

April 3, 2017

Great Western Operating Company, LLC
1801 Broadway, Suite 500
Denver, Colorado 80202

Attention: Scot Donato, EH&S/Regulatory Manager

Subject: Monitoring Well Installation and Groundwater Sampling
Haas #1
Weld County, Colorado
Project Number 160884.EC

Mr. Donato,

In March 2017, A. G. Wassenaar, Inc. (AGW) installed three monitoring wells and conducted groundwater sampling at the Haas #1 facility in Weld County, Colorado. The site is located in the northeast ¼ of the southeast ¼ of Section 15, Township 6 North, Range 67 West; northwest of the intersection of Highway 392 and County Road 21 in Weld County, Colorado. The site formerly contained one aboveground steel tank for condensate storage, one aboveground tank for produced water storage, and one separate earthen containment berm for the separator. This letter summarizes the project activities and analytical results.

BACKGROUND

In March 2016, Great Western Operating Company, LLC (GWOC) requested that AGW visit the Haas #1 facility to collect soil samples following the excavation of approximately 250 cubic yards of visibly impacted soil in the vicinity of the former produced water storage vessel. On March 15, 2016, AGW collected soil samples from the walls and base of the excavation, and from the stockpiled soils. Based on the analytical results, impacted soils remained at the site.

GWOC notified the COGCC, Weld County, the Town of Windsor, and the surface owner of the historical release on March 22, 2016, and a Form 19 Spill/Release Report was submitted on March 24, 2016. A supplemental Spill/Release Report was submitted on April 1, 2016. Copies of all COGCC forms and notifications are included in Attachment A.

In May 2016, AGW completed additional soil and groundwater sampling to define the extent of impact in the vicinity of the release. The results of the May 3, 2016 investigation determined that groundwater had been impacted at the site, and that impacted soil remained at the site and additional excavation was needed.

To address the remaining impacted soils and groundwater at the site, on October 4 and October 5, 2016, the excavation at the Haas #1 facility was extended, and 650 cubic yards of additional impacted soils were removed. AGW conducted post-excavation soil sampling from each of the four walls of the excavation.

Based on the analytical results, impacted soils were removed laterally and to the depth of groundwater. 1,150 pounds of COGAC™ were incorporated into the soil and groundwater at the base of the excavation, and slotted PVC pipe was installed horizontally within the excavation to provide access to groundwater for possible future remediation efforts. Figure 1 in Attachment B depicts the site and site features.

To monitor the effectiveness of the remediation activities, in March 2017 AGW installed and sampled three monitoring wells at the Haas #1 site. Details of the project methods and results are included below.

METHODS AND RESULTS

Health and Safety Plan Development

AGW created a site specific Health and Safety Plan for activities conducted by AGW employees at the site. The plan called for level D (lowest threat level) protection based on the anticipated chemicals of concern and their potential concentrations.

Utility Clearances

In accordance with Colorado law, AGW and the project drilling contractor contacted the Utility Notification Center of Colorado (UNCC) and associated utility companies to locate public subsurface utilities in the proposed boring areas prior to borehole advancement. Based on the utility locates, no subsurface utility conflicts were identified at the borehole locations.

Notice of Intent to Construct Monitoring Wells

On February 24, 2017, a Notice of Intent (NOI) to Construct Monitoring Holes was filed with the Colorado Division of Water Resources (DWR). The DWR requires that an NOI be filed at least three business days prior to drilling and constructing the monitoring wells.

Drilling and Monitoring Well Installation Methods

To conduct drilling activities, AGW retained Elite Drilling Services, LLC (Elite) of Denver, Colorado. On March 15, 2017 Elite utilized a truck-mounted drill rig to advance a total of three boreholes, MW-1 through MW-3. To drill the boreholes, Elite utilized 4-inch outside diameter solid-stem augers. MW-1 was advanced in the area of the original release. MW-2 was advanced approximately 70 feet southwest of MW-1, and MW-3 was advanced approximately 70 feet southeast of MW-1. Figure 2 in Attachment B depicts the locations of the boreholes.

To allow for collection of representative groundwater samples, Elite constructed monitoring wells in each of the boreholes using 2-inch diameter, schedule 40 polyvinylchloride (PVC) piping. Each well included a 10-foot section of machine slotted screen pipe (0.010-inch slots) with a bottom cap at the base of the borehole. Above each screened section, PVC riser pipe extended to approximately 6 inches below the ground surface. Commercial washed quartz sand (10/20) was then used to fill the space around each screened section to act as a filter pack. To control potential surface water infiltration, hydrated bentonite chips were used to fill the void around each riser pipe (above the screen and filter pack) to within approximately 12 inches of the surface. Each monitoring well pipe top was also sealed with a waterproof cap. To protect each monitoring well from potential surface damage, Elite also installed steel flush-mount protective covers set in concrete.

AGW will prepare a required DWR monitoring well registration application (Form GWS-46) and Well Construction Report (Form GWS-31) for each well. The forms will be mailed to the DWR with the required fee (\$100 per well) to register the wells. Copies of the Construction Reports and Registration forms will be retained by AGW.

Surveying

To determine the relative ground surface and monitoring well casing elevations at the site, and to allow for groundwater flow direction and gradient calculations, AGW conducted an elevation survey of the three new monitoring wells on March 20, 2017. The surveying was completed using standard methods with a tripod-mounted Automatic Level and fiberglass measuring rod. A site-specific benchmark elevation of 100.00 feet was used for reference. The top of the well pipe at MW-1 is the benchmark. The elevation survey results are considered accurate to 1/100th of a foot. The monitoring well casing elevations and groundwater measurements are presented later in this report.

Well Development and Groundwater Measurements

Following monitoring well installation, AGW developed monitoring wells MW-1, MW-2, and MW-3 on March 20, 2017 to remove excess sediment, maximize inflow of groundwater into the wells, and to allow for representative sample collection. Monitoring well development was accomplished by agitating the groundwater column in each well using a new dedicated plastic bailer attached to nylon cord. The purged liquids were transferred into a 55-gallon steel drum and then transferred into a produced water vessel owned by GWOC at the Tailholt FD facility.

AGW utilized a clean electronic water level indicator tape to measure the depth to groundwater at all three newly installed monitoring wells. The water level indicator tape was cleaned prior to, and between each use, with a solution of Alconox® detergent and municipal water, followed by municipal water and distilled water rinses. Groundwater measurements were collected on March 20, 2017 for groundwater elevation calculations, gradient determination, and required purge volume prior to sampling. Table 1 summarizes the groundwater depth measurements and elevations.

**Table 1: Groundwater Depths
Haas #1
March 20, 2017**

Well Number	Top of Casing (TOC) Elevation	Depth to Groundwater (TOC)	Groundwater Elevation
MW-1	100.00	10.16	89.84
MW-2	99.45	9.88	89.57
MW-3	99.74	10.06	89.68

Elevations are in feet based on a site datum of 100.00 feet. Benchmark is the top of MW-1 well pipe casing.

Based on the survey elevation data and groundwater levels collected on March 20, 2017, groundwater at the Haas #1 site flows to the southwest.

Groundwater Sampling Methods

AGW collected groundwater samples from monitoring wells MW-1, MW-2, and MW-3 for analytical testing. To collect the samples, AGW utilized a new dedicated plastic bailer attached to nylon cord at each

borehole. Each sample was transferred into three acid-preserved glass vials supplied by the laboratory. The filled sample containers were immediately sealed, labeled, and placed into a cooler with ice (a preservative). On the day of sample collection, AGW delivered the samples to Origins Laboratory, Inc. of Denver, Colorado for analytical testing. During this project, AGW followed chain-of-custody procedures in general accordance with EPA guidelines. Origins analyzed all four groundwater samples for BTEX using Environmental Protection Agency (EPA) Method 8260C.

Groundwater Analytical Results

Table 2, below, summarizes the groundwater analytical results. A copy of the laboratory report is included in Attachment C. The results are also illustrated on Figure 3 in Attachment B.

Table 2: Groundwater Analytical Results
Haas #1
March 20, 2017

Sample Number	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1	0.00147	ND	ND	0.00365
MW-2	7.29	0.791	0.535	2.38
MW-3	ND	ND	ND	ND
COGCC Table 910-1 Concentrations (mg/L)	0.005	1.0	0.70	10.0

All concentrations are in mg/L = Milligrams per liter, parts per million

ND = Not detected above laboratory detection limits

Analytes in **bold** exceed their respective COGCC Table 910-1 concentration

To evaluate the groundwater analytical results, AGW consulted the Table 910-1 Concentration Levels provided within COGCC 900 Series Rules for Exploration and Production Waste Management. Based on the analytical results, groundwater collected from MW-1 and MW-3 does not contain BTEX concentrations greater than their respective COGCC Table 910 concentrations. Groundwater collected from MW-2 contains a benzene concentration of 7.29 milligrams per liter (mg/L), which is in exceedance of the COGCC Table 910-1 value of 0.005 mg/L.

DISCUSSION AND CONCLUSIONS

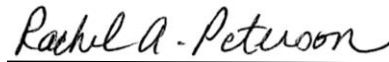
In March 2017, A. G. Wassenaar, Inc. (AGW) installed three monitoring wells and conducted groundwater sampling at the Haas #1 facility in Weld County, Colorado, following a release of produced water at the site. Based on analytical results, groundwater collected from MW-1, located in the area of the original release, and MW-3, located cross gradient of the original release, did not contain BTEX concentrations above the COGCC Table 910-1 concentration. Groundwater collected from MW-2, located downgradient of the original release, contains benzene above the COGCC Table 910-1 concentration. Continued quarterly groundwater monitoring is recommended to determine the effectiveness of remediation efforts at the Haas #1 facility.

Thank you for your review of this report. If you have any questions or require further information, please call us at (303) 759-8373.

Sincerely,
A.G. Wassenaar, Inc.

A handwritten signature in blue ink that reads "Devin Hazelwood".

Devin Hazelwood E.I.T.
Environmental Engineer

A handwritten signature in black ink that reads "Rachel A. Peterson".

Rachel A. Peterson, P.G.
Project Manager

DEH/RAP

Attachments

ATTACHMENT A

COGCC SPILL REPORTS AND NOTIFICATIONS



State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401015105

Date Received:

03/24/2016

Spill report taken by:

ALLISON, RICK

Spill/Release Point ID:

445284

SPILL/RELEASE REPORT (INITIAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

OPERATOR INFORMATION

Name of Operator: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	Phone Numbers Phone: <u>(303) 398-0302</u> Mobile: <u>(303) 549-7739</u> Email: <u>sdonato@gwogco.com</u>
Address: <u>1801 BROADWAY #500</u>		
City: <u>DENVER</u>	State: <u>CO</u> Zip: <u>80202</u>	
Contact Person: <u>Scot Donato</u>		

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 401015105

Initial Report Date: 03/24/2016 Date of Discovery: 03/22/2016 Spill Type: Historical Release

Spill/Release Point Location:

Location of Spill/Release: QTRQTR NESE SEC 15 TWP 6N RNG 67W MERIDIAN 6Latitude: 40.484493 Longitude: -104.872766Municipality (if within municipal boundaries): Windsor County: WELD

Reference Location:

Facility Type: TANK BATTERY ☒ Facility/Location ID No 319611☐ No Existing Facility or Location ID No.☐ Well API No. (Only if the reference facility is well) 05- -

Fluid(s) Spilled/Released (please answer Yes/No):

Was one (1) barrel or more spilled outside of berms or secondary containment? No

Secondary containment, including walls & floor regardless of construction material, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.

Were Five (5) barrels or more spilled? No

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): 0Estimated Condensate Spill Volume(bbl): 0Estimated Flow Back Fluid Spill Volume(bbl): 0Estimated Produced Water Spill Volume(bbl): UnknownEstimated Other E&P Waste Spill Volume(bbl): 0Estimated Drilling Fluid Spill Volume(bbl): 0

Specify: _____

Land Use:

Current Land Use: NON-CROP LAND Other(Specify): undevelopedWeather Condition: clearSurface Owner: FEE Other(Specify): _____

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

Waters of the State ☐ Residence/Occupied Structure ☐ Livestock ☐ Public Byway ☐ Surface Water Supply Area ☐

As defined in COGCC 100-Series Rules

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

GWOC recently relocated the Haas #1 Tank Battery. As a result of that process, GWOC identified a historical release of produced water. impacted soils were noted and excavated. Soil samples collected from the walls and base of the excavation, and from the stockpile contained concentrations of TPH which exceed Table 910-1 concentrations.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

<u>Date</u>	<u>Agency/Party</u>	<u>Contact</u>	<u>Phone</u>	<u>Response</u>
3/22/2016	COGCC	Rick Allison	-	notified by email
3/22/2016	Weld County	Troy Swain	-	notified by email
3/24/2016	Town of Windsor	Joe Plummer	-	notified by email
3/22/2016	Surface Owner	Journey Homes	-	notified by email

OPERATOR COMMENTS:

--

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Rachel Peterson

Title: Project Manager Date: 03/24/2016 Email: petersonr@agwassenaar.com

COA Type

Description

--	--

Attachment Check List

Att Doc Num

Name

401015105	SPILL/RELEASE REPORT(INITIAL)
401015106	TOPOGRAPHIC MAP
401017637	FORM 19 SUBMITTED

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

--	--	--

Total: 0 comment(s)

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401019999

Date Received:

04/01/2016

Spill report taken by:

ALLISON, RICK

Spill/Release Point ID:

445284

SPILL/RELEASE REPORT (SUPPLEMENTAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

OPERATOR INFORMATION

Name of Operator: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	Phone Numbers
Address: <u>1801 BROADWAY #500</u>		Phone: <u>(303) 398-0302</u>
City: <u>DENVER</u>	State: <u>CO</u>	Mobile: <u>(303) 549-7739</u>
Zip: <u>80202</u>		Email: <u>sdonato@gwogco.com</u>
Contact Person: <u>Scot Donato</u>		

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 401015105

Initial Report Date: 03/24/2016 Date of Discovery: 03/22/2016 Spill Type: Historical Release

Spill/Release Point Location:

Location of Spill/Release: QTRQTR NESE SEC 15 TWP 6N RNG 67W MERIDIAN 6Latitude: 40.484493 Longitude: -104.872766Municipality (if within municipal boundaries): Windsor County: WELD

Reference Location:

Facility Type: TANK BATTERY ☒ Facility/Location ID No 319611☐ No Existing Facility or Location ID No.☐ Well API No. (Only if the reference facility is well) 05- -

Fluid(s) Spilled/Released (please answer Yes/No):

Was one (1) barrel or more spilled outside of berms or secondary containment? No

Secondary containment, including walls & floor regardless of construction material, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.

Were Five (5) barrels or more spilled? No

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): 0Estimated Condensate Spill Volume(bbl): 0Estimated Flow Back Fluid Spill Volume(bbl): 0Estimated Produced Water Spill Volume(bbl): UnknownEstimated Other E&P Waste Spill Volume(bbl): 0Estimated Drilling Fluid Spill Volume(bbl): 0

Specify: _____

Land Use:

Current Land Use: NON-CROP LAND Other(Specify): undevelopedWeather Condition: clearSurface Owner: FEE Other(Specify): _____

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

Waters of the State ☐ Residence/Occupied Structure ☐ Livestock ☐ Public Byway ☐ Surface Water Supply Area ☐

As defined in COGCC 100-Series Rules

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

GWOC recently relocated the Haas #1 Tank Battery. As a result of that process, GWOC identified a historical release of produced water. impacted soils were noted and excavated. Soil samples collected from the walls and base of the excavation, and from the stockpile contained concentrations of TPH which exceed Table 910-1 concentrations.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

Date	Agency/Party	Contact	Phone	Response
3/22/2016	COGCC	Rick Allison	-	notified by email
3/22/2016	Weld County	Troy Swain	-	notified by email
3/24/2016	Town of Windsor	Joe Plummer	-	notified by email
3/22/2016	Surface Owner	Journey Homes	-	notified by email

SPILL/RELEASE DETAIL REPORTS

#1	Supplemental Report Date: 04/01/2016		
FLUIDS	BBL's SPILLED	BBL's RECOVERED	Unknown
OIL	0	0	<input type="checkbox"/>
CONDENSATE	0	0	<input type="checkbox"/>
PRODUCED WATER			<input checked="" type="checkbox"/>
DRILLING FLUID	0	0	<input type="checkbox"/>
FLOW BACK FLUID	0	0	<input type="checkbox"/>
OTHER E&P WASTE	0	0	<input type="checkbox"/>
specify: _____			
Was spill/release completely contained within berms or secondary containment? <u>NO</u> Was an Emergency Pit constructed? <u>NO</u>			
Secondary containment, including walls & floor regardless of construction material , must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.			
A Form 15 Pit Report shall be submitted within 30 calendar days after the construction of an emergency pit			
Impacted Media (Check all that apply) <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Dry Drainage Feature			
Surface Area Impacted: Length of Impact (feet): 0		Width of Impact (feet): 0	
Depth of Impact (feet BGS): 0		Depth of Impact (inches BGS): _____	
How was extent determined?			
Extent has not been fully determined yet, but will be during additional excavation and/or drilling activities. The site is currently inaccessible due to significant snowfall and mud conditions.			
Soil/Geology Description:			
Kim Loam, 1 to 3 percent slopes			
Depth to Groundwater (feet BGS) 0		Number Water Wells within 1/2 mile radius: 7	
If less than 1 mile, distance in feet to nearest		Water Well 190 None <input type="checkbox"/>	Surface Water 200 None <input type="checkbox"/>
		Wetlands 0 None <input type="checkbox"/>	Springs 0 None <input type="checkbox"/>
		Livestock 0 None <input type="checkbox"/>	Occupied Building 1600 None <input type="checkbox"/>
Additional Spill Details Not Provided Above:			

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure: ☐ Corrective Actions Completed (documentation attached)

☐ Work proceeding under an approved Form 27

Form 27 Remediation Project No: _____

OPERATOR COMMENTS:

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Rachel Peterson

Title: Project Manager Date: 04/01/2016 Email: petersonr@agwassenaar.com

COA Type

Description

--	--

Attachment Check List

Att Doc Num

Name

401019999	SPILL/RELEASE REPORT(SUPPLEMENTAL)
401032781	FORM 19 SUBMITTED

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

Environmental	Operator is requested to verify the location of the water well identified to be 190 feet from the reported release point. If the water well is incorrectly located based on DWR historical records, then submit a revised Spill/Release Detail Report with a corrected distance to the nearest water well. If the water well is verified to be mapped correctly or is found to be located within 1/8 mile of the release, then include the water well location on site diagrams with future reports.	4/6/2016 9:44:53 AM
---------------	--	---------------------

Total: 1 comment(s)

Rachel Peterson

From: Rachel Peterson
Sent: Tuesday, March 22, 2016 10:43 AM
To: rick.allison@state.co.us; tswain@weldgov.com
Cc: Donato Scot; David Slawkowski; rscheid@gwogco.com; Hettinger Mike
Subject: spill notification

This email serves as notification of a historical release at the Haas #1 site (API [05-123-11564](#)) operated by Great Western Operating Company (Operator #10110). Soil analytical results received this morning confirmed that concentrations of TPH greater than the COGCC Table 910-1 concentration are present in soils at this site. A spill report will also be submitted for this historical release. The site is located in Weld County, in the NESE Section 15, Township 6N, Range 67W, 6th p.m.

Sincerely,
Rachel Peterson

Rachel Peterson, P.G.
A. G. Wassenaar, Inc.
303.759.8373
fax 303.759.4874
petersonr@agwassenaar.com

Information contained herein may be subject to failure or corruption during transmission. Final stamped and signed documents govern. Use of this data is solely at the user's risk. By accessing the data contained in these files the user agrees to indemnify, hold harmless and defend A. G. Wassenaar, Inc. and its employees, officers, and agents from any and all claims arising from the use of the data.

Rachel Peterson

From: Rachel Peterson
Sent: Monday, March 28, 2016 9:49 AM
To: 'Scott Ballstadt'
Cc: Scot Donato
Subject: RE: spill notification

Scott,

Thanks for following up; we'll note that you are to be notified in the future. The attachment was probably just my email signature; there was no relevant attachment, just the email notification.

Sincerely,
Rachel

Rachel Peterson, P.G.
A. G. Wassenaar, Inc.
office 303.759.8373
cell 303.981.0292
fax 303.759.4874
Please note my new email address: petersonr@agwco.com
[LinkedIn](#)

Information contained herein may be subject to failure or corruption during transmission. Final stamped and signed documents govern. Use of this data is solely at the user's risk. By accessing the data contained in these files the user agrees to indemnify, hold harmless and defend A. G. Wassenaar, Inc. and its employees, officers, and agents from any and all claims arising from the use of the data.

From: Scott Ballstadt [<mailto:sballstadt@windsorgov.com>]
Sent: Friday, March 25, 2016 3:12 PM
To: Rachel Peterson <petersonr@agwco.com>; Joe Plummer <jplummer@windsorgov.com>
Cc: Scot Donato <sdonato@gwogco.com>
Subject: RE: spill notification

Hi Rachel,

I am unable to open the document link in your below email. Can it be sent as an attachment?

Also, please note that Joe Plummer is no longer with the Town of Windsor. Please replace him with my information. Thanks.

