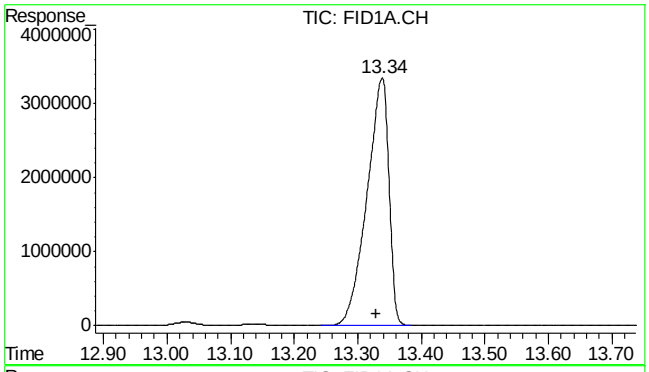
Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE298\FE5940.D Vial: 17
Acq On : 21 Feb 2011 11:23 pm Operator: JacobB
Sample : D21155-1 Inst : FID6
Misc : OP3185,GFE298,30.08,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Feb 22 8:24 2011 Quant Results File: DF-GFE284.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE284.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Feb 17 12:13:48 2011
Response via : Multiple Level Calibration
DataAcq Meth : FR_BASE2.M

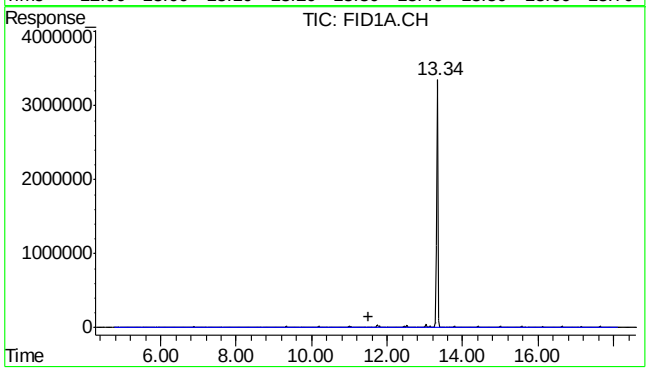
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 13.338 min
Delta R.T.: 0.008 min
Response: 80061370
Conc: 1174.99 mg/L m



#2 Diesel Fuel (No. 2)

R.T.: 11.515 min
Delta R.T.: 0.000 min
Response: 29596721
Conc: 416.04 mg/L m

Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE298\FE5957.D Vial: 34
Acq On : 22 Feb 2011 11:11 am Operator: JacobB
Sample : OP3185-MB Inst : FID6
Misc : OP3185,GFE298,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Feb 22 12:20:43 2011 Quant Results File: DF-GFE284.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE284.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Feb 22 09:47:48 2011
Response via : Initial Calibration
DataAcq Meth : FR_BASE2.M

Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um

	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
1) S	O-Terphenyl	13.34	87865750	1294.132	mg/L
	Target Compounds				
2) H	Diesel Fuel (No. 2)	11.52	3802725	53.407	mg/L