Scott Ballstadt, AICP
Director
Town of Windsor | Planning
Dir: 970-674-2411 | www.windsorgov.com

Follow Us www.windsorgov.com/socialmedia

From: Rachel Peterson [<mailto:petersonr@agwco.com>]
Sent: Thursday, March 24, 2016 9:03 PM
To: Joe Plummer
Cc: Scot Donato
Subject: spill notification

This email serves as notification of a historical release at the Haas #1 site (API [05-123-11564](#)) operated by Great Western Operating Company (Operator #10110). Soil analytical results confirmed that concentrations of TPH greater than the COGCC Table 910-1 concentration are present in soils at this site. A spill report will also be submitted for this historical release. The site is located in Weld County, in the NESE Section 15, Township 6N, Range 67W, 6th p.m.

Sincerely,
Rachel Peterson

Rachel Peterson, P.G.
A. G. Wassenaar, Inc.
303.759.8373
fax 303.759.4874
petersonr@agwassenaar.com

Information contained herein may be subject to failure or corruption during transmission. Final stamped and signed documents govern. Use of this data is solely at the user's risk. By accessing the data contained in these files the user agrees to indemnify, hold harmless and defend A. G. Wassenaar, Inc. and its employees, officers, and agents from any and all claims arising from the use of the data.

Rachel Peterson

From: Rachel Peterson
Sent: Thursday, March 24, 2016 9:39 PM
To: Scot Donato
Subject: Re: Historical Release Notification

Very good, thanks. Form 19 submitted this evening.

R

Rachel Peterson, P.G.
A. G. Wassenaar, Inc.
office 303.759.8373
cell 303.981.0292
fax 303.759.4874
Please note my new email address: petersonr@agwco.com
[LinkedIn](#)

Information contained herein may be subject to failure or corruption during transmission. Final stamped and signed documents govern. Use of this data is solely at the user's risk. By accessing the data contained in these files the user agrees to indemnify, hold harmless and defend A. G. Wassenaar, Inc. and its employees, officers, and agents from any and all claims arising from the use of the data.

From: Scot Donato <sdonato@gwogco.com>
Sent: Thursday, March 24, 2016 9:21 PM
To: Rachel Peterson
Subject: Fwd: Historical Release Notification

It was sent to David

Please excuse all Siri-spelling errors-Sent from my iPhone

Begin forwarded message:

From: Philip Hancock <phancock@gwogco.com>
Date: March 22, 2016 at 11:50:04 AM MDT
To: "linda@journeyhomes.com" <linda@journeyhomes.com>
Cc: "David Slawkowski (slawkawskid@agwco.com)" <slawkawskid@agwco.com>, Scot Donato <sdonato@gwogco.com>, Eric Creed <ecreed@gwogco.com>
Subject: Historical Release Notification

Hi Linda,

Thanks for taking my call a moment ago. As mentioned, we recently relocated our Haas #1 Tank Battery on the Village East Investments, LLC property in Windsor. As a result of that process, we identified a historical release of produced water. The Colorado Oil & Gas Conservation Commission (COGCC) requires operators to notify the landowner, County and the COGCC within 24 hours of identification of any spill. Let this email serve as such notification. We will report the release to the applicable agencies

and remediate it as required. Should you have any further questions, please contact our Regulatory Manager, Scot Donato, at 303-398-0302.

Thanks,



Philip Hancock

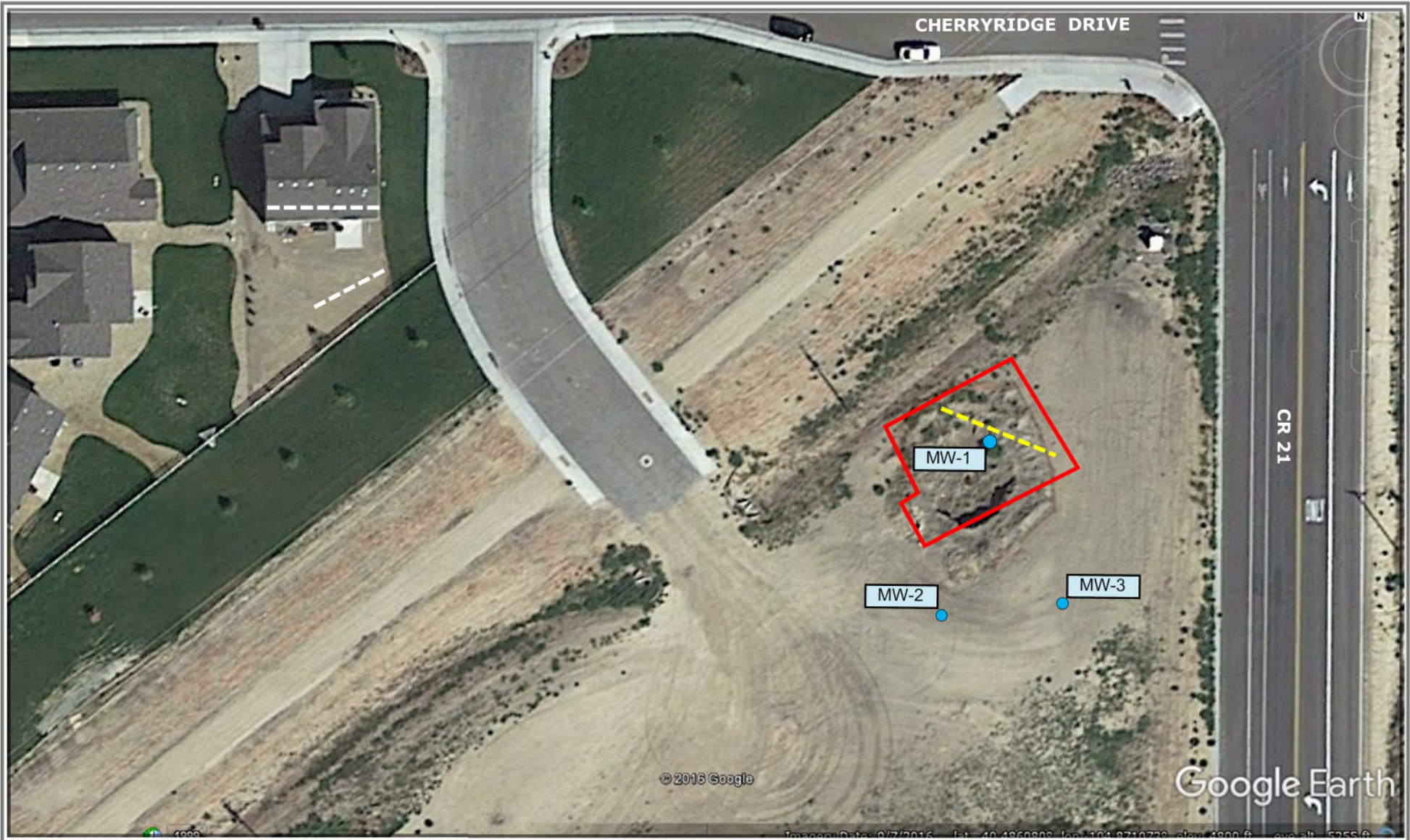
Sr. Surface Landman
Great Western Operating Company, LLC
2005 Howard Smith Ave. East
Windsor, CO 80550
Office: 970.460.1468
Cell: 318.401.4535
Fax: 866.742.1784
www.gwogco.com

Privileged / Confidential information may be contained in this message. This information is intended solely for use by the individual entity named as the recipient. If you are not the intended recipient, be aware that any disclosure, copying, distribution, or use of the contents of this communication is prohibited. In such case, you should destroy this communication and notify the sender by reply email.

ATTACHMENT B

DIAGRAMS





- March 2016 approximate excavation boundaries
- Groundwater monitoring well
- Lateral perforated PVC pipe, installed October 2016



Approximate Scale: 1" = 45'

All locations are approximate.

A.G. WASSENAAR INC.
 GEOTECHNICAL • ENVIRONMENTAL
 CONSULTANTS

Figure 1
 Site Location and Features
 Haas 1, Weld County, Colorado
 AGW Project Number: 160884.EC



● Groundwater monitoring well

89.60' Elevation contour line and elevation, in feet



Approximate Scale: 1" = 45'

A.G. WASSENAAR **INC.**

GEOTECHNICAL • ENVIRONMENTAL
CONSULTANTS

Figure 2
Groundwater Elevations and Flow Direction
March 20, 2017
Haas 1, Weld County, Colorado
AGW Project Number: 160884.EC



● Groundwater monitoring well

B: Benzene

T: Toluene

E: Ethylbenzene

X: Total Xylenes

Concentrations in milligrams per liter (mg/L)

ND: Not detected above laboratory detection limits

Concentrations in **BOLD** exceed COGCC Table 910-1



Approximate Scale: 1" = 45'

A.G. WASSENAAR | **INC.**

GEOTECHNICAL • ENVIRONMENTAL
CONSULTANTS

Figure 3

Groundwater Analytical Results
March 20, 2017

Haas 1, Weld County, Colorado
AGW Project Number: 160884.EC

ATTACHMENT C

LABORATORY ANALYTICAL REPORTS



Technical Report for

A.G. Wassenaar, Inc.

Ocho LD Baseline Groudwater Sampling

165391

SGS Accutest Job Number: D91855

Sampling Date: 03/08/17

Report to:

A.G. Wassenaar, Inc.
2180 S. Ivanhoe Street, Suite 5
Denver, CO 80222
petersonr@agwco.com

ATTN: Rachael Peterson

Total number of pages in report: 133



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

Scott Heideman
Laboratory Director

Client Service contact: Jen Jorschumb 303-425-6021

Certifications: CO (CO00049), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942)
UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	7
Section 4: Sample Results	9
4.1: D91855-1: HARRISON-88998	10
4.2: D91855-1B: HARRISON-88998	15
4.3: D91855-1F: HARRISON-88998	16
4.4: D91855-2: OCHO-889998	17
4.5: D91855-2B: OCHO-889998	22
4.6: D91855-2F: OCHO-889998	23
4.7: D91855-3: TRIP BLANK	24
Section 5: Misc. Forms	25
5.1: Chain of Custody	26
Section 6: GC/MS Volatiles - QC Data Summaries	28
6.1: Method Blank Summary	29
6.2: Blank Spike Summary	30
6.3: Matrix Spike/Matrix Spike Duplicate Summary	31
Section 7: GC/MS Volatiles - Raw Data	32
7.1: Samples	33
7.2: Method Blanks	54
Section 8: GC Volatiles - QC Data Summaries	62
8.1: Method Blank Summary	63
8.2: Blank Spike Summary	65
8.3: Matrix Spike/Matrix Spike Duplicate Summary	67
Section 9: GC Volatiles - Raw Data	69
9.1: Samples	70
9.2: Method Blanks	94
Section 10: GC Semi-volatiles - QC Data Summaries	102
10.1: Method Blank Summary	103
10.2: Blank Spike Summary	104
10.3: Matrix Spike/Matrix Spike Duplicate Summary	105
Section 11: GC Semi-volatiles - Raw Data	106
11.1: Samples	107
11.2: Method Blanks	113
Section 12: Metals Analysis - QC Data Summaries	116
12.1: Prep QC MP21023: Ba,Se	117
12.2: Prep QC MP21026: B,Ca,Fe,Mg,Mn,K,Na,Sr	121
Section 13: General Chemistry - QC Data Summaries	129
13.1: Method Blank and Spike Results Summary	130
13.2: Duplicate Results Summary	131
13.3: Matrix Spike Results Summary	132
13.4: Matrix Spike Duplicate Results Summary	133



Sample Summary

A.G. Wassenaar, Inc.

Job No: D91855

Ocho LD Baseline Groudwater Sampling
Project No: 165391

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D91855-1	03/08/17	13:20 DH	03/08/17	AQ	Ground Water	HARRISON-88998
D91855-1B	03/08/17	13:20 DH	03/08/17	AQ	Ground Water	HARRISON-88998
D91855-1F	03/08/17	13:20 DH	03/08/17	AQ	Groundwater Filtered	HARRISON-88998
D91855-2	03/08/17	13:25 DH	03/08/17	AQ	Ground Water	OCHO-889998
D91855-2B	03/08/17	13:25 DH	03/08/17	AQ	Ground Water	OCHO-889998
D91855-2F	03/08/17	13:25 DH	03/08/17	AQ	Groundwater Filtered	OCHO-889998
D91855-3	03/08/17	00:00 DH	03/08/17	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

2

Client: A.G. Wassenaar, Inc.

Job No D91855

Site: Ocho LD Baseline Groundwater Sampling

Report Date 3/22/2017 1:32:19 PM

On 03/08/2017, 2 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at SGS Accutest Mountain States (SAMS) at a temperature of 11.2 °C. The samples were intact and properly preserved, unless noted below. An SAMS Job Number of D91855 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: AQ

Batch ID: V7V2273

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91478-23MS, D91478-23MSD were used as the QC samples indicated.

Volatiles by GC By Method RSK175 MOD

Matrix: AQ

Batch ID: GFB872

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91872-1AMS, D91872-1AMSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix: AQ

Batch ID: GGB1958

- All samples were analyzed within the recommended method holding time.
- Sample(s) D91478-22MS, D91478-22MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix: AQ

Batch ID: OP14725

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D91478-18MS, D91478-18MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike duplicate (MSD) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to matrix.
- The RPD(s) for the MS and MSD recoveries of TPH-DRO (C10-C28) are outside control limits for sample OP14725-MSD. Probable cause due to sample homogeneity.

Metals By Method EPA 200.7

Matrix: AQ

Batch ID: MP21026

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91800-1FMS, D91800-1FMSSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Wednesday, March 22, 2017

Page 1 of 3

Metals By Method EPA 200.8

Matrix: AQ

Batch ID: MP21023

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91809-1FMS, D91809-1FMSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ

Batch ID: GP19884

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91811-1MS, D91811-1MSD were used as the QC samples for the Bromide, Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- D91855-1 and -2 for Nitrogen, Nitrite; Nitrogen, Nitrate and Sulfate: Elevated detection limit due to matrix interference.

Matrix: AQ

Batch ID: GP19897

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91952-1MS, D91952-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method HACH IRB-BART

Matrix: AQ

Batch ID: MB843

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SLYM-BART

Matrix: AQ

Batch ID: MB844

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SRB-BART

Matrix: AQ

Batch ID: MB845

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH8190/SM4500P-B/E

Matrix: AQ

Batch ID: GP19882

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91732-1DUP, D91758-1MS, D91758-1MSD were used as the QC samples for the Phosphorus, Total analysis.

Wet Chemistry By Method SM 2320B-2011

Matrix: AQ

Batch ID: GN37971

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91760-1MS, D91760-1MSD, D91874-1DUP were used as the QC samples for the Alkalinity, Total as CaCO₃ analysis.

Matrix: AQ

Batch ID: GN37973

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ

Batch ID: GN37974

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM 2510B-2011

Matrix: AQ

Batch ID: GP19890

- Sample(s) D91819-5DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ

Batch ID: GN37958

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D91760-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

SAMS 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.

SAMS 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 SAMS indicated via signature on the report cover.

Summary of Hits

Job Number: D91855
 Account: A. G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling
 Collected: 03/08/17



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D91855-1 HARRISON-88998

Methane	7.51	0.020	0.010	mg/l	RSK175 MOD
Ethane	0.0570	0.0016	0.00080	mg/l	RSK175 MOD
Propane	0.0025	0.0022	0.0011	mg/l	RSK175 MOD
Alkalinity, Bicarbonate as CaCO3	463	5.0		mg/l	SM 2320B-2011
Alkalinity, Carbonate	49.4	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	512	5.0		mg/l	SM 2320B-2011
Bromide	0.39	0.10		mg/l	EPA 300.0/SW846 9056
Chloride	48.3	2.5		mg/l	EPA 300.0/SW846 9056
Fluoride	2.5	0.20		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.052	0.010		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	661	10		mg/l	SM 2540C-2011
Specific Conductivity	1030	1.0		umhos/cm	SM 2510B-2011
pH	8.80			su	SM4500HB+ -2011/9040C

D91855-1B HARRISON-88998

Iron-Related Bacteria	9000	25		CFU/ml	HACH IRB-BART
Slime Forming Bacteria	66500	500		CFU/ml	HACH SLYM-BART
Sulfate Reducing Bacteria	18000	200		CFU/ml	HACH SRB-BART

D91855-1F HARRISON-88998

Barium	38.1	4.0		ug/l	EPA 200.8
Boron	214	50		ug/l	EPA 200.7
Calcium	1870	400		ug/l	EPA 200.7
Iron	14.3	10		ug/l	EPA 200.7
Magnesium	431	200		ug/l	EPA 200.7
Potassium	1430	1000		ug/l	EPA 200.7
Sodium	272000	400		ug/l	EPA 200.7
Strontium	52.5	5.0		ug/l	EPA 200.7

D91855-2 OCHO-889998

Methane	7.18	0.020	0.010	mg/l	RSK175 MOD
Ethane	0.0568	0.0016	0.00080	mg/l	RSK175 MOD
Propane	0.0029	0.0022	0.0011	mg/l	RSK175 MOD
Alkalinity, Bicarbonate as CaCO3	469	5.0		mg/l	SM 2320B-2011
Alkalinity, Carbonate	33.6	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	503	5.0		mg/l	SM 2320B-2011
Bromide	0.37	0.10		mg/l	EPA 300.0/SW846 9056
Chloride	49.5	2.5		mg/l	EPA 300.0/SW846 9056
Fluoride	2.5	0.20		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.044	0.010		mg/l	HACH8190/SM4500P-B/E

Summary of Hits

Page 2 of 2

Job Number: D91855
Account: A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling
Collected: 03/08/17

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

Solids, Total Dissolved	496	10			mg/l	SM 2540C-2011
Specific Conductivity	1020	1.0			umhos/cm	SM 2510B-2011
pH	8.72				su	SM4500HB+ -2011/9040C

D91855-2B OCHO-889998

Iron-Related Bacteria	9000	25			CFU/ml	HACH IRB-BART
Slime Forming Bacteria	66500	500			CFU/ml	HACH SLYM-BART
Sulfate Reducing Bacteria	18000	200			CFU/ml	HACH SRB-BART

D91855-2F OCHO-889998

Barium	41.7	4.0			ug/l	EPA 200.8
Boron	217	50			ug/l	EPA 200.7
Calcium	2000	400			ug/l	EPA 200.7
Iron	22.5	10			ug/l	EPA 200.7
Magnesium	442	200			ug/l	EPA 200.7
Potassium	1320	1000			ug/l	EPA 200.7
Sodium	254000	400			ug/l	EPA 200.7
Strontium	52.6	5.0			ug/l	EPA 200.7

D91855-3 TRIP BLANK

No hits reported in this sample.



Sample Results

Report of Analysis

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Ocho LD Baseline Groudwater Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V41748.D	1	03/09/17	TL	n/a	n/a	V7V2273
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
17060-07-0	1,2-Dichloroethane-D4	97%		70-130%
2037-26-5	Toluene-D8	97%		70-130%
460-00-4	4-Bromofluorobenzene	96%		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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Ocho LD Baseline Groudwater Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB39261.D	1	03/10/17	MR	n/a	n/a	GGB1958
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	99%		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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	RSK175 MOD		
Project:	Ocho LD Baseline Groudwater Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FB18565.D	1	03/10/17	GN	n/a	n/a	GFB872
Run #2	FB18568.D	25	03/10/17	GN	n/a	n/a	GFB872

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	22.0 Deg. C
Run #2	39.0 ml	4.0 ml	500 ul	22.0 Deg. C

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	7.51 ^a	0.020	0.010	mg/l	
74-84-0	Ethane	0.0570	0.0016	0.00080	mg/l	
74-98-6	Propane	0.0025	0.0022	0.0011	mg/l	

(a) Result is from Run# 2

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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	HARRISON-88998	
Lab Sample ID:	D91855-1	Date Sampled: 03/08/17
Matrix:	AQ - Ground Water	Date Received: 03/08/17
Method:	SW846-8015B SW846 3510C	Percent Solids: n/a
Project:	Ocho LD Baseline Groudwater Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI51708.D	1	03/10/17	GN	03/09/17	OP14725	GFI2174
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	120%		11-142%		

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:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Ocho LD Baseline Groudwater Sampling		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	463	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Alkalinity, Carbonate	49.4	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	512	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Bromide	0.39	0.10	mg/l	2	03/09/17 13:20	KH	EPA 300.0/SW846 9056
Chloride	48.3	2.5	mg/l	5	03/09/17 13:33	KH	EPA 300.0/SW846 9056
Fluoride	2.5	0.20	mg/l	2	03/11/17 15:33	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^a	< 0.020	0.020	mg/l	2	03/09/17 13:20	KH	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^a	< 0.020	0.020	mg/l	5	03/09/17 13:33	KH	EPA 300.0/SW846 9056
Phosphorus, Total	0.052	0.010	mg/l	1	03/10/17 08:00	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	661	10	mg/l	1	03/09/17	SK	SM 2540C-2011
Specific Conductivity	1030	1.0	umhos/cm	1	03/10/17	TJ	SM 2510B-2011
Sulfate ^a	< 1.0	1.0	mg/l	2	03/09/17 13:20	KH	EPA 300.0/SW846 9056
pH	8.80		su	1	03/09/17 11:30	SK	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1B	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Ocho LD Baseline Groudwater Sampling		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Iron-Related Bacteria	9000	25	CFU/ml	1	03/14/17 15:00	JD	HACH IRB-BART
Slime Forming Bacteria	66500	500	CFU/ml	1	03/14/17 15:00	JD	HACH SLYM-BART
Sulfate Reducing Bacteria	18000	200	CFU/ml	1	03/14/17 15:00	JD	HACH SRB-BART

RL = Reporting Limit

Report of Analysis

Client Sample ID:	HARRISON-88998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-1F	Date Received:	03/08/17
Matrix:	AQ - Groundwater Filtered	Percent Solids:	n/a
Project:	Ocho LD Baseline Groudwater Sampling		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	38.1	4.0	ug/l	2	03/09/17	03/09/17 MR	EPA 200.8 ²	EPA 200.8 ³
Boron	214	50	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Calcium	1870	400	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Iron	14.3	10	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Magnesium	431	200	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Manganese	< 5.0	5.0	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Potassium	1430	1000	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Selenium	< 0.80	0.80	ug/l	2	03/09/17	03/09/17 MR	EPA 200.8 ²	EPA 200.8 ³
Sodium	272000	400	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Strontium	52.5	5.0	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴

(1) Instrument QC Batch: MA8265

(2) Instrument QC Batch: MA8266

(3) Prep QC Batch: MP21023

(4) Prep QC Batch: MP21026

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	OCHO-889998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-2	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Ocho LD Baseline Groudwater Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V41749.D	1	03/09/17	TL	n/a	n/a	V7V2273
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	93%		70-130%
2037-26-5	Toluene-D8	94%		70-130%
460-00-4	4-Bromofluorobenzene	96%		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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	OCHO-889998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-2	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Ocho LD Baseline Groudwater Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB39262.D	1	03/10/17	MR	n/a	n/a	GGB1958
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	98%		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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	OCHO-889998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-2	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	RSK175 MOD		
Project:	Ocho LD Baseline Groudwater Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FB18570.D	1	03/10/17	GN	n/a	n/a	GFB872
Run #2	FB18572.D	25	03/10/17	GN	n/a	n/a	GFB872

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	23.0 Deg. C
Run #2	39.0 ml	4.0 ml	500 ul	23.0 Deg. C

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	7.18 ^a	0.020	0.010	mg/l	
74-84-0	Ethane	0.0568	0.0016	0.00080	mg/l	
74-98-6	Propane	0.0029	0.0022	0.0011	mg/l	

(a) Result is from Run# 2

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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	OCHO-889998	
Lab Sample ID:	D91855-2	Date Sampled: 03/08/17
Matrix:	AQ - Ground Water	Date Received: 03/08/17
Method:	SW846-8015B SW846 3510C	Percent Solids: n/a
Project:	Ocho LD Baseline Groudwater Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI51710.D	1	03/10/17	GN	03/09/17	OP14725	GFI2174
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	112%		11-142%		

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: OCHO-889998	Date Sampled: 03/08/17
Lab Sample ID: D91855-2	Date Received: 03/08/17
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Ocho LD Baseline Groudwater Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	469	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Alkalinity, Carbonate	33.6	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	503	5.0	mg/l	1	03/09/17	TJ	SM 2320B-2011
Bromide	0.37	0.10	mg/l	2	03/09/17 11:55	KH	EPA 300.0/SW846 9056
Chloride	49.5	2.5	mg/l	5	03/09/17 17:29	KH	EPA 300.0/SW846 9056
Fluoride	2.5	0.20	mg/l	2	03/11/17 15:46	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^a	< 0.020	0.020	mg/l	2	03/09/17 11:55	KH	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^a	< 0.020	0.020	mg/l	5	03/09/17 17:29	KH	EPA 300.0/SW846 9056
Phosphorus, Total	0.044	0.010	mg/l	1	03/10/17 08:00	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	496	10	mg/l	1	03/09/17	SK	SM 2540C-2011
Specific Conductivity	1020	1.0	umhos/cm	1	03/10/17	TJ	SM 2510B-2011
Sulfate ^a	< 1.0	1.0	mg/l	2	03/09/17 11:55	KH	EPA 300.0/SW846 9056
pH	8.72		su	1	03/09/17 11:30	SK	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OCHO-889998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-2B	Date Received:	03/08/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Ocho LD Baseline Groudwater Sampling		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Iron-Related Bacteria	9000	25	CFU/ml	1	03/14/17 15:00	JD	HACH IRB-BART
Slime Forming Bacteria	66500	500	CFU/ml	1	03/14/17 15:00	JD	HACH SLYM-BART
Sulfate Reducing Bacteria	18000	200	CFU/ml	1	03/14/17 15:00	JD	HACH SRB-BART

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID:	OCHO-889998	Date Sampled:	03/08/17
Lab Sample ID:	D91855-2F	Date Received:	03/08/17
Matrix:	AQ - Groundwater Filtered	Percent Solids:	n/a
Project:	Ocho LD Baseline Groudwater Sampling		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	41.7	4.0	ug/l	2	03/09/17	03/09/17 MR	EPA 200.8 ²	EPA 200.8 ³
Boron	217	50	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Calcium	2000	400	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Iron	22.5	10	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Magnesium	442	200	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Manganese	< 5.0	5.0	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Potassium	1320	1000	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Selenium	< 0.80	0.80	ug/l	2	03/09/17	03/09/17 MR	EPA 200.8 ²	EPA 200.8 ³
Sodium	254000	400	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴
Strontium	52.6	5.0	ug/l	1	03/09/17	03/09/17 JM	EPA 200.7 ¹	EPA 200.7 ⁴

(1) Instrument QC Batch: MA8265

(2) Instrument QC Batch: MA8266

(3) Prep QC Batch: MP21023

(4) Prep QC Batch: MP21026

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	TRIP BLANK	Date Sampled:	03/08/17
Lab Sample ID:	D91855-3	Date Received:	03/08/17
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Ocho LD Baseline Groudwater Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V41747.D	1	03/09/17	TL	n/a	n/a	V7V2273
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		70-130%
17060-07-0	1,2-Dichloroethane-D4	95%		70-130%
2037-26-5	Toluene-D8	97%		70-130%
460-00-4	4-Bromofluorobenzene	99%		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

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

		4036 Youngfield Street, Wheat Ridge, CO 80033 TEL: 303-425-6021 FAX: 303-425-6854 www.accutest.com		PED-EX Tracking # _____ Accutest Order # _____		Bottle Order Control # _____ Accutest Job # D91855	
Client / Reporting Information				Project Information			
Company Name A. G. Wassenaar, Inc. Street Address 2100 South Ivanhoe Street, Suite 5 City Denver Project Contact Rachel Peterson Phone # 303-759-8373 Sample(s) Name(s) Devin Hazelwood		Project Name: Ocho LD Baseline Groundwater Sampling Street Brighton State CO Project # 165391 Client Purchase Order # 165391 Project Manager Rachel Peterson		Billing Information (if different from Report to) Company Name Brighton State CO Street Address Brighton State CO City Brighton State CO		Requested Analysis (see TEST CODE sheet) <div style="display: flex; justify-content: space-between;"> <div> PH, SCOM, TDS XCARBICALK BRO, CHL, F, NO2, NO3O, SO4 TPO4 *Dissolved Metals - Lab Filtered VRSK175DGMPEP V8260BTX B8015DRO, V8015GRO IRBAC, SFBAC, SO4RBAC **Isotopic Methane </div> <div> 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 </div> </div>	
Turnaround Time (Business days)				Data Deliverable Information			
<input type="checkbox"/> Std. 15 Business Days <input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> 5 Business Day Turn <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency		Approved By (Accutest PM) / Date: _____ _____ _____ _____ _____ _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMEN. <input checked="" type="checkbox"/> COMMEN. Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results OC/Narrative (+ = chromatograms)		<input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF <input checked="" type="checkbox"/> EDD Format	
Emergency & Rush T/A data available VIA Lablink				Comments / Special Instructions			
Harrison-88998 Ocho-88998 Trip Blank				PH, SCOM, TDS XCARBICALK BRO, CHL, F, NO2, NO3O, SO4 TPO4 *Dissolved Metals - Lab Filtered VRSK175DGMPEP V8260BTX B8015DRO, V8015GRO IRBAC, SFBAC, SO4RBAC **Isotopic Methane			
Turnaround Time (Business days)				Data Deliverable Information			
<input type="checkbox"/> Std. 15 Business Days <input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> 5 Business Day Turn <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency		Approved By (Accutest PM) / Date: _____ _____ _____ _____ _____ _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMEN. <input checked="" type="checkbox"/> COMMEN. Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results OC/Narrative (+ = chromatograms)		<input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF <input checked="" type="checkbox"/> EDD Format	
Emergency & Rush T/A data available VIA Lablink				Comments / Special Instructions			
Harrison-88998 Ocho-88998 Trip Blank				PH, SCOM, TDS XCARBICALK BRO, CHL, F, NO2, NO3O, SO4 TPO4 *Dissolved Metals - Lab Filtered VRSK175DGMPEP V8260BTX B8015DRO, V8015GRO IRBAC, SFBAC, SO4RBAC **Isotopic Methane			

5.15

SGS Accutest Sample Receipt Summary

Job Number: D91855

Client: AG WASS

Project: OCHO LD

Date / Time Received: 3/8/2017 2:35:00 PM

Delivery Method:

Airbill #'s: hd

Cooler Temps (Initial/Adjusted): #1: (11.2/11.2):

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun; | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|--------------------------|
| 1. Trip Blank present / cooler: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

D91855: Chain of Custody

Page 2 of 2

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

Page 1 of 1

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V2273-MB	7V41730.D	1	03/09/17	TL	n/a	n/a	V7V2273

The QC reported here applies to the following samples:

Method: SW846 8260B

D91855-1, D91855-2, D91855-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	106% 70-130%
17060-07-0	1,2-Dichloroethane-D4	92% 70-130%
2037-26-5	Toluene-D8	96% 70-130%
460-00-4	4-Bromofluorobenzene	101% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V2273-BS	7V41728.D	1	03/09/17	TL	n/a	n/a	V7V2273

The QC reported here applies to the following samples:

Method: SW846 8260B

D91855-1, D91855-2, D91855-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	47.5	95	70-130
100-41-4	Ethylbenzene	50	49.6	99	69-130
108-88-3	Toluene	50	47.7	95	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	93%	70-130%
2037-26-5	Toluene-D8	97%	70-130%
460-00-4	4-Bromofluorobenzene	100%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D91478-23MS	7V41732.D	1	03/09/17	TL	n/a	n/a	V7V2273
D91478-23MSD	7V41733.D	1	03/09/17	TL	n/a	n/a	V7V2273
D91478-23	7V41731.D	1	03/09/17	TL	n/a	n/a	V7V2273

The QC reported here applies to the following samples:

Method: SW846 8260B

D91855-1, D91855-2, D91855-3

CAS No.	Compound	D91478-23 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	50	46.1	92	50	47.2	94	2	67-130/30
100-41-4	Ethylbenzene	ND	50	49.1	98	50	48.2	96	2	69-130/30
108-88-3	Toluene	ND	50	46.9	94	50	45.1	90	4	70-130/30
1330-20-7	Xylene (total)	ND	150	148	99	150	144	96	3	67-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D91478-23	Limits
1868-53-7	Dibromofluoromethane	106%	105%	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	102%	91%	70-130%
2037-26-5	Toluene-D8	99%	94%	95%	70-130%
460-00-4	4-Bromofluorobenzene	100%	99%	100%	70-130%

* = Outside of Control Limits.



GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41748.D
Acq On : 9 Mar 2017 8:48 pm
Operator : TamL
Sample : D91855-1
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 10 09:11:02 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
2) Pentafluorobenzene	5.347	168	93200	50.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.164	114	176948	50.00	ug/L	0.00
55) Chlorobenzene-d5	9.145	117	177797	50.00	ug/L	0.00
74) 1,4-Dichlorobenzene-d4	11.340	152	94665	50.00	ug/L	# 0.00
System Monitoring Compounds						
35) Dibromofluoromethane	5.304	113	64205	52.24	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	104.48%		
41) 1,2-Dichloroethane-d4	5.676	102	12517	48.56	ug/L	0.00
Spiked Amount 50.000	Range 62 - 130		Recovery =	97.12%		
56) Toluene-d8	7.719	98	208948	48.72	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	97.44%		
76) 4-Bromofluorobenzene	10.261	95	97919	48.10	ug/L	0.00
Spiked Amount 50.000	Range 69 - 130		Recovery =	96.20%		
Target Compounds						
14) Acetone	3.018	43	13920	17.29	ug/L	Qvalue 94

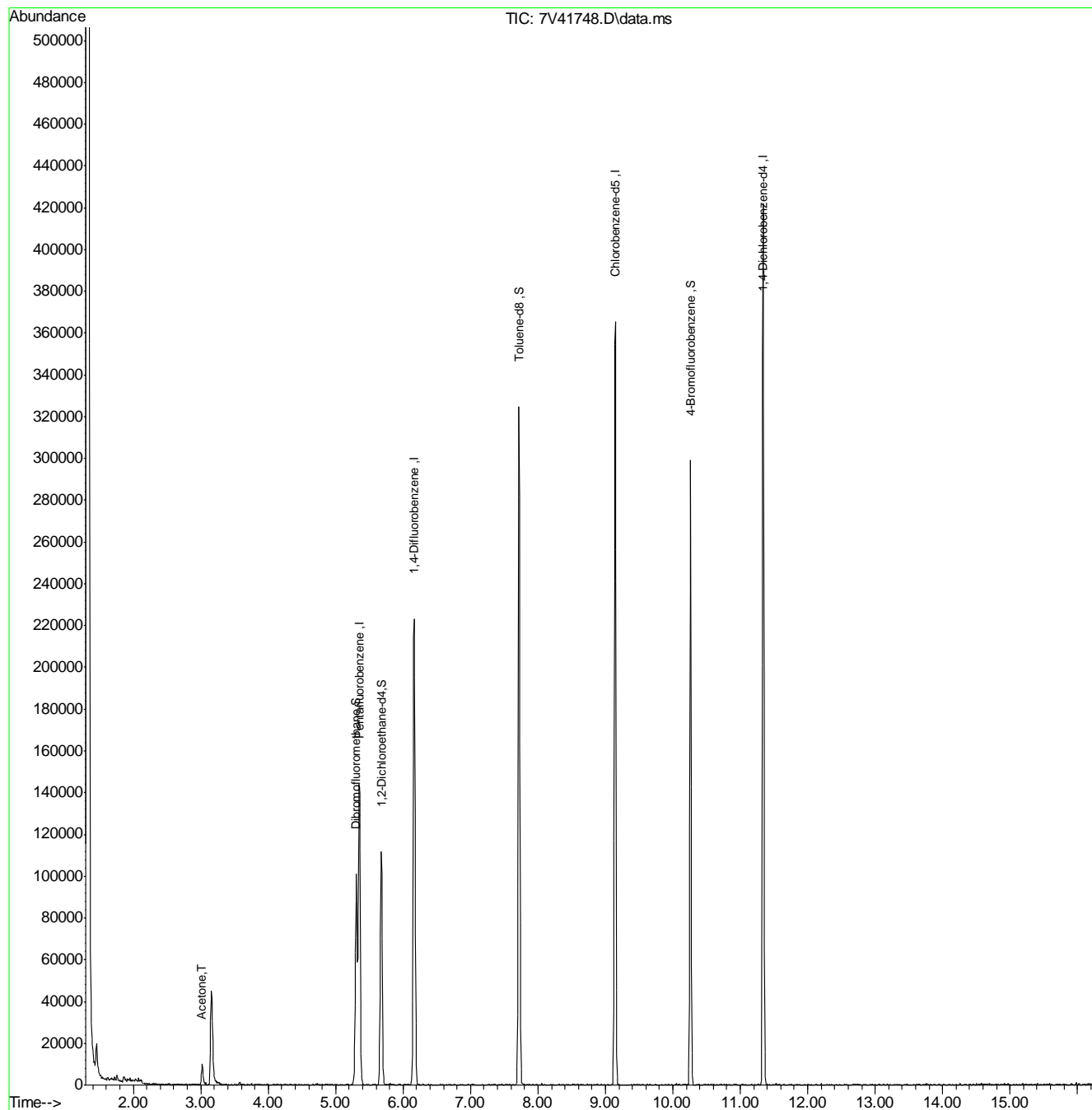
(#) = qualifier out of range (m) = manual integration (+) = signals summed

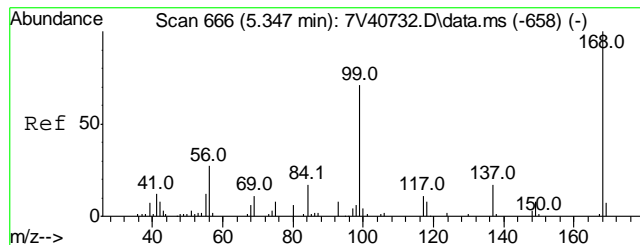
7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41748.D
Acq On : 9 Mar 2017 8:48 pm
Operator : TamL
Sample : D91855-1
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 26 Sample Multiplier: 1

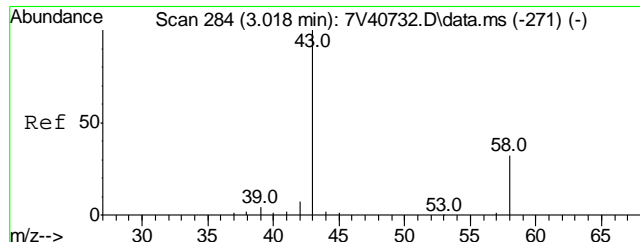
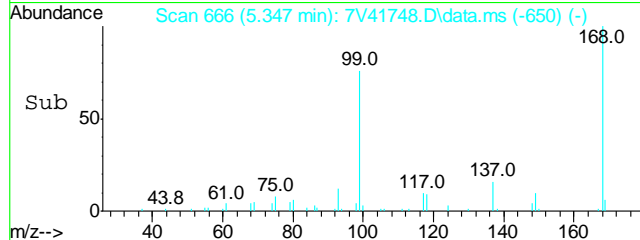
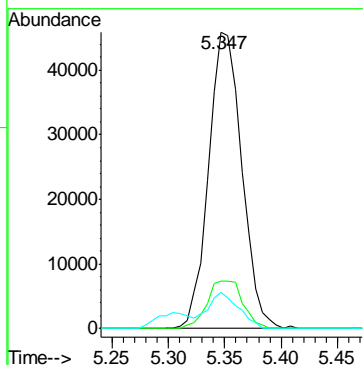
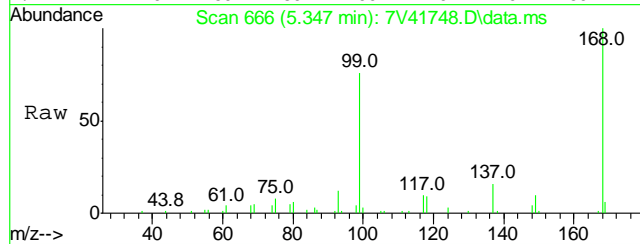
Quant Time: Mar 10 09:11:02 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration





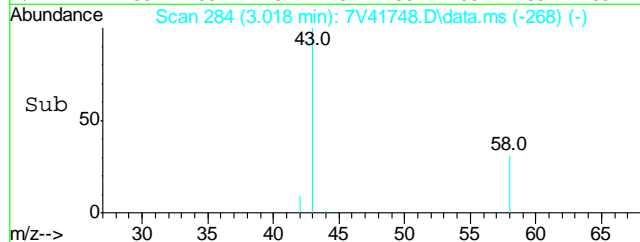
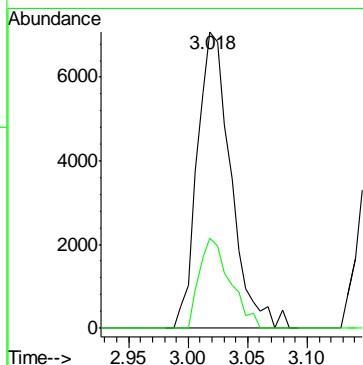
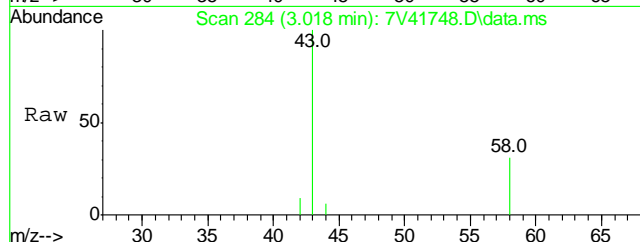
#2
Pentafluorobenzene
Concen: 50.00 ug/L
RT: 5.347 min Scan# 666
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

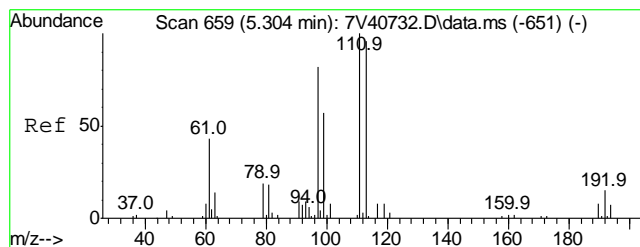
Tgt Ion	Ratio	Lower	Upper
168	100		
137	17.3	0.0	37.8
93	11.3	0.0	32.1