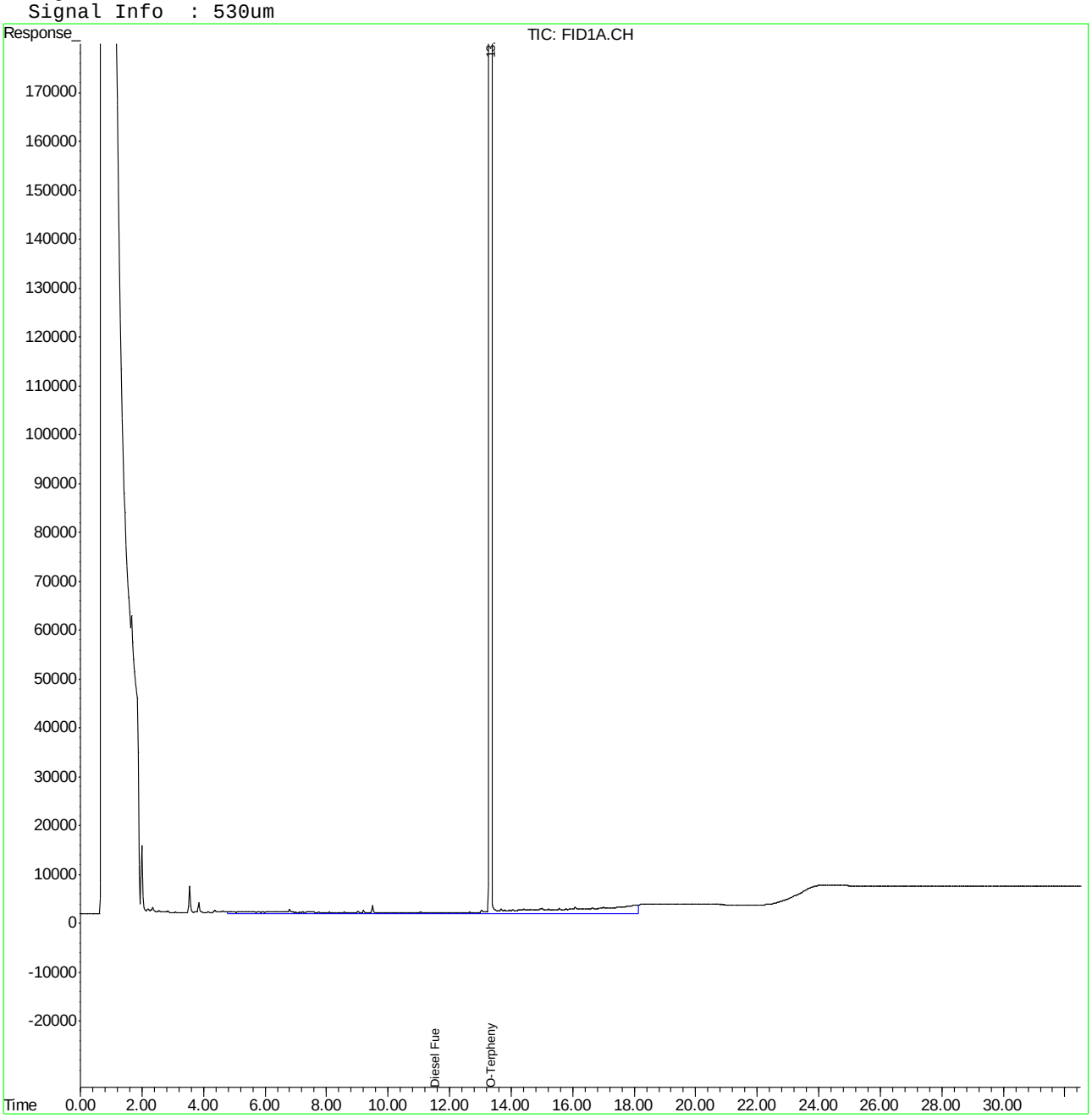
(f)=RT Delta > 1/2 Window (m)=manual int.
FE5957.D DF-GFE284.M Tue Feb 22 12:26:07 2011 TEH Page 1

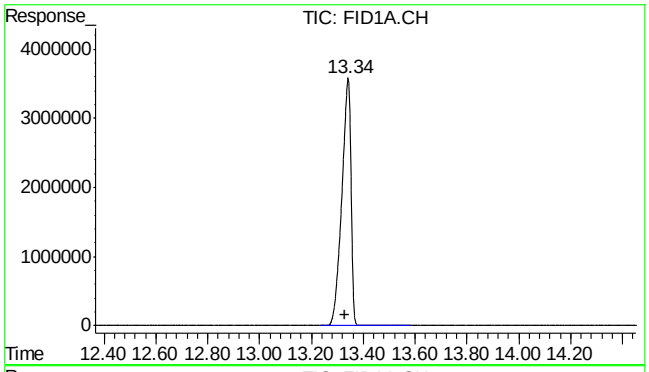
Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE298\FE5957.D Vial: 34
Acq On : 22 Feb 2011 11:11 am Operator: JacobB
Sample : OP3185-MB Inst : FID6
Misc : OP3185,GFE298,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Feb 22 11:25 2011 Quant Results File: DF-GFE284.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE284.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Feb 22 09:47:48 2011
Response via : Multiple Level Calibration
DataAcq Meth : FR_BASE2.M

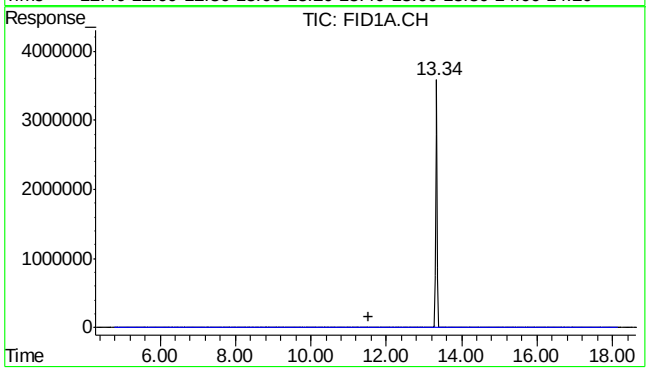
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 13.341 min
Delta R.T.: 0.011 min
Response: 87865750
Conc: 1294.13 mg/L



#2 Diesel Fuel (No. 2)