#14
Acetone
Concen: 17.29 ug/L
RT: 3.018 min Scan# 284
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

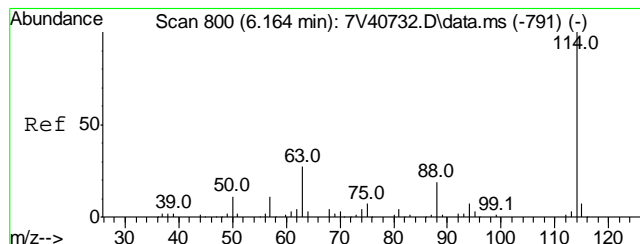
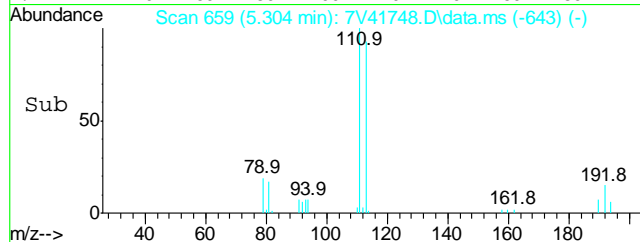
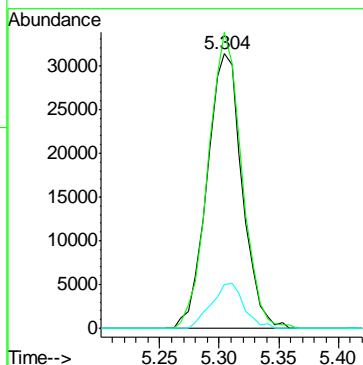
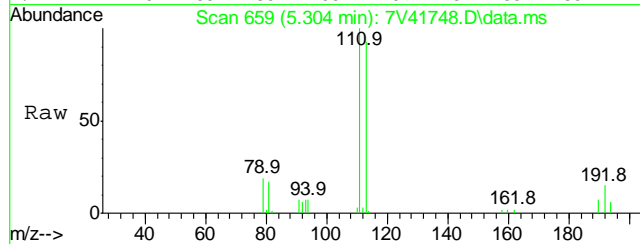
Tgt Ion	Ratio	Lower	Upper
43	100		
58	27.9	11.3	51.3





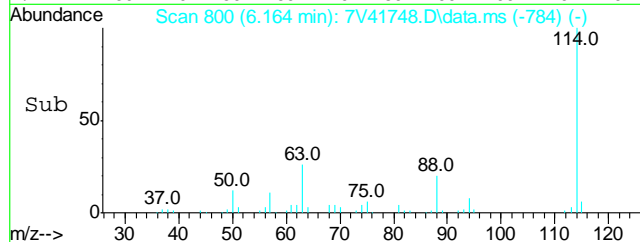
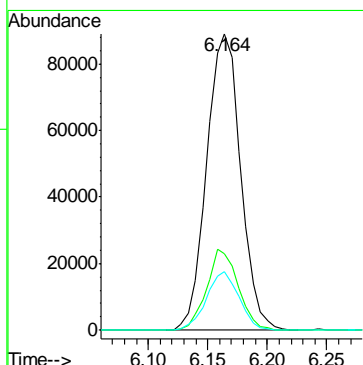
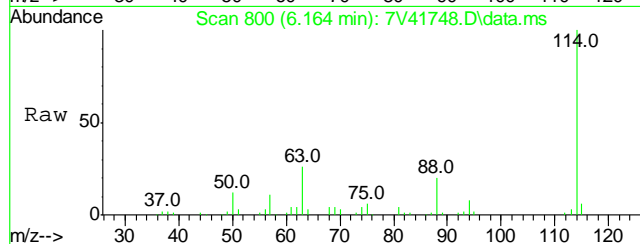
#35
Dibromofluoromethane
Concen: 52.24 ug/L
RT: 5.304 min Scan# 659
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

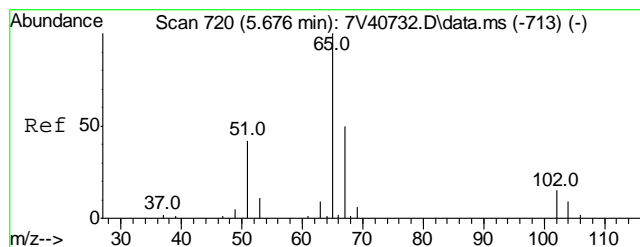
Tgt Ion	Ratio	Lower	Upper
113	100		
111	103.7	83.9	123.9
192	15.2	0.0	35.5



#40
1,4-Difluorobenzene
Concen: 50.00 ug/L
RT: 6.164 min Scan# 800
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

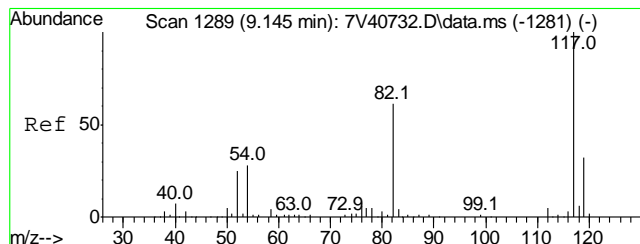
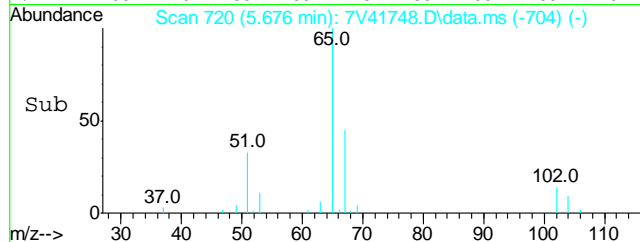
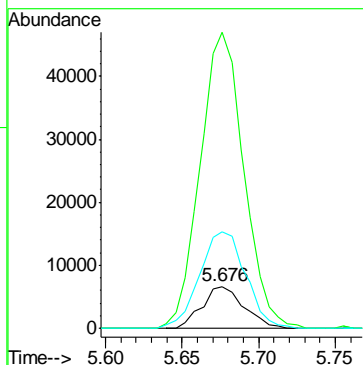
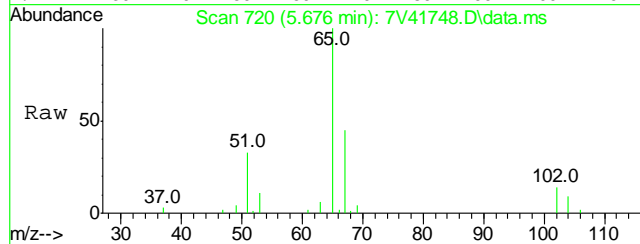
Tgt Ion	Ratio	Lower	Upper
114	100		
63	25.2	6.9	46.9
88	18.9	0.0	39.1





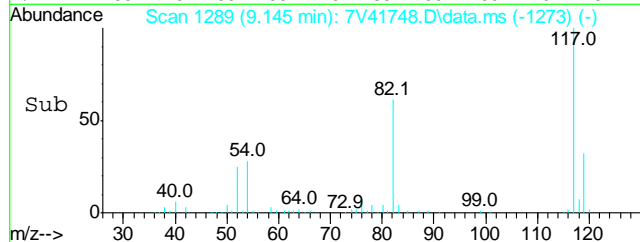
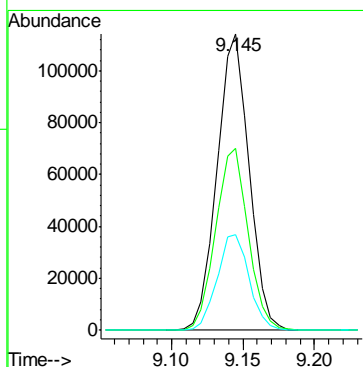
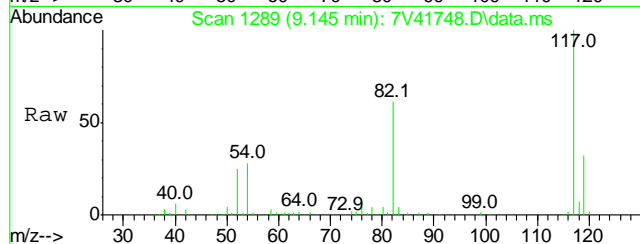
#41
1,2-Dichloroethane-d4
Concen: 48.56 ug/L
RT: 5.676 min Scan# 720
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

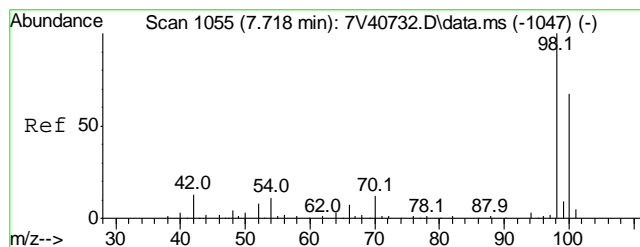
Tgt Ion	Ratio	Lower	Upper
102	100		
65	744.0	682.8	722.8#
51	254.9	248.3	288.3



#55
Chlorobenzene-d5
Concen: 50.00 ug/L
RT: 9.145 min Scan# 1289
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

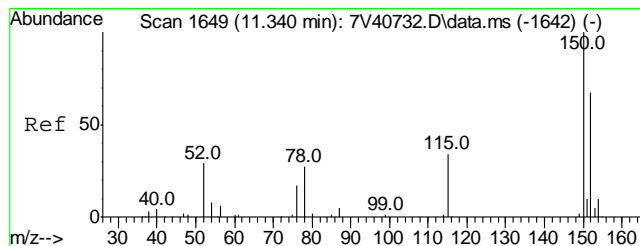
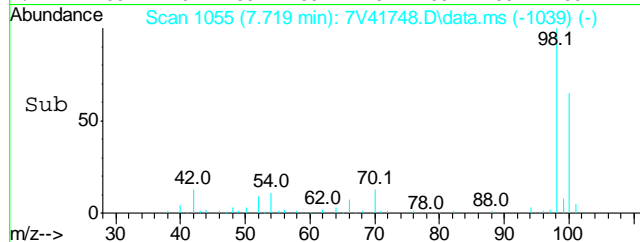
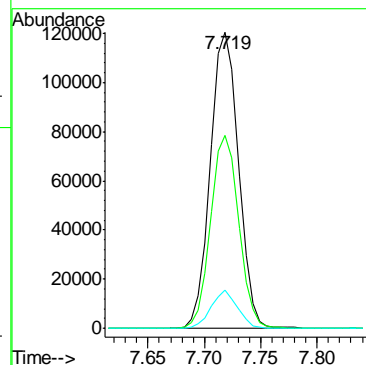
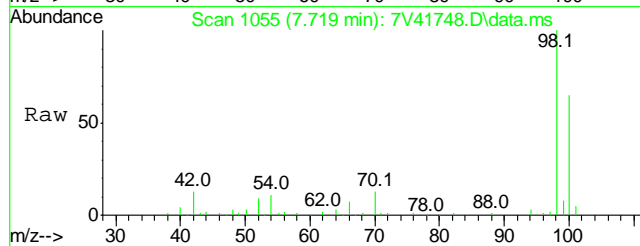
Tgt Ion	Ratio	Lower	Upper
117	100		
82	62.3	42.7	82.7
119	32.5	12.2	52.2





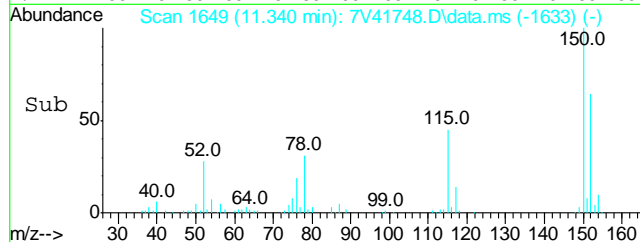
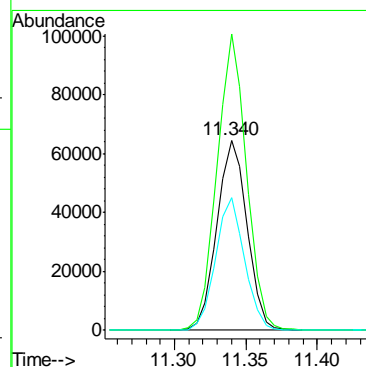
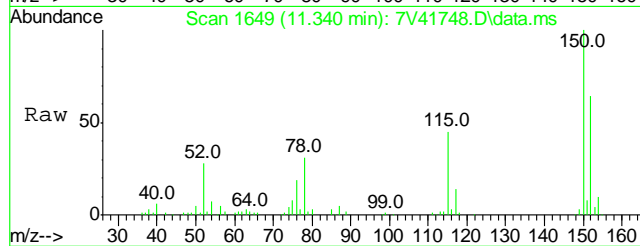
#56
Toluene-d8
Concen: 48.72 ug/L
RT: 7.719 min Scan# 1055
Delta R.T. 0.001 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

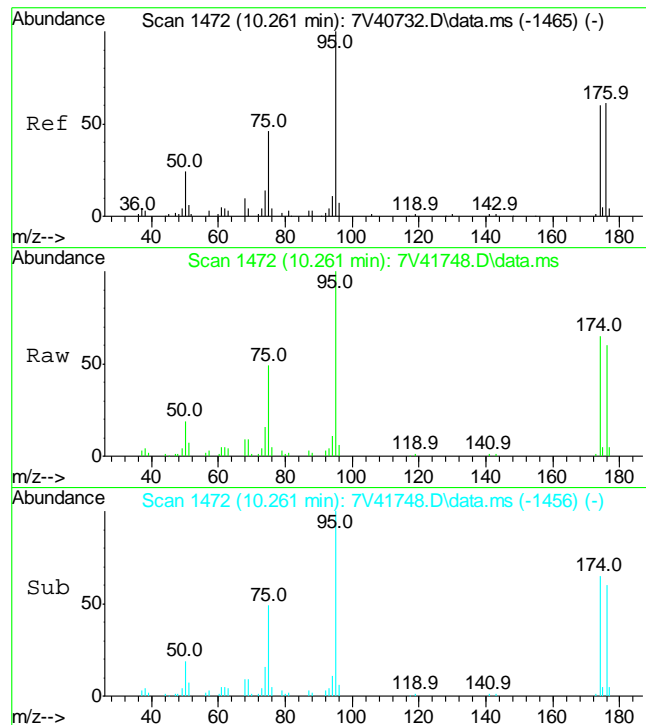
Tgt Ion:	98	Resp:	208948
Ion Ratio	Lower	Upper	
98	100		
100	64.8	45.1	85.1
70	12.0	0.0	31.7



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/L
RT: 11.340 min Scan# 1649
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

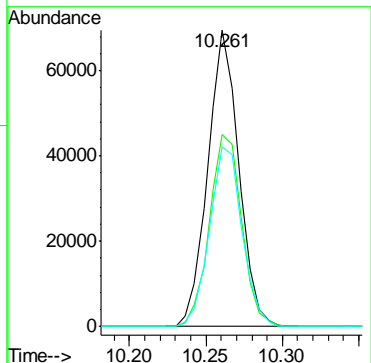
Tgt Ion:	152	Resp:	94665
Ion Ratio	Lower	Upper	
152	100		
150	152.2	154.1	194.1#
115	66.8	49.2	89.2





#76
4-Bromofluorobenzene
Concen: 48.10 ug/L
RT: 10.261 min Scan# 1472
Delta R.T. 0.000 min
Lab File: 7V41748.D
Acq: 9 Mar 2017 8:48 pm

Tgt Ion:	95	Resp:	97919
Ion Ratio	Lower	Upper	
95	100		
174	67.3	43.8	83.8
176	63.7	42.4	82.4



7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41749.D
Acq On : 9 Mar 2017 9:11 pm
Operator : TamL
Sample : D91855-2
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 10 09:11:45 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration

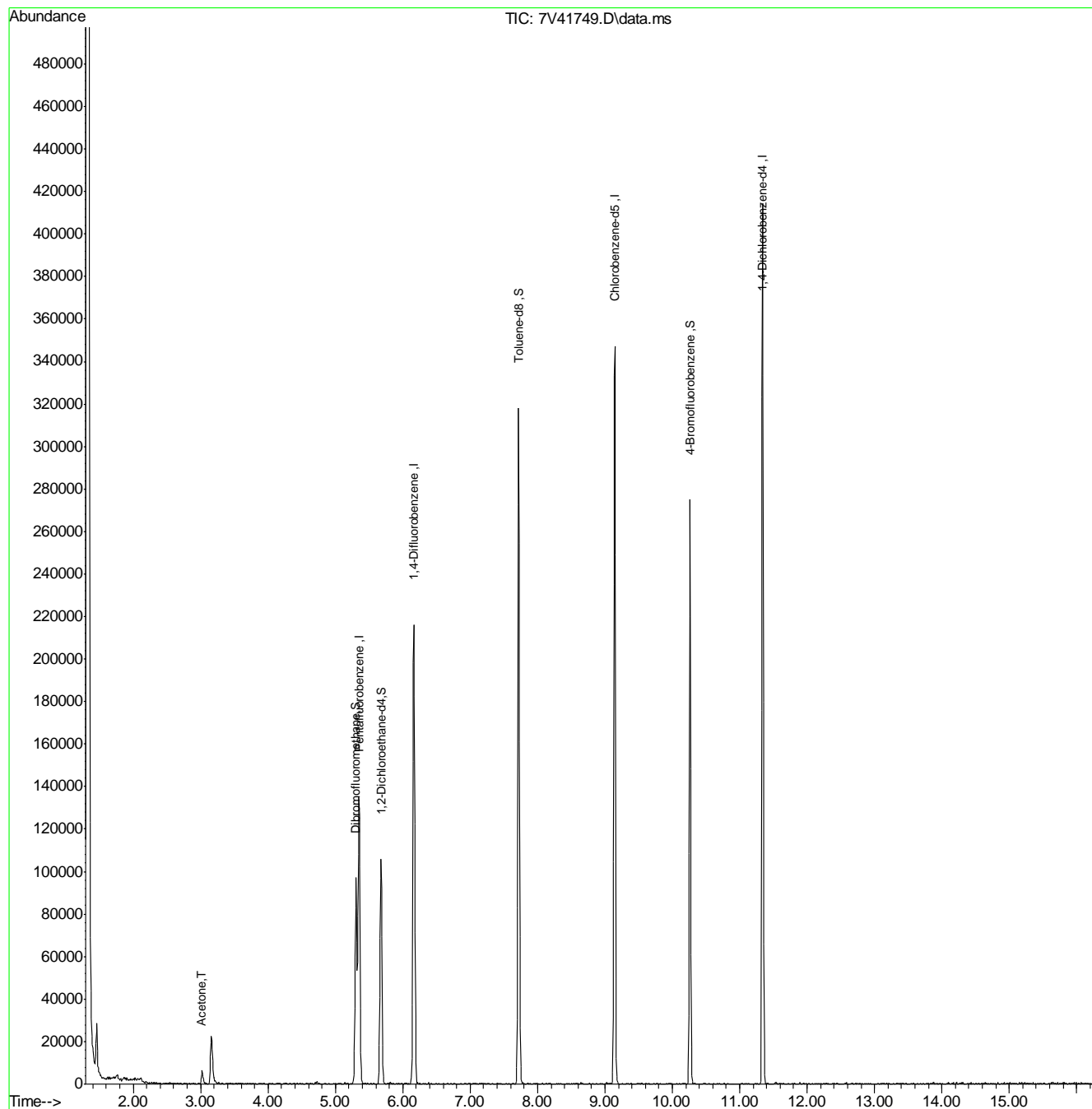
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
2) Pentafluorobenzene	5.347	168	85939	50.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.164	114	166899	50.00	ug/L	0.00
55) Chlorobenzene-d5	9.145	117	169290	50.00	ug/L	0.00
74) 1,4-Dichlorobenzene-d4	11.340	152	88405	50.00	ug/L	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	5.304	113	58439	51.56	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	103.12%		
41) 1,2-Dichloroethane-d4	5.676	102	11282	46.40	ug/L	0.00
Spiked Amount 50.000	Range 62 - 130		Recovery =	92.80%		
56) Toluene-d8	7.718	98	192572	47.16	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	94.32%		
76) 4-Bromofluorobenzene	10.261	95	90989	47.86	ug/L	0.00
Spiked Amount 50.000	Range 69 - 130		Recovery =	95.72%		
Target Compounds						
14) Acetone	3.018	43	7975	10.74	ug/L	Qvalue 99

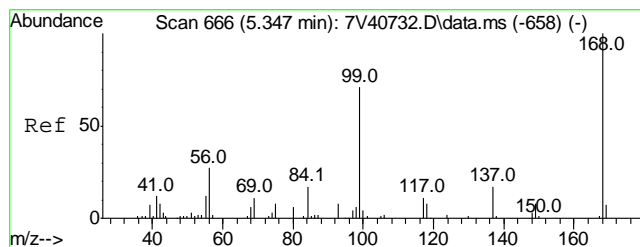
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41749.D
Acq On : 9 Mar 2017 9:11 pm
Operator : TamL
Sample : D91855-2
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 27 Sample Multiplier: 1

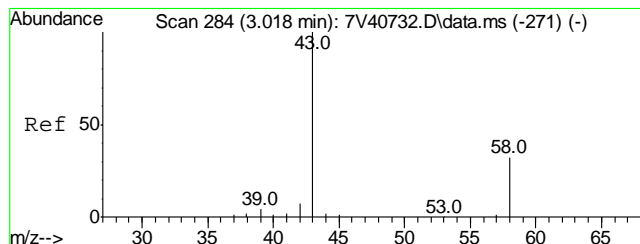
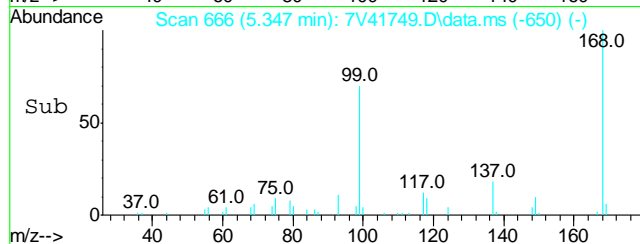
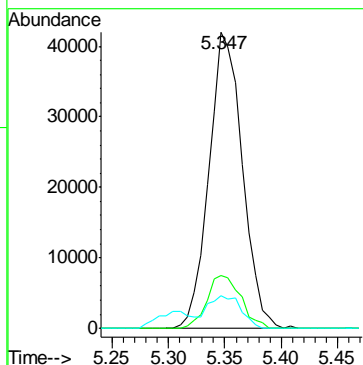
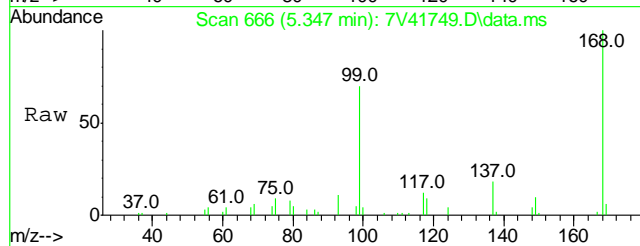
Quant Time: Mar 10 09:11:45 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration





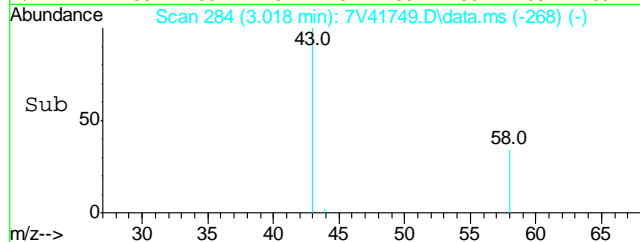
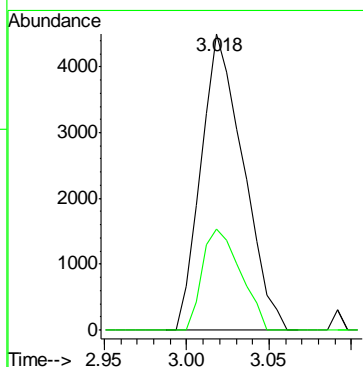
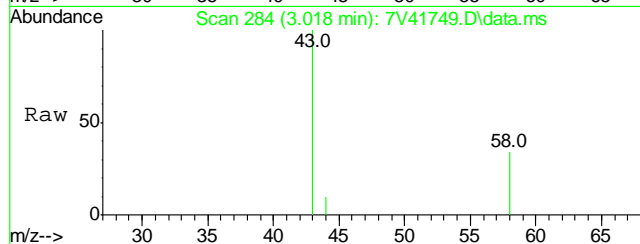
#2
Pentafluorobenzene
Concen: 50.00 ug/L
RT: 5.347 min Scan# 666
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

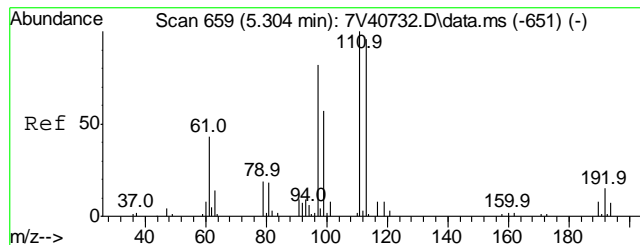
Tgt Ion	Ratio	Lower	Upper
168	100		
137	18.1	0.0	37.8
93	11.2	0.0	32.1



#14
Acetone
Concen: 10.74 ug/L
RT: 3.018 min Scan# 284
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

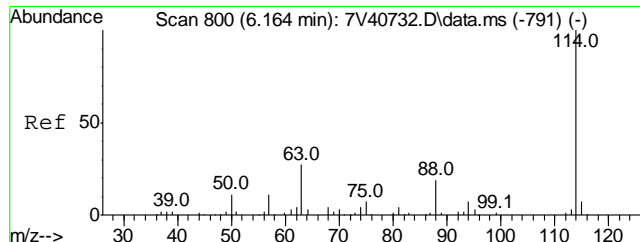
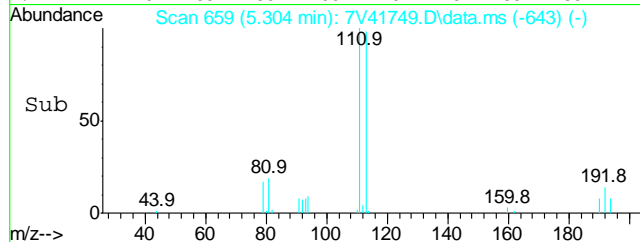
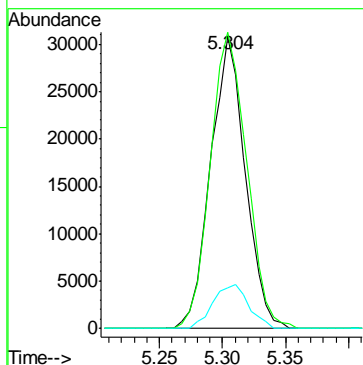
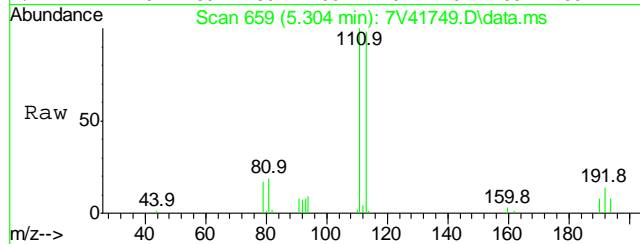
Tgt Ion	Ratio	Lower	Upper
43	100		
58	30.7	11.3	51.3





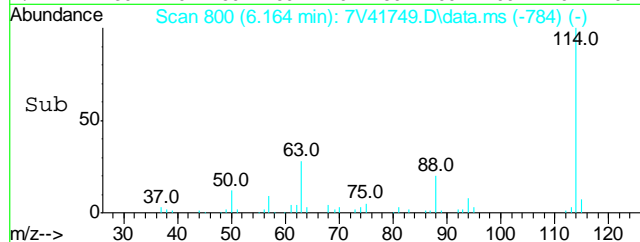
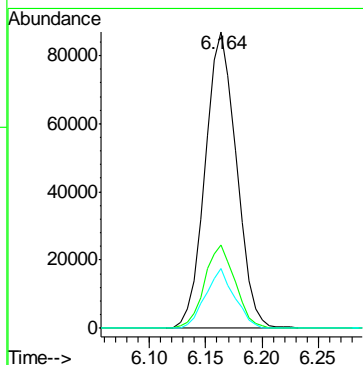
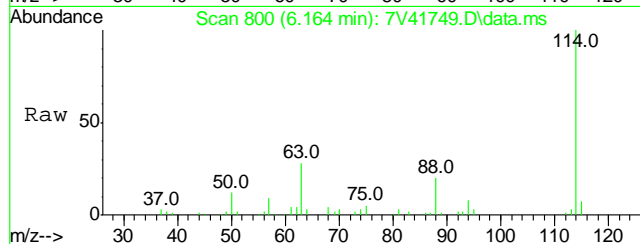
#35
Dibromofluoromethane
Concen: 51.56 ug/L
RT: 5.304 min Scan# 659
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

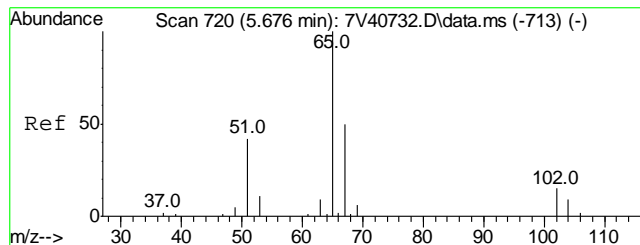
Tgt Ion	Ratio	Lower	Upper
113	100		
111	106.8	83.9	123.9
192	15.6	0.0	35.5



#40
1,4-Difluorobenzene
Concen: 50.00 ug/L
RT: 6.164 min Scan# 800
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

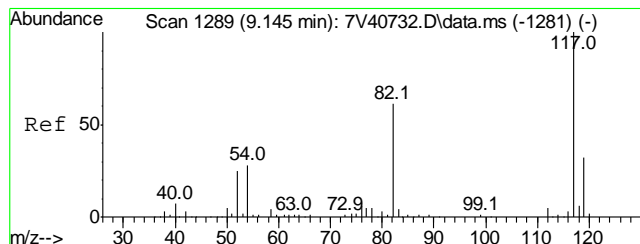
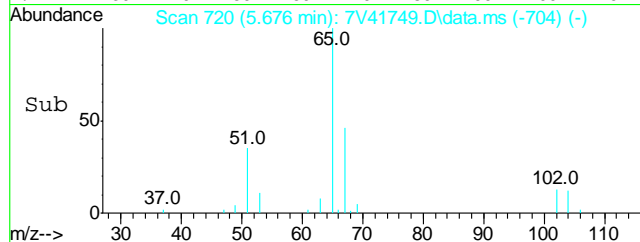
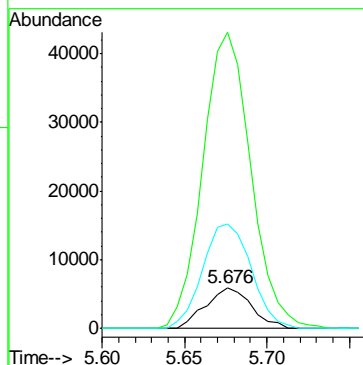
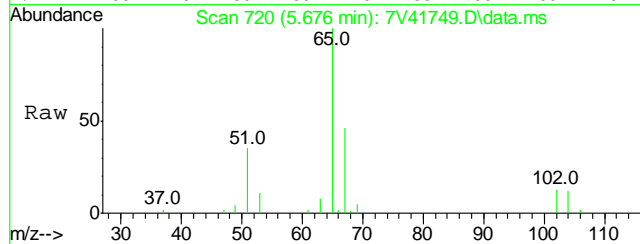
Tgt Ion	Ratio	Lower	Upper
114	100		
63	27.4	6.9	46.9
88	18.6	0.0	39.1





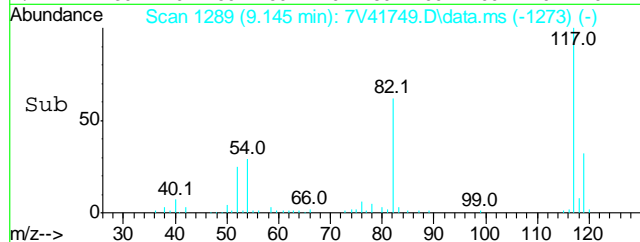
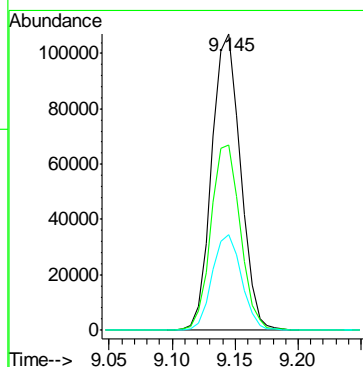
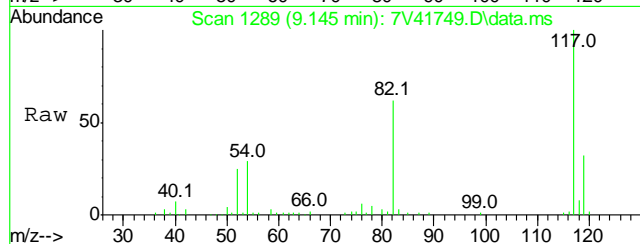
#41
1,2-Dichloroethane-d4
Concen: 46.40 ug/L
RT: 5.676 min Scan# 720
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

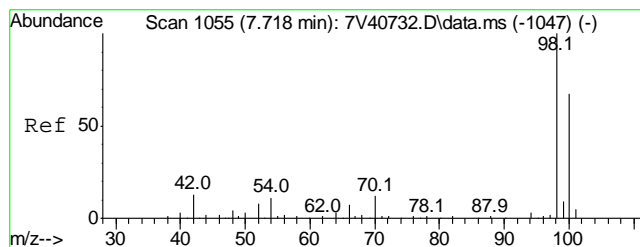
Tgt Ion	Ratio	Lower	Upper
102	100		
65	771.0	682.8	722.8#
51	275.0	248.3	288.3



#55
Chlorobenzene-d5
Concen: 50.00 ug/L
RT: 9.145 min Scan# 1289
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

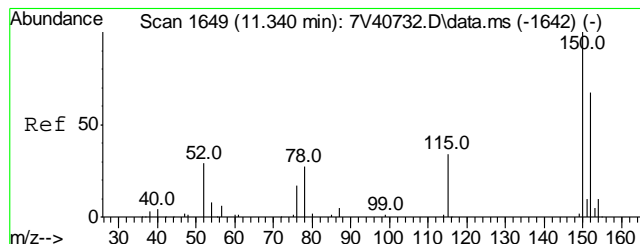
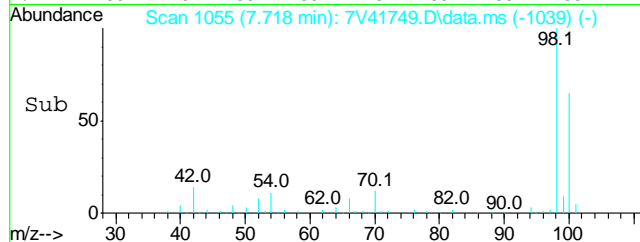
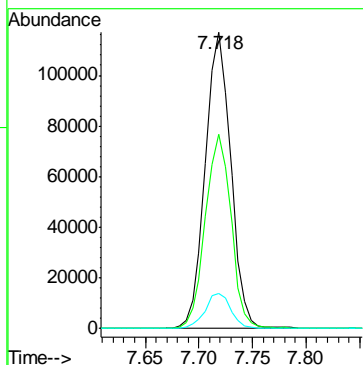
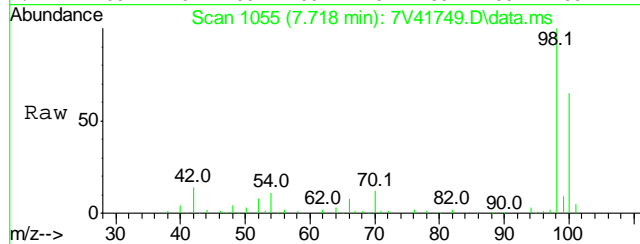
Tgt Ion	Ratio	Lower	Upper
117	100		
82	63.9	42.7	82.7
119	32.8	12.2	52.2





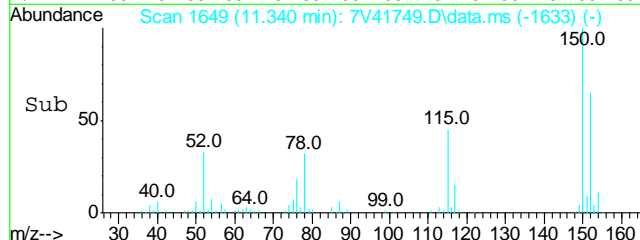
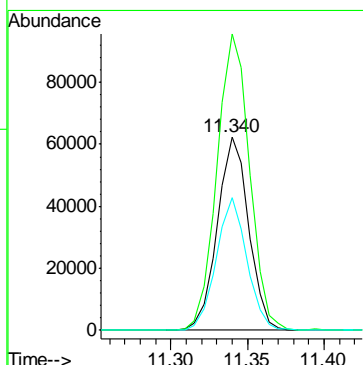
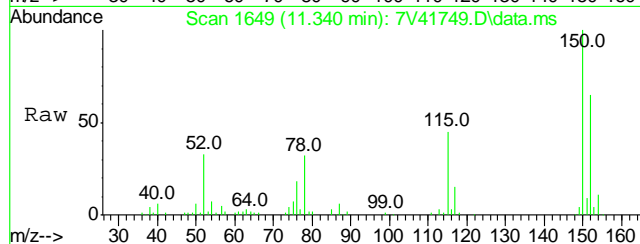
#56
Toluene-d8
Concen: 47.16 ug/L
RT: 7.718 min Scan# 1055
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

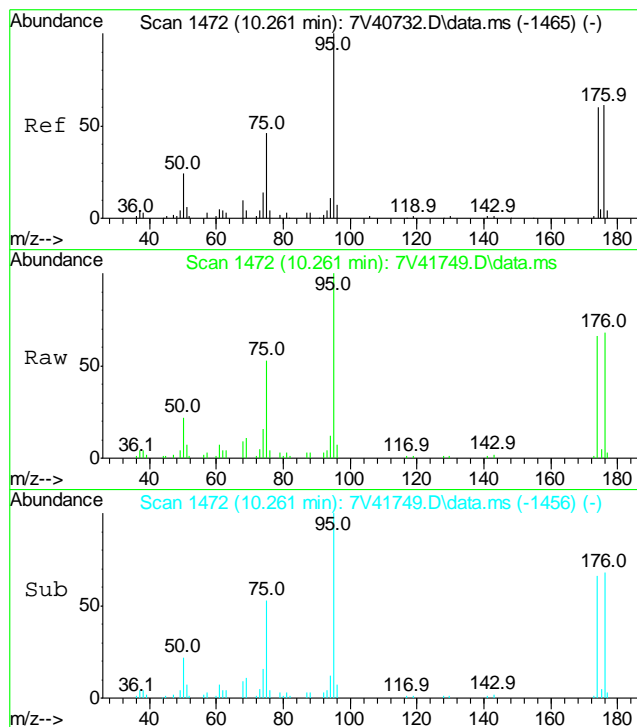
Tgt Ion:	98	Resp:	192572
Ion Ratio	Lower	Upper	
98	100		
100	65.7	45.1	85.1
70	11.8	0.0	31.7



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/L
RT: 11.340 min Scan# 1649
Delta R.T. 0.000 min
Lab File: 7V41749.D
Acq: 9 Mar 2017 9:11 pm

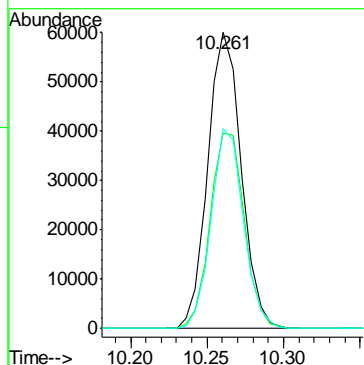
Tgt Ion:	152	Resp:	88405
Ion Ratio	Lower	Upper	
152	100		
150	159.4	154.1	194.1
115	67.0	49.2	89.2





#76
 4-Bromofluorobenzene
 Concen: 47.86 ug/L
 RT: 10.261 min Scan# 1472
 Delta R.T. 0.000 min
 Lab File: 7V41749.D
 Acq: 9 Mar 2017 9:11 pm

Tgt Ion:	95	Resp:	90989
Ion Ratio	Lower	Upper	
95	100		
174	67.7	43.8	83.8
176	65.5	42.4	82.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41747.D
Acq On : 9 Mar 2017 8:25 pm
Operator : TamL
Sample : D91855-3
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 10 09:10:19 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration

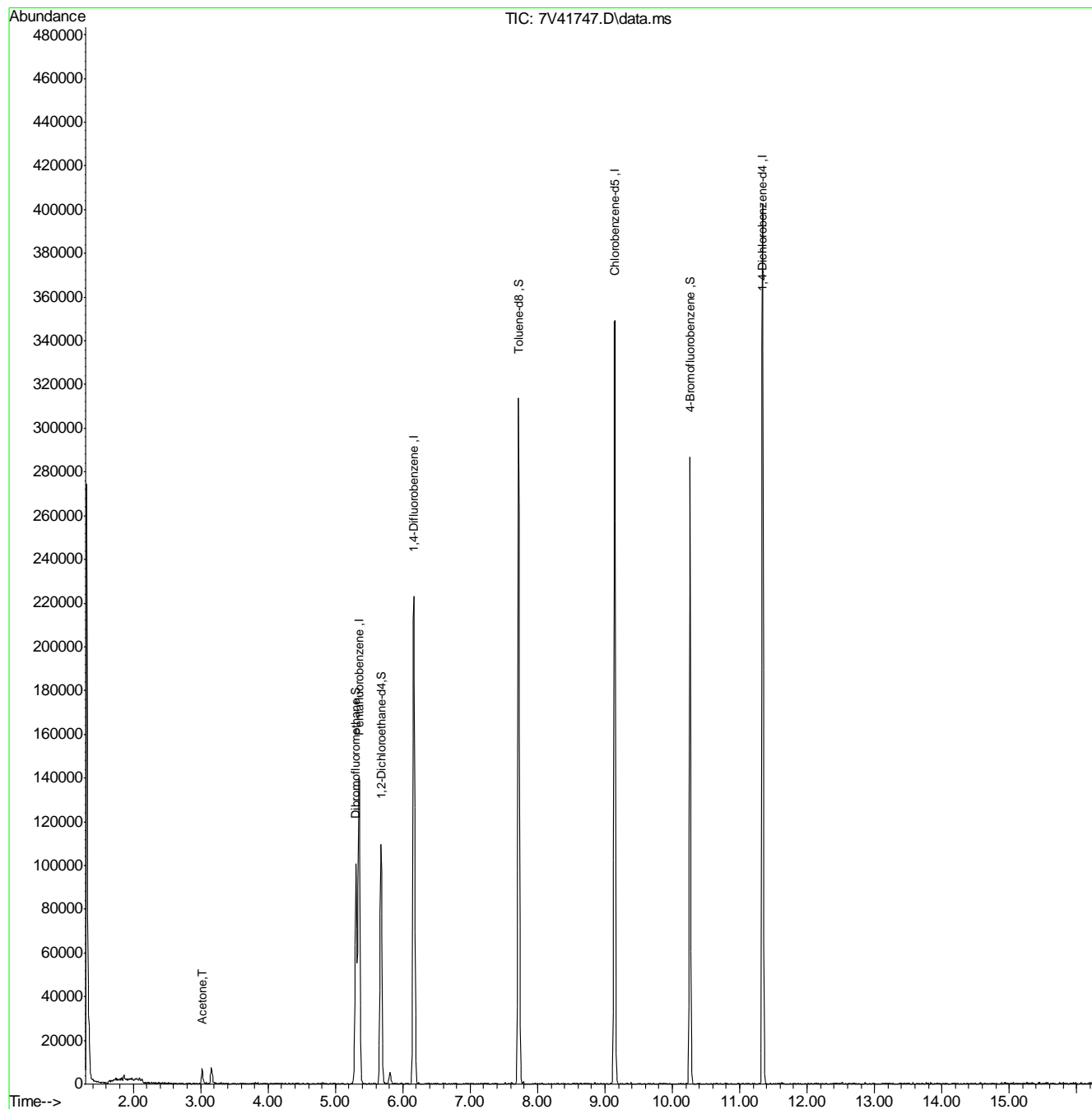
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
2) Pentafluorobenzene	5.353	168	90803	50.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.164	114	174745	50.00	ug/L	0.00
55) Chlorobenzene-d5	9.145	117	170427	50.00	ug/L	0.00
74) 1,4-Dichlorobenzene-d4	11.340	152	90442	50.00	ug/L	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	5.304	113	65353	54.58	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	109.16%		
41) 1,2-Dichloroethane-d4	5.676	102	12115	47.59	ug/L	0.00
Spiked Amount 50.000	Range 62 - 130		Recovery =	95.18%		
56) Toluene-d8	7.719	98	199103	48.43	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	96.86%		
76) 4-Bromofluorobenzene	10.261	95	95994	49.35	ug/L	0.00
Spiked Amount 50.000	Range 69 - 130		Recovery =	98.70%		
Target Compounds						
14) Acetone	3.024	43	7930	10.11	ug/L	Qvalue 97

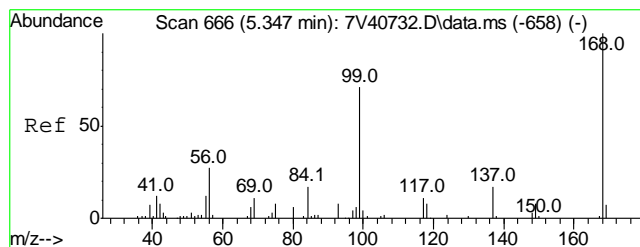
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41747.D
Acq On : 9 Mar 2017 8:25 pm
Operator : TamL
Sample : D91855-3
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 25 Sample Multiplier: 1

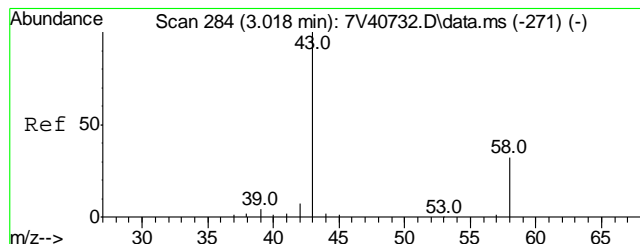
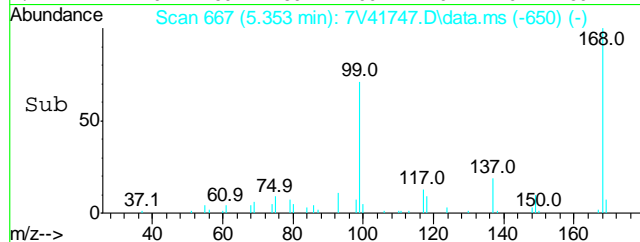
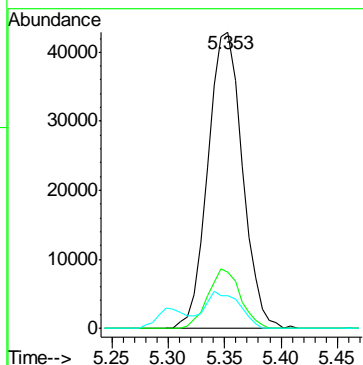
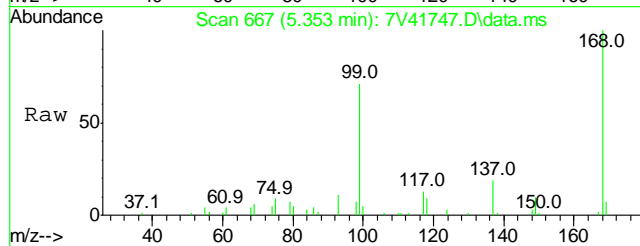
Quant Time: Mar 10 09:10:19 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration





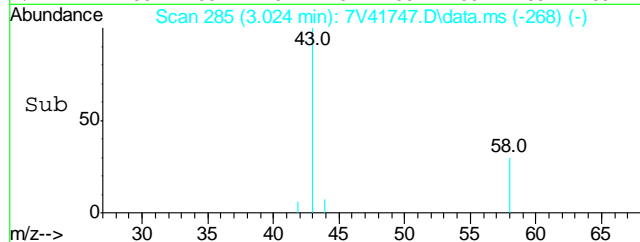
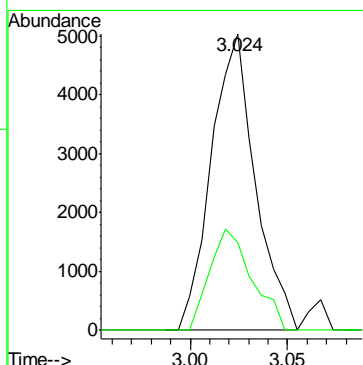
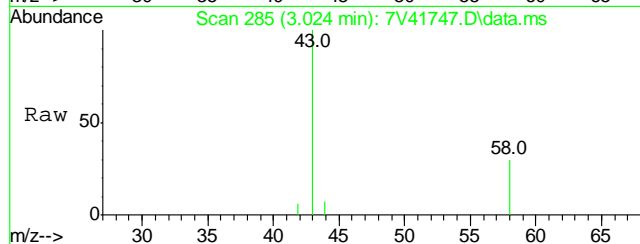
#2
Pentafluorobenzene
Concen: 50.00 ug/L
RT: 5.353 min Scan# 667
Delta R.T. 0.006 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

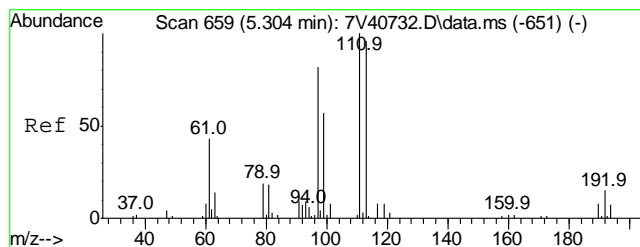
Tgt Ion	Ratio	Lower	Upper
168	100		
137	18.8	0.0	37.8
93	12.2	0.0	32.1



#14
Acetone
Concen: 10.11 ug/L
RT: 3.024 min Scan# 285
Delta R.T. 0.006 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

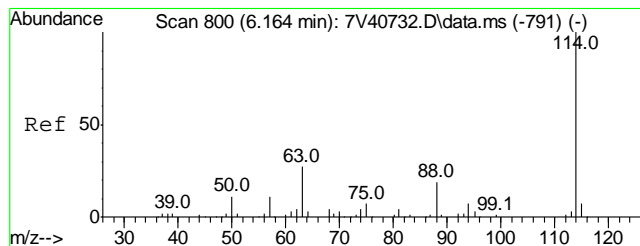
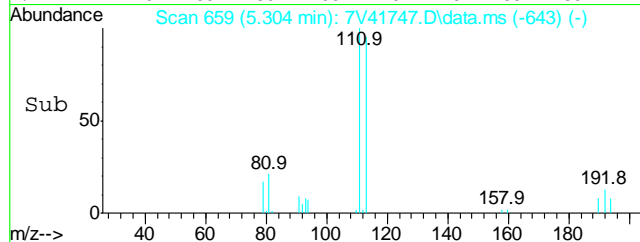
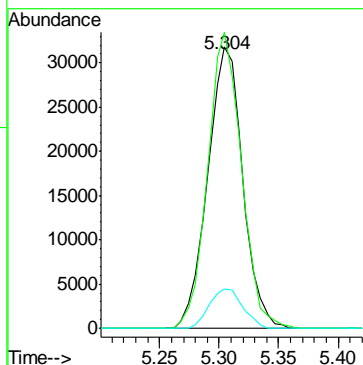
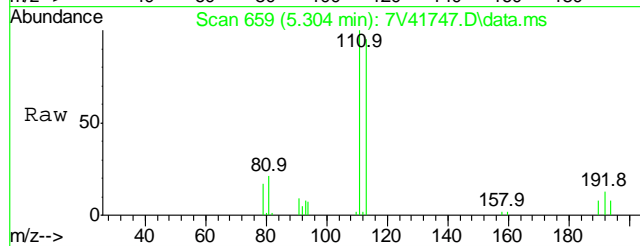
Tgt Ion	Ratio	Lower	Upper
43	100		
58	32.7	11.3	51.3





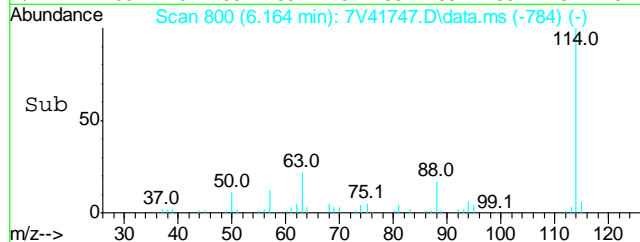
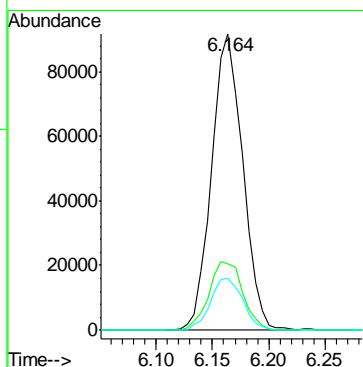
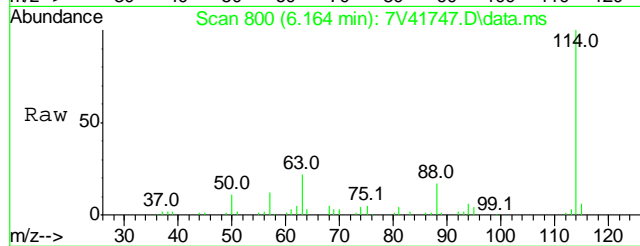
#35
Dibromofluoromethane
Concen: 54.58 ug/L
RT: 5.304 min Scan# 659
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

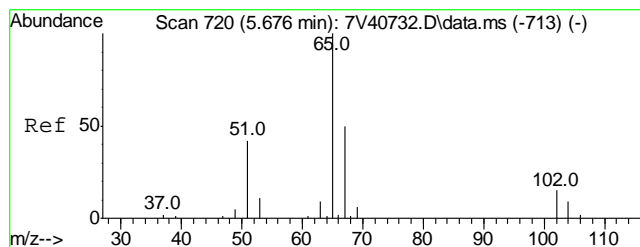
Tgt Ion	Ratio	Lower	Upper
113	100		
111	101.1	83.9	123.9
192	13.5	0.0	35.5



#40
1,4-Difluorobenzene
Concen: 50.00 ug/L
RT: 6.164 min Scan# 800
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

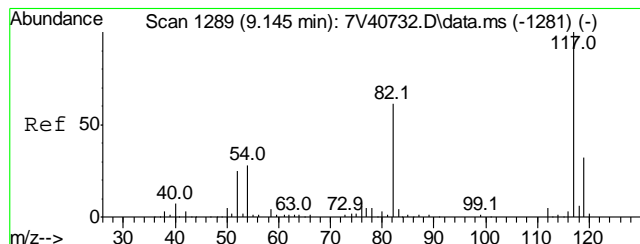
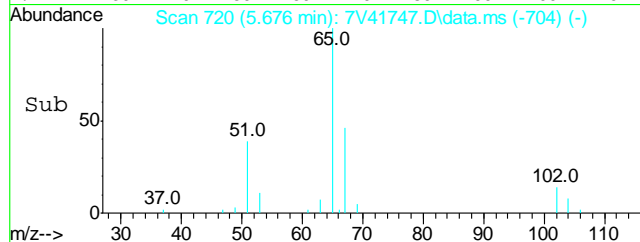
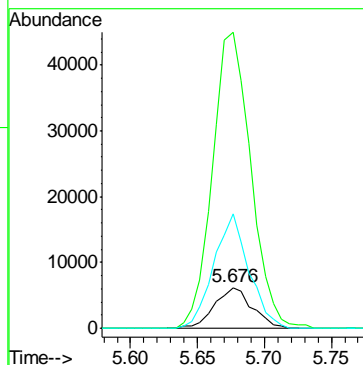
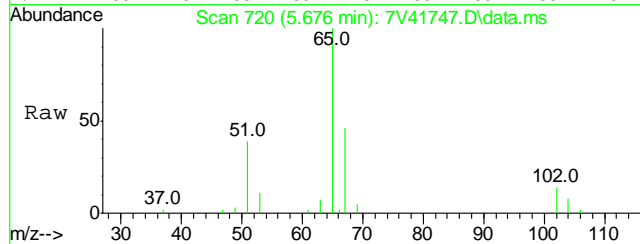
Tgt Ion	Ratio	Lower	Upper
114	100		
63	25.2	6.9	46.9
88	18.0	0.0	39.1





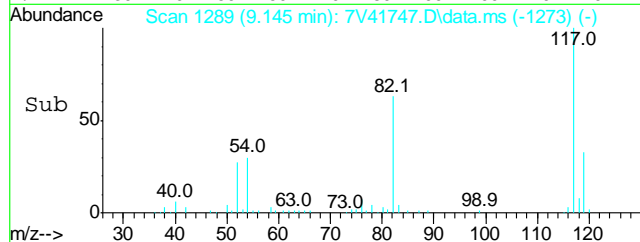
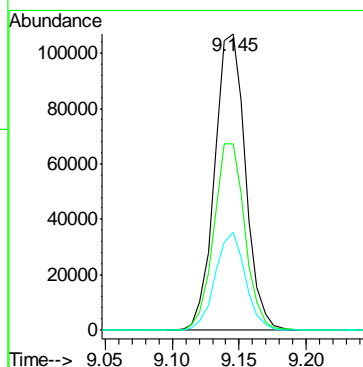
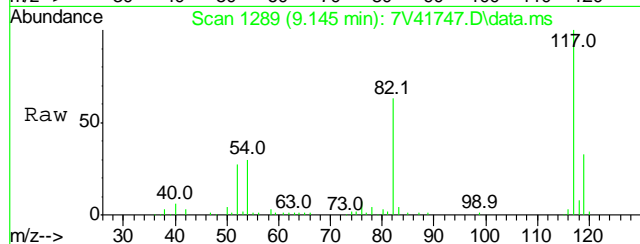
#41
1,2-Dichloroethane-d4
Concen: 47.59 ug/L
RT: 5.676 min Scan# 720
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

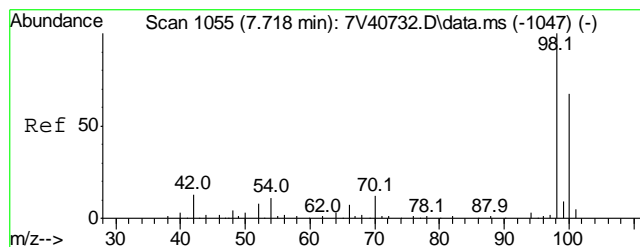
Tgt Ion	Ratio	Lower	Upper
102	100		
65	738.2	682.8	722.8#
51	261.9	248.3	288.3



#55
Chlorobenzene-d5
Concen: 50.00 ug/L
RT: 9.145 min Scan# 1289
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

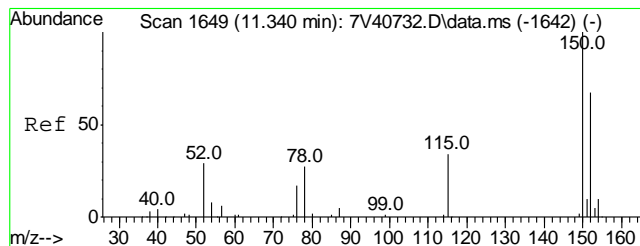
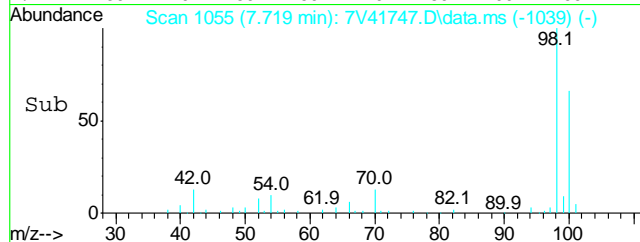
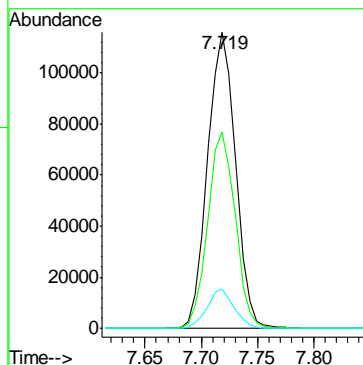
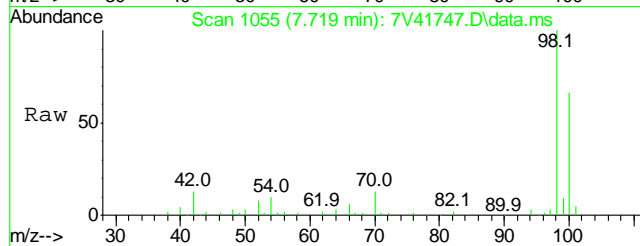
Tgt Ion	Ratio	Lower	Upper
117	100		
82	63.2	42.7	82.7
119	32.0	12.2	52.2





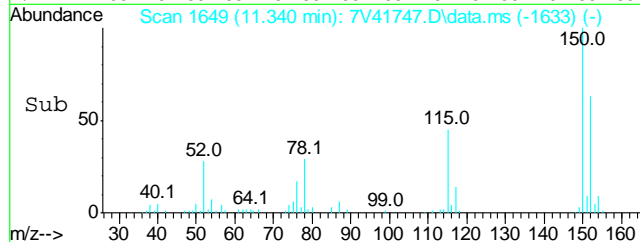
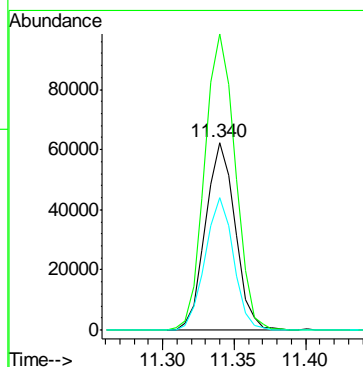
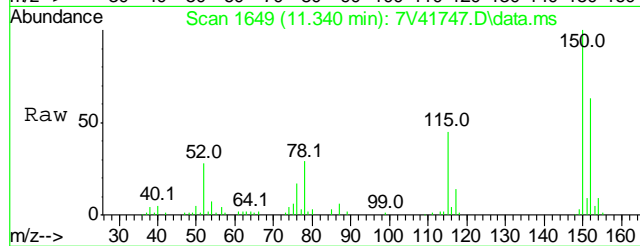
#56
Toluene-d8
Concen: 48.43 ug/L
RT: 7.719 min Scan# 1055
Delta R.T. 0.001 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

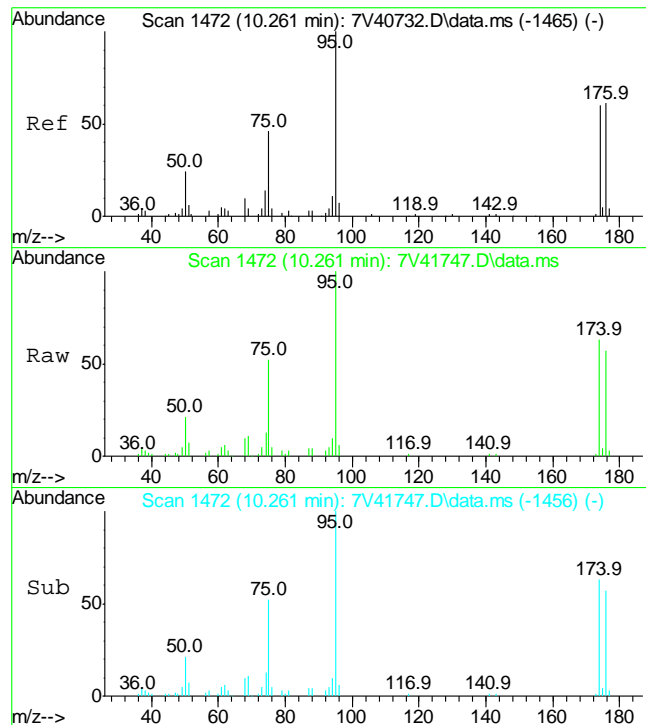
Tgt Ion:	98	Resp:	199103
Ion Ratio	Lower	Upper	
98	100		
100	65.1	45.1	85.1
70	12.7	0.0	31.7



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/L
RT: 11.340 min Scan# 1649
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

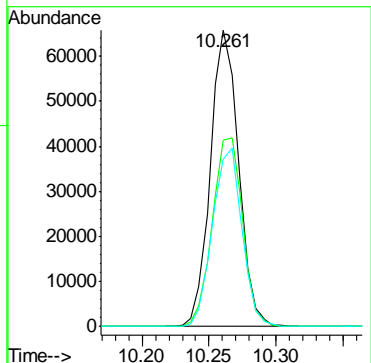
Tgt Ion:	152	Resp:	90442
Ion Ratio	Lower	Upper	
152	100		
150	162.6	154.1	194.1
115	67.6	49.2	89.2





#76
4-Bromofluorobenzene
Concen: 49.35 ug/L
RT: 10.261 min Scan# 1472
Delta R.T. 0.000 min
Lab File: 7V41747.D
Acq: 9 Mar 2017 8:25 pm

Tgt Ion:	95	Resp:	95994
Ion Ratio	Lower	Upper	
95	100		
174	68.3	43.8	83.8
176	62.9	42.4	82.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41730.D
Acq On : 9 Mar 2017 12:21 pm
Operator : TamL
Sample : MB
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 09 16:26:39 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration

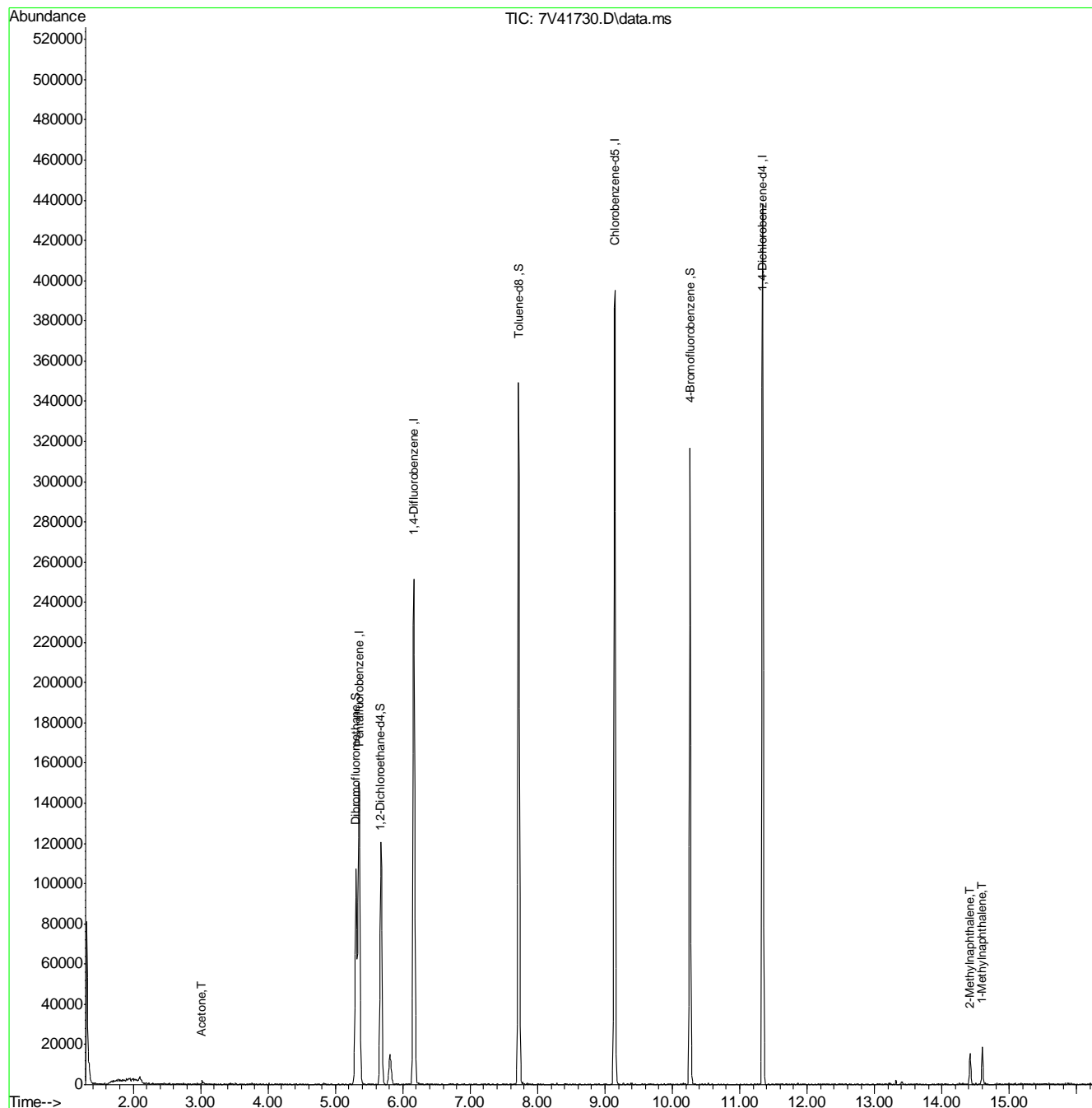
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
2) Pentafluorobenzene	5.353	168	94372	50.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.164	114	190381	50.00	ug/L	0.00
55) Chlorobenzene-d5	9.145	117	193029	50.00	ug/L	0.00
74) 1,4-Dichlorobenzene-d4	11.340	152	94932	50.00	ug/L	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	5.304	113	66063	53.08	ug/L	0.00
Spiked Amount 50.000	Range 70	- 130	Recovery	=	106.16%	
41) 1,2-Dichloroethane-d4	5.670	102	12816	46.21	ug/L	0.00
Spiked Amount 50.000	Range 62	- 130	Recovery	=	92.42%	
56) Toluene-d8	7.719	98	223004	47.89	ug/L	0.00
Spiked Amount 50.000	Range 70	- 130	Recovery	=	95.78%	
76) 4-Bromofluorobenzene	10.261	95	103148	50.52	ug/L	0.00
Spiked Amount 50.000	Range 69	- 130	Recovery	=	101.04%	
Target Compounds						
14) Acetone	3.018	43	2533	3.11	ug/L	Qvalue 67
98) 2-Methylnaphthalene	14.418	142	7650	4.96	ug/L	93
99) 1-Methylnaphthalene	14.595	142	9513	9.25	ug/L	95

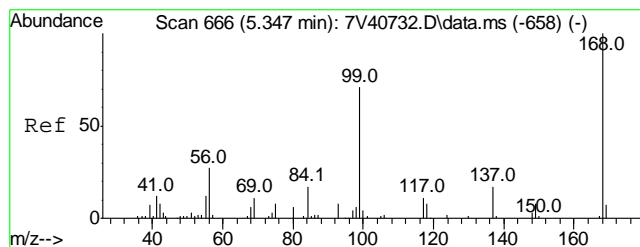
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V7V2273\
Data File : 7V41730.D
Acq On : 9 Mar 2017 12:21 pm
Operator : TamL
Sample : MB
Misc : MS9926,V7V2273,,,,,1
ALS Vial : 8 Sample Multiplier: 1

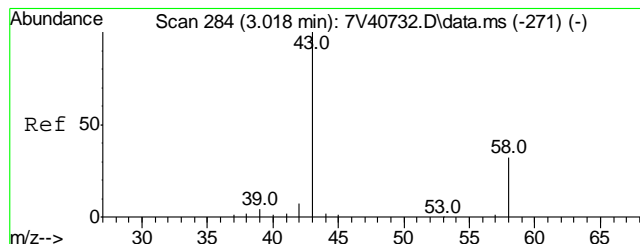
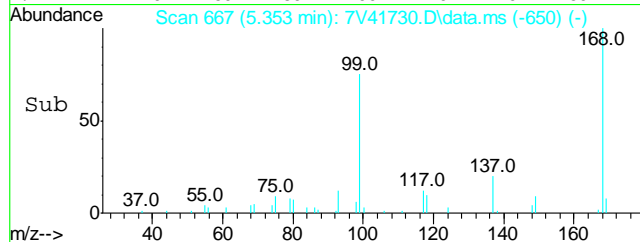
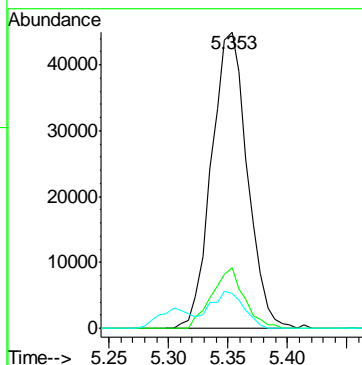
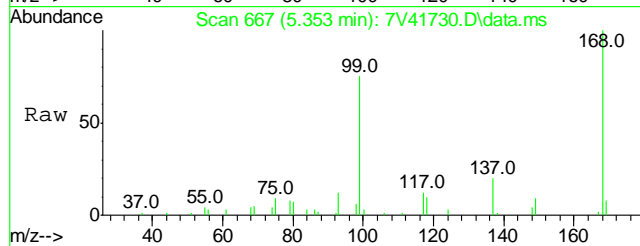
Quant Time: Mar 09 16:26:39 2017
Quant Method : C:\msdchem\1\methods\V7V2231.M
Quant Title : 8260
QLast Update : Wed Jan 25 11:38:37 2017
Response via : Initial Calibration





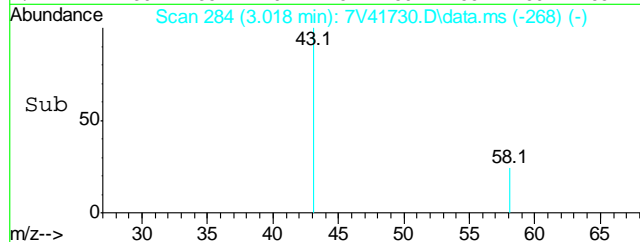
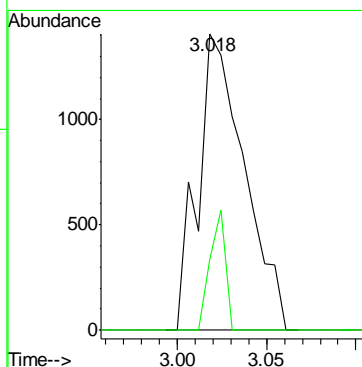
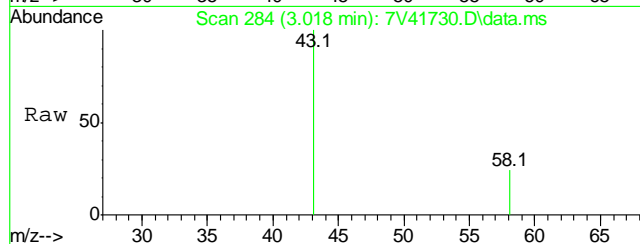
#2
Pentafluorobenzene
Concen: 50.00 ug/L
RT: 5.353 min Scan# 667
Delta R.T. 0.006 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

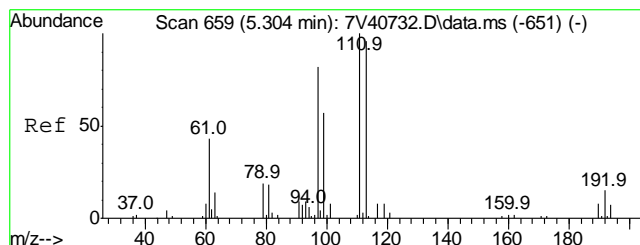
Tgt Ion: 168	Resp: 94372
Ion Ratio	Lower Upper
168 100	
137 18.5	0.0 37.8
93 11.5	0.0 32.1



#14
Acetone
Concen: 3.11 ug/L
RT: 3.018 min Scan# 284
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

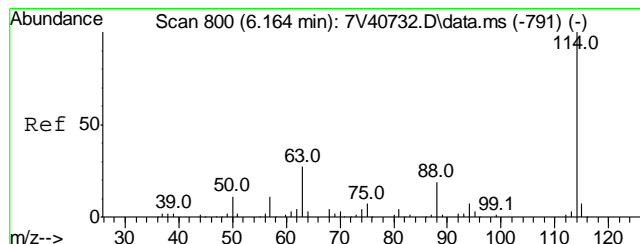
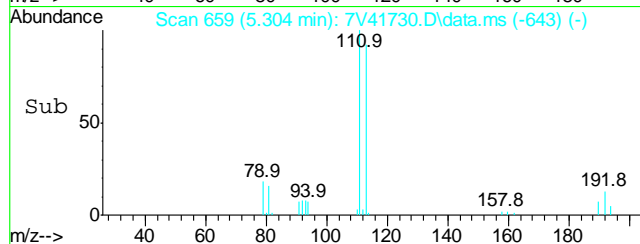
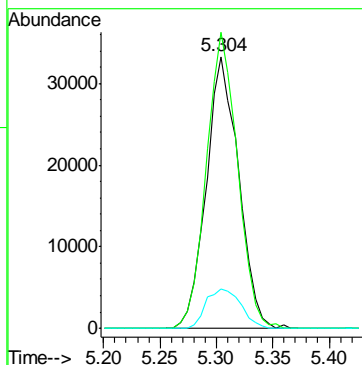
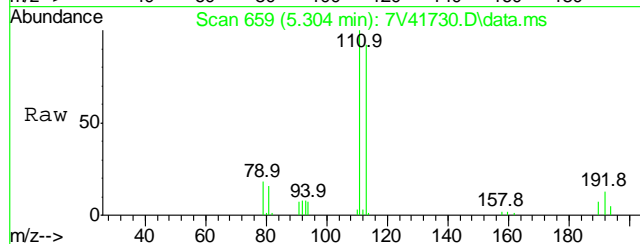
Tgt Ion: 43	Resp: 2533
Ion Ratio	Lower Upper
43 100	
58 13.1	11.3 51.3





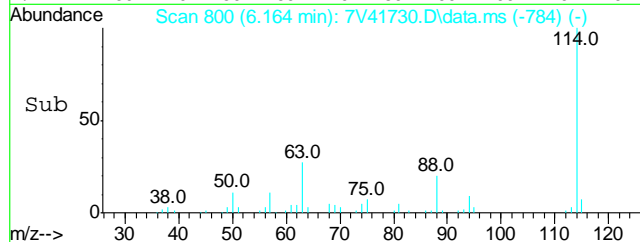
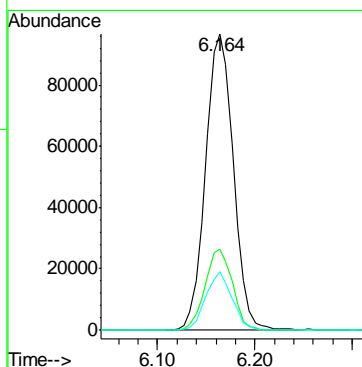
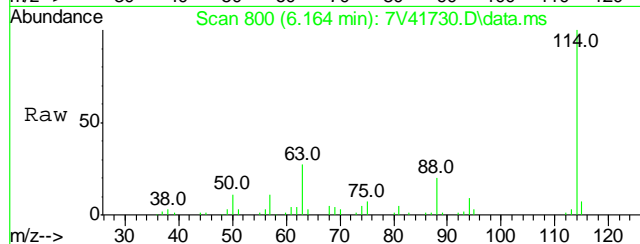
#35
Dibromofluoromethane
Concen: 53.08 ug/L
RT: 5.304 min Scan# 659
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

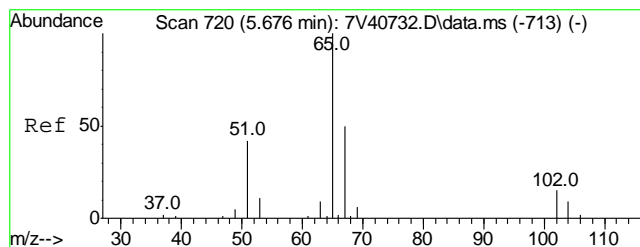
Tgt Ion:	113	Resp:	66063
Ion Ratio	Lower	Upper	
113	100		
111	105.1	83.9	123.9
192	15.7	0.0	35.5



#40
1,4-Difluorobenzene
Concen: 50.00 ug/L
RT: 6.164 min Scan# 800
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

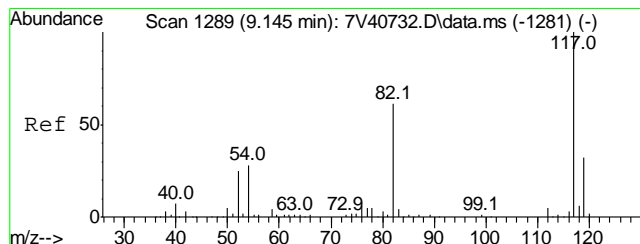
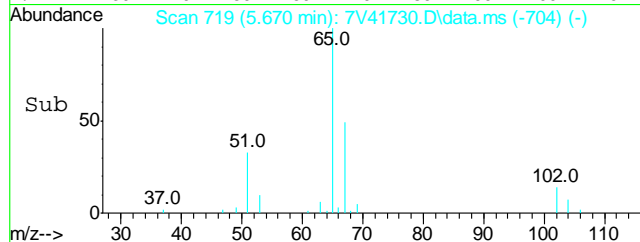
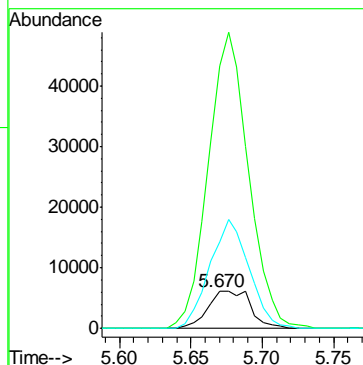
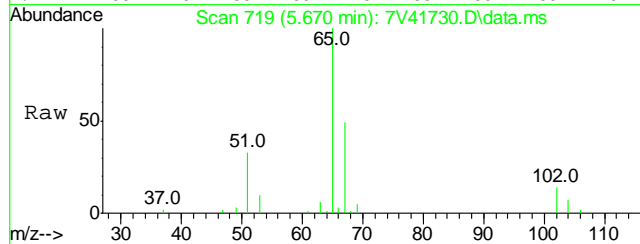
Tgt Ion:	114	Resp:	190381
Ion Ratio	Lower	Upper	
114	100		
63	26.7	6.9	46.9
88	18.5	0.0	39.1





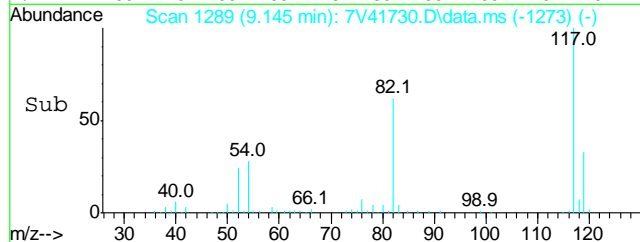
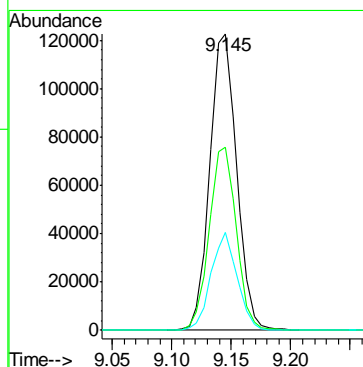
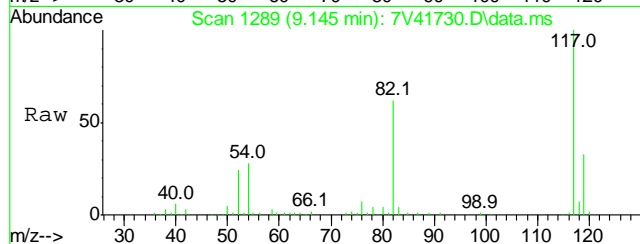
#41
1,2-Dichloroethane-d4
Concen: 46.21 ug/L
RT: 5.670 min Scan# 719
Delta R.T. -0.006 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

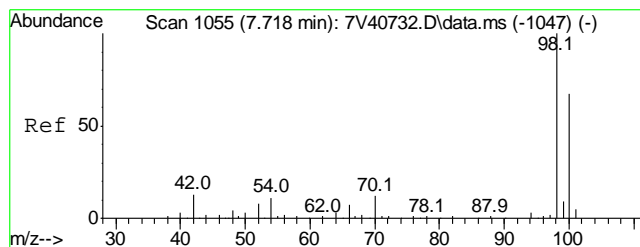
Tgt Ion:102	Resp:	12816
Ion Ratio	Lower	Upper
102	100	
65	745.6	682.8 722.8#
51	268.2	248.3 288.3



#55
Chlorobenzene-d5
Concen: 50.00 ug/L
RT: 9.145 min Scan# 1289
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

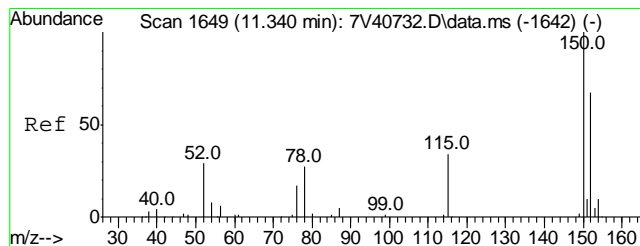
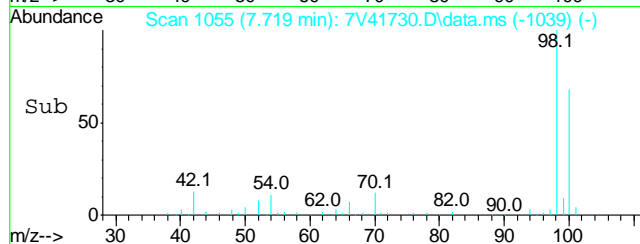
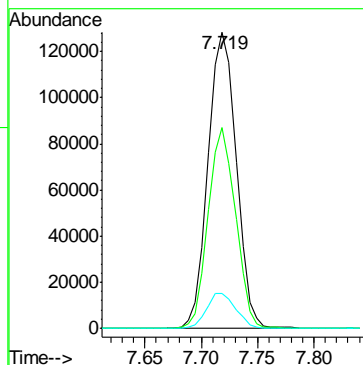
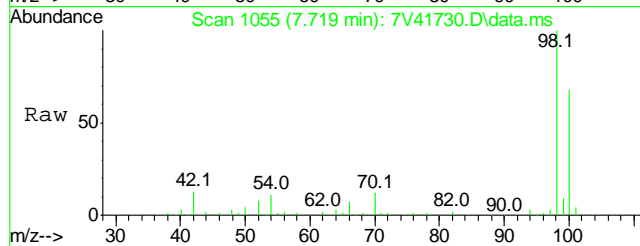
Tgt Ion:117	Resp:	193029
Ion Ratio	Lower	Upper
117	100	
82	62.1	42.7 82.7
119	31.8	12.2 52.2





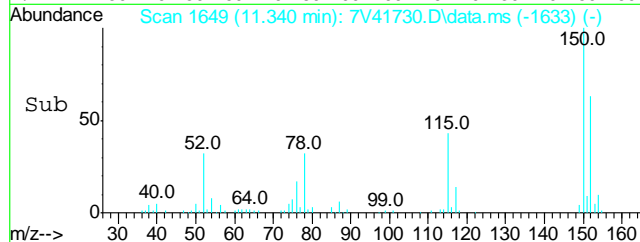
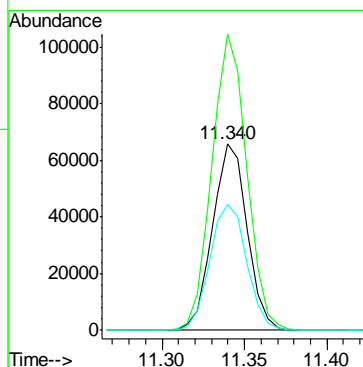
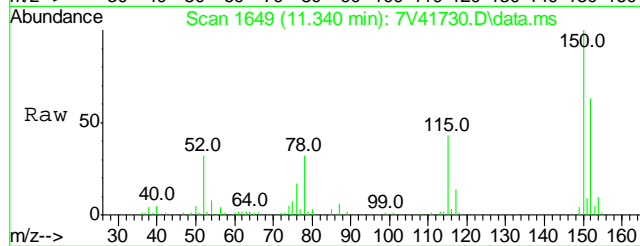
#56
Toluene-d8
Concen: 47.89 ug/L
RT: 7.719 min Scan# 1055
Delta R.T. 0.001 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

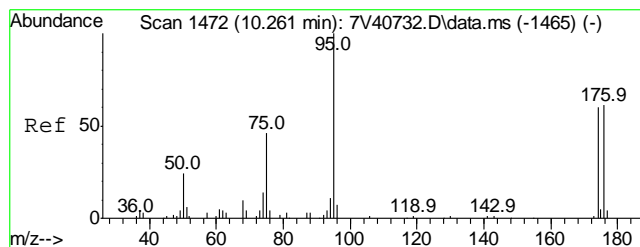
Tgt Ion:	98	Resp:	223004
Ion Ratio	Lower	Upper	
98	100		
100	65.7	45.1	85.1
70	12.1	0.0	31.7



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/L
RT: 11.340 min Scan# 1649
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

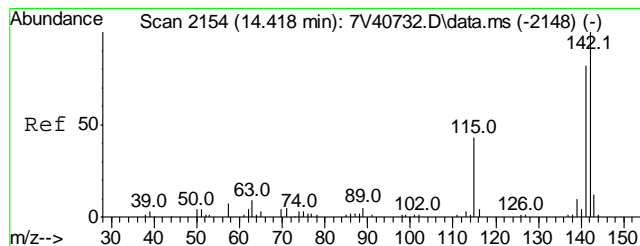
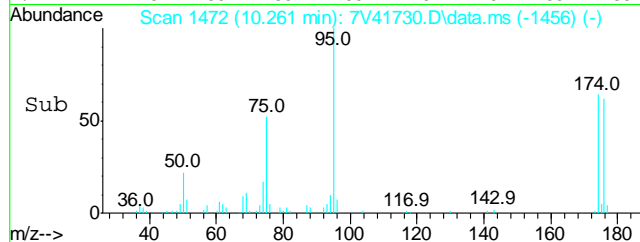
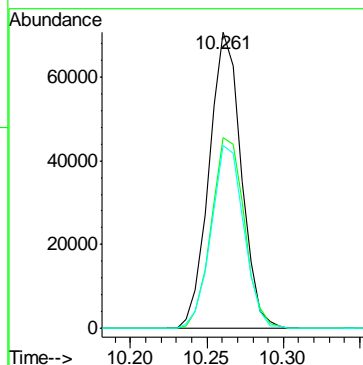
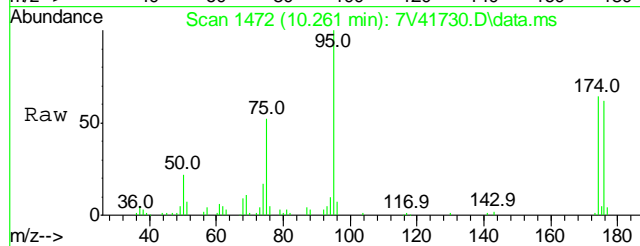
Tgt Ion:	152	Resp:	94932
Ion Ratio	Lower	Upper	
152	100		
150	160.5	154.1	194.1
115	71.6	49.2	89.2





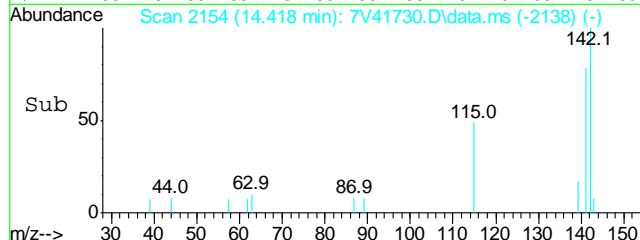
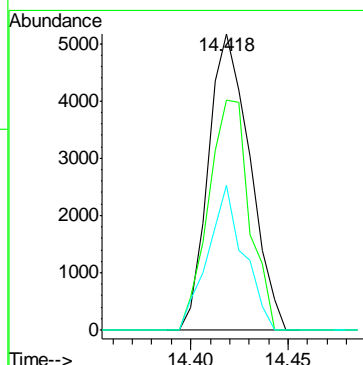
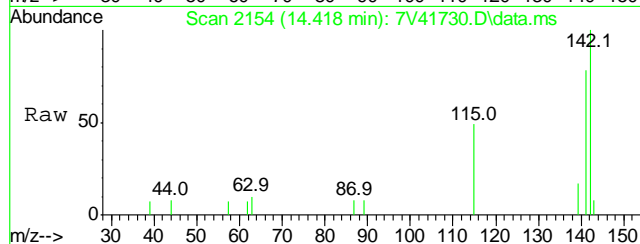
#76
4-Bromofluorobenzene
Concen: 50.52 ug/L
RT: 10.261 min Scan# 1472
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

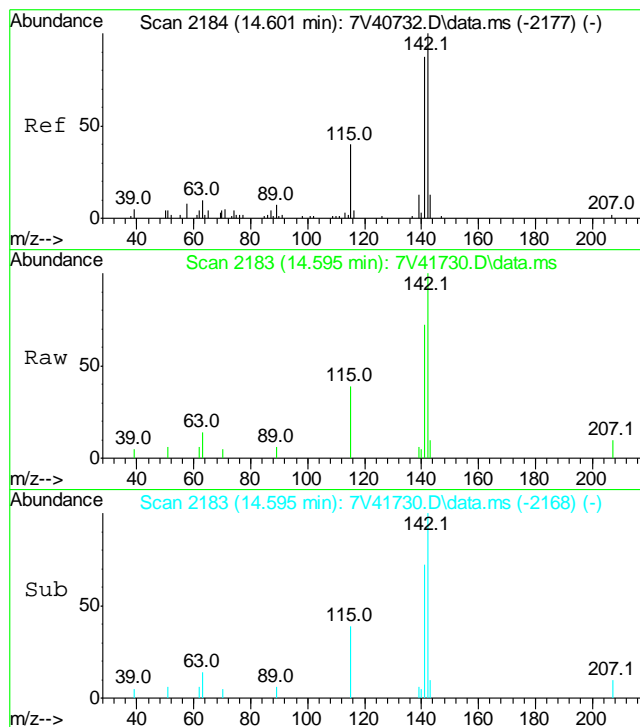
Tgt Ion	95	Resp	103148
Ion Ratio	100		
Lower	43.8		
Upper	83.8		



#98
2-Methylnaphthalene
Concen: 4.96 ug/L
RT: 14.418 min Scan# 2154
Delta R.T. 0.000 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

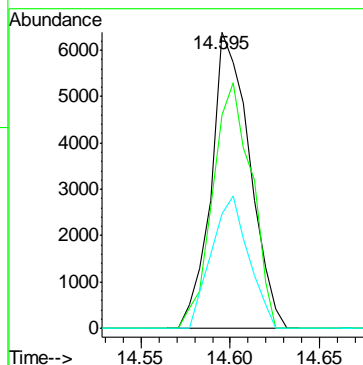
Tgt Ion	142	Resp	7650
Ion Ratio <th>100</th> <td></td> <td></td>	100		
Lower <td>62.6</td> <td></td> <td></td>	62.6		
Upper <td>102.6</td> <td></td> <td></td>	102.6		





#99
1-Methylnaphthalene
Concen: 9.25 ug/L
RT: 14.595 min Scan# 2183
Delta R.T. -0.006 min
Lab File: 7V41730.D
Acq: 9 Mar 2017 12:21 pm

Tgt Ion:142	Resp:	9513
Ion Ratio	Lower	Upper
142	100	
141	84.0	69.5 109.5
115	43.4	21.6 61.6



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: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1958-MB	GB39241.D	1	03/09/17	MR	n/a	n/a	GGB1958

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

D91855-1, D91855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	94% 60-140%

8.1.1
8

Method Blank Summary

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB872-MB	FB18546.D	1	03/10/17	GN	n/a	n/a	GFB872

The QC reported here applies to the following samples: Method: RSK175 MOD

D91855-1, D91855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.0022	0.0011	mg/l	

8.1.2
8

Blank Spike Summary

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1958-BS	GB39242.D	1	03/09/17	MR	n/a	n/a	GGB1958

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

D91855-1, D91855-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.12	96	70-135

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB872-BS	FB18547.D	10	03/10/17	GN	n/a	n/a	GFB872

The QC reported here applies to the following samples:

Method: RSK175 MOD

D91855-1, D91855-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.512	0.662	129	70-133
74-84-0	Ethane	0.923	1.20	130	70-137
74-98-6	Propane	1.38	1.75	127	70-137

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D91478-22MS	GB39245.D	1	03/09/17	MR	n/a	n/a	GGB1958
D91478-22MSD	GB39246.D	1	03/09/17	MR	n/a	n/a	GGB1958
D91478-22	GB39244.D	1	03/09/17	MR	n/a	n/a	GGB1958

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

D91855-1, D91855-2

CAS No.	Compound	D91478-22 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	2.2	2.00	91	2.2	1.93	88	4	43-182/30

CAS No.	Surrogate Recoveries	MS	MSD	D91478-22	Limits
120-82-1	1,2,4-Trichlorobenzene	98%	97%	91%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D91872-1AMS	FB18549.D	10	03/10/17	GN	n/a	n/a	GFB872
D91872-1AMSD	FB18550.D	10	03/10/17	GN	n/a	n/a	GFB872
D91872-1A	FB18548.D	1	03/10/17	GN	n/a	n/a	GFB872

The QC reported here applies to the following samples: Method: RSK175 MOD

D91855-1, D91855-2

CAS No.	Compound	D91872-1A mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	ND	0.512	0.529	103	0.512	0.555	108	5	15-196/30
74-84-0	Ethane	ND	0.923	0.986	107	0.923	1.00	108	1	53-144/30
74-98-6	Propane	ND	1.38	1.45	105	1.38	1.47	107	1	54-144/30

* = Outside of Control Limits.



GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39261.D\FID1A.CH Vial: 24
 Signal #2 : Y:\1\DATA\030917\GB39261.D\FID2B.CH
 Acq On : 10 Mar 2017 12:32 am Operator: DANR
 Sample : D91855-1 Inst : GC/MS Ins
 Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 10 09:22:10 2017 Quant Results File: TB1934GB1934WATER.RES

Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Mar 02 07:54:10 2017
 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	14.45	1913618	98.852	%
9) S 1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	% d
Target Compounds				
1) H TVH-Gasoline	7.63	495661	0.011	mg/L
4) T Benzene	0.00	0	N.D.	ug/L d
5) T Toluene	0.00	0	N.D.	ug/L d
6) T Ethylbenzene	0.00	0	N.D.	ug/L d
7) T m,p-Xylene	0.00	0	N.D.	ug/L d
8) T o-Xylene	0.00	0	N.D.	ug/L d

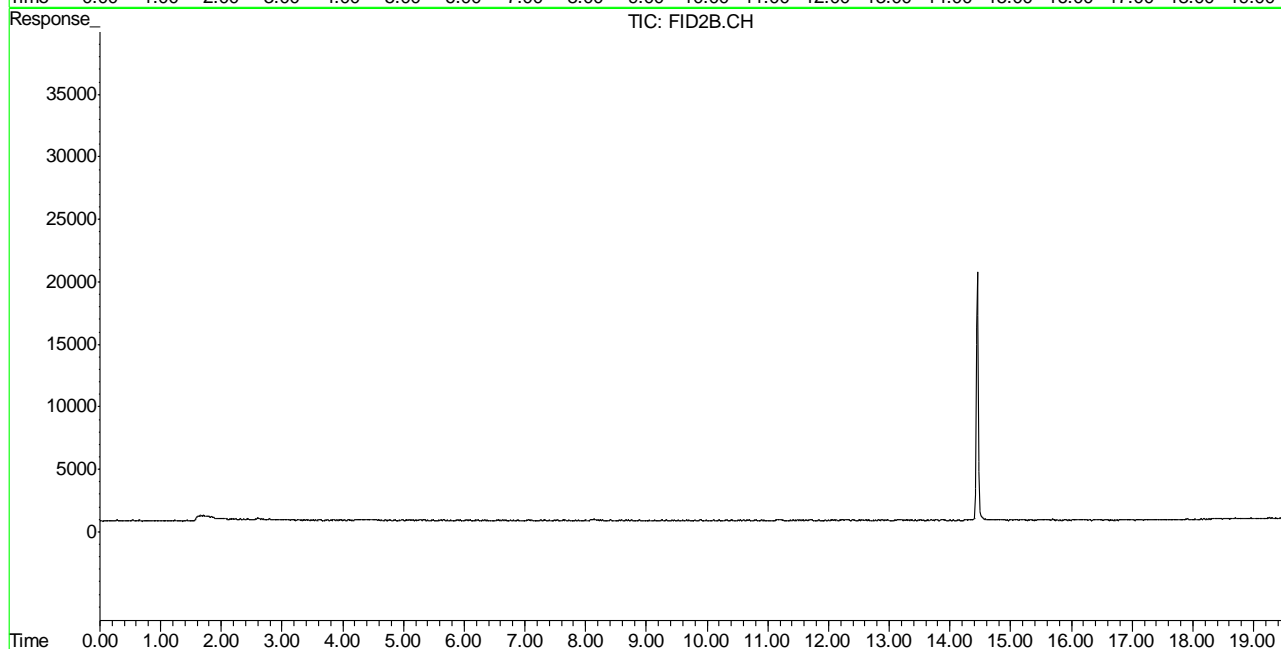
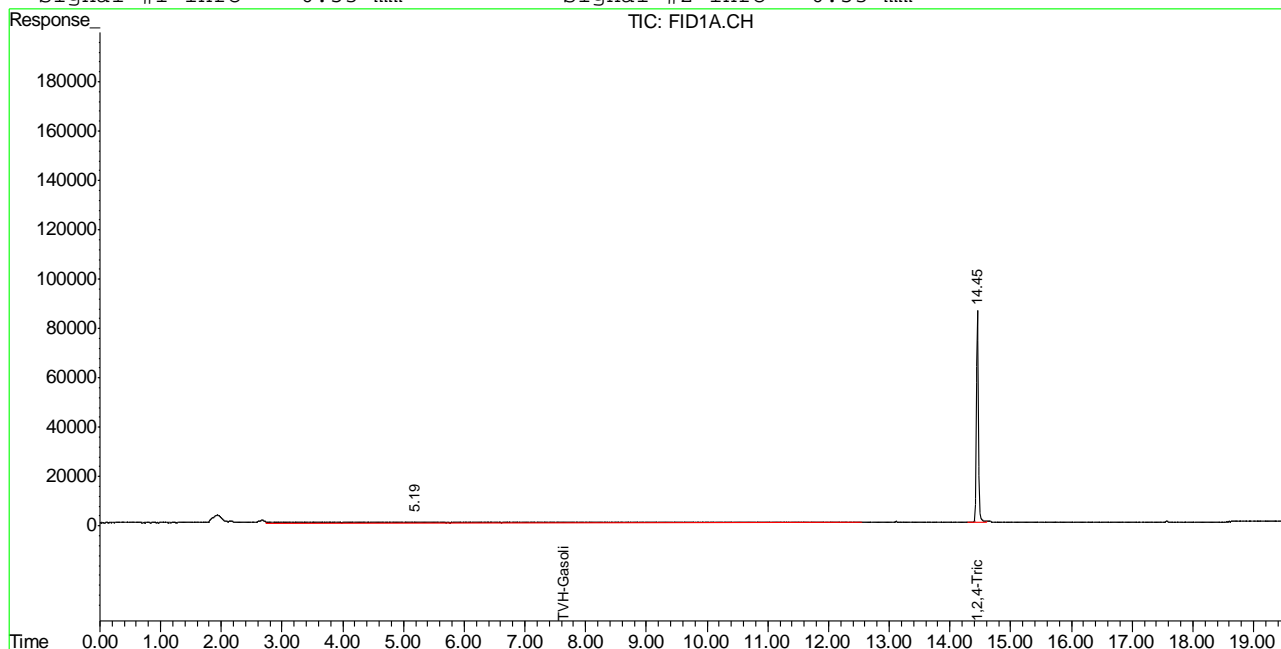
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB39261.D TB1934GB1934WATER.M Fri Mar 10 10:12:29 2017 GC

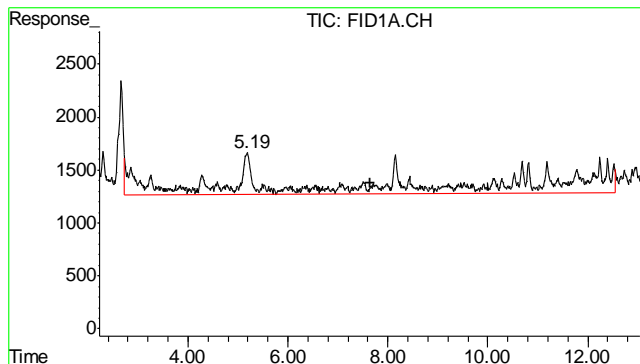
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39261.D\FID1A.CH Vial: 24
 Signal #2 : Y:\1\DATA\030917\GB39261.D\FID2B.CH
 Acq On : 10 Mar 2017 12:32 am Operator: DANR
 Sample : D91855-1 Inst : GC/MS Ins
 Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 10 11:26 2017 Quant Results File: TB1934GB1934WATER.RES