R.T.: 11.515 min
Delta R.T.: 0.000 min
Response: 3802725
Conc: 53.41 mg/L m

Mountain States ACCUTEST LABORATORIES

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 02/21/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	2		
Antimony	3.0	.17	.5		
Arsenic	2.5	.28	.72		
Barium	1.0	.014	.05	0.37	<1.0
Beryllium	1.0	.14	.21		
Boron	5.0	.35	.91		
Cadmium	1.0	.022	.12	0.030	<1.0
Calcium	40	1.7	2.7		
Chromium	1.0	.027	.18	0.0	<1.0
Cobalt	0.50	.048	.058		
Copper	1.0	.16	.38	-0.18	<1.0
Iron	7.0	.77	.91		
Lead	5.0	.13	.24	-0.13	<5.0
Lithium	0.20	.076	.09		
Magnesium	20	.58	.93		
Manganese	0.50	.021	.028		
Molybdenum	1.0	.041	.16		
Nickel	3.0	.038	.075	-0.10	<3.0
Phosphorus	10	1.5	3.5		
Potassium	200	38	130		
Selenium	5.0	.28	.54	-0.020	<5.0
Silicon	5.0	1.2	.68		
Silver	3.0	.098	.068	0.040	<3.0
Sodium	40	23	6.3		
Strontium	5.0	.0091	.02		
Thallium	1.0	.31	.21		
Tin	5.0	1.4	.56		
Titanium	1.0	.0098	.041		
Uranium	5.0	.22	.53		
Vanadium	1.0	.027	.034		
Zinc	3.0	.076	.49	0.10	<3.0

Associated samples MP4056: D21155-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	1490	1640	268	56.1 (a)	75-125
Beryllium					
Boron					
Cadmium	0.096	55.5	66.9	82.8	75-125
Calcium					
Chromium	29.3	83.6	66.9	81.2	75-125
Cobalt					
Copper	8.9	67.8	66.9	88.0	75-125
Iron					
Lead	12.0	121	134	81.5	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	12.7	64.5	66.9	77.4	75-125
Phosphorus					
Potassium					
Selenium	2.1	112	134	82.1	75-125
Silicon					
Silver	0.20	23.0	26.8	85.2	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	38.8	86.8	66.9	71.8N(b)	75-125

Associated samples MP4056: D21155-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	1490	1710	265	83.0	4.2	20
Beryllium						
Boron						
Cadmium	0.096	55.5	66.2	83.6	0.0	20
Calcium						
Chromium	29.3	85.4	66.2	84.7	2.1	20
Cobalt						
Copper	8.9	67.0	66.2	87.7	1.2	20
Iron						
Lead	12.0	121	132	82.3	0.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	12.7	65.5	66.2	79.7	1.5	20
Phosphorus						
Potassium						
Selenium	2.1	112	132	83.0	0.0	20
Silicon						
Silver	0.20	22.9	26.5	85.7	0.4	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	38.8	89.6	66.2	76.7	3.2	20

Associated samples MP4056: D21155-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 02/21/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	179	200	89.5	80-120
Beryllium				
Boron				
Cadmium	41.7	50	83.4	80-120
Calcium				
Chromium	44.2	50	88.4	80-120
Cobalt				
Copper	42.6	50	85.2	80-120
Iron				
Lead	86.4	100	86.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	43.5	50	87.0	80-120
Phosphorus				
Potassium				
Selenium	89.0	100	89.0	80-120
Silicon				
Silver	18.3	20	91.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	41.6	50	83.2	80-120

Associated samples MP4056: D21155-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 02/21/11

Metal	D21155-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	10900	11600	6.8	0-10
Beryllium				
Boron				
Cadmium	0.700	0.00	100.0(a)	0-10
Calcium				
Chromium	215	234	8.7	0-10
Cobalt				
Copper	65.4	53.0	19.0 (a)	0-10
Iron				
Lead	88.0	76.0	13.6*(b)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	93.1	103	10.6*(b)	0-10
Phosphorus				
Potassium				
Selenium	15.2	35.5	133.6(a)	0-10
Silicon				
Silver	1.50	5.00	233.3(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	284	335	17.6*(b)	0-10

Associated samples MP4056: D21155-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4056
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4057
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 02/21/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.19	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP4057: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4057
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	2.3	119	134	87.2	60-119
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 MP4057: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4057 Methods: SW846 6020
Matrix Type: SOLID Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	2.3	125	132	92.6	4.9	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 MP4057: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4057
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 02/21/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	88.5	100	88.5	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 MP4057: D21155-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4057
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 02/21/11

Metal	D21155-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	16.6	15.9	4.7	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 MP4057: D21155-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4061
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 02/21/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	0.0020	<0.10

Associated samples MP4061: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4061
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0040	0.55	0.53	103.0	85-115

Associated samples MP4061: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4061
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 02/21/11

Metal	D21155-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0040	0.51	0.52	97.4	7.5	20

Associated samples MP4061: D21155-1

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: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4061
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 02/21/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.41	0.4	102.5	80-120

Associated samples MP4061: D21155-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date: 02/22/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	14.0	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	2.0	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	-450	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4073: D21155-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date: 02/22/11

Metal	D21167-3A Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	17100	147000	125000	103.9	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1580	127000	125000	100.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	266000	408000	125000	113.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4073: D21155-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date: 02/22/11

Metal	D21167-3A Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	17100	145000	125000	102.3	1.4	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	1580	127000	125000	100.3	0.0	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	266000	392000	125000	100.8	4.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4073: D21155-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date: 02/22/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	127000	125000	101.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	125000	125000	100.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4073: D21155-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

QC Batch ID: MP4073
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21155
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 296-7A Cuttings Bottom

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP3822/GN8367			umhos/cm	9985	10200	102.2	90-110%
pH	GN8331			su	8.00	7.97	99.6	99.3-100.7%
pH	GN8331			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GN8331: D21155-1
Batch GP3822: D21155-1
(*) Outside of QC limits

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D21155
Accutest Quote #:	
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information			Analytical Information					
Name: Accutest Mountain States (AMS)			Name: Accutest - New England								
Address: 4036 Youngfield St.			Address: 495 Technology Center West, BLDG C								
City: Wheat Ridge,	State: CO	Zip: 80033	City: Marlborough	State: MA	Zip: 01752						
Send Report to: Tiffany Pham			Contact: Sample Management								
Any questions contact: Amanda Kissell											
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (508) 481-6200								

	Collection					Preservation									
Field ID / Point of Collection	Date	Time		Matrix	# of bottles	HCL	NaOH	HNO3	H2So4	None	EH	XCRA			Comments
D21155 -1	2/16/11	12:00 PM		Soil	1						X	X			
-															
-															

Turnaround Information

[X] 3 - 5 Business Day Rush — Approved By:
[ ] Other _____ (Days)

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

[ ] Commercial "A"
[ ] Commercial "B"
[ ] Commercial "BN"
[ ] Reduced Tier 1
[ ] Full Tier 1
[ ] PDF
[ ] Compact Disk Deliverable
[ ] Electronic Delivery:
[ ] State Forms
[ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

15C

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by: 1		Date & Time: 2/18/11	Received By: 1 Fed x		Date & Time: 1	For Subcontract Laborartory Use Only	
Relinquished by: 2 Fed x		Date & Time:	Received By: 2		Date & Time: 2/19/11 1035	Seal #:	Headspace: Yes [ ] No [ ] NA [ ]
Relinquished by: 3		Date & Time:	Received By: 3		Date & Time: 3	Preserved where applicable: [ ]	
						Temperature °C 6.0	On Ice [ ]

15.1 15

D21155: Chain of Custody
Page 1 of 3
Accutest Labs of New England, Inc.

Accutest Mountain States Laboratory (AMS)
Subcontractor Order

Date/Time: 2/18/11 10:05 AM
Accutest Job No. D21155
Client Project:
CSR: Amanda Kissell

Sub Lab: Accutest - New England
Address: 495 Technology Center West, BLDG One
Marlborough MA 01752
Contact: Sample Management
Phone: (508) 481-6200

Sample #:	Analyses
D21155 - 1	EH / XCRA
0	
0	
0	
0	
0	
0	
0	
Turn Around	3 - 5 Business Day Rush

Sample Managment receipt: _____ **Date:** _____

(Print form and sign/date. Submit this form to Login Dept. with the SUB COC.)

e/sop_new/subform

D21155: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D21155 **Client:** AMS **Immediate Client Services Action Required:** No

Date / Time Received: 2/19/2011 **Delivery Method:** **Client Service Action Required at Login:** No

Project: D21155 **No. Coolers:** 1 **Airbill #'s:** N/A

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21155
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 296-7A Cuttings Bottom

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP12639/GN34184	0.40	0.0	mg/kg	12	10.7	89.2	80-120%
Chromium, Hexavalent	GP12639/GN34184			mg/kg	1060	1070	100.9	80-120%

Associated Samples:
Batch GP12639: D21155-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21155
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 296-7A Cuttings Bottom

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP12639/GN34184	D21155-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN34186	D21167-2	mv	294	295	0.3	0-20%

Associated Samples:
Batch GN34186: D21155-1
Batch GP12639: D21155-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21155
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 296-7A Cuttings Bottom

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP12639/GN34184	D21155-1	mg/kg	0.0	15.9	13.9	87.4	75-125%
Chromium, Hexavalent	GP12639/GN34184	D21155-1	mg/kg	0.0	1730	1770	102.2	75-125%

Associated Samples:
Batch GP12639: D21155-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits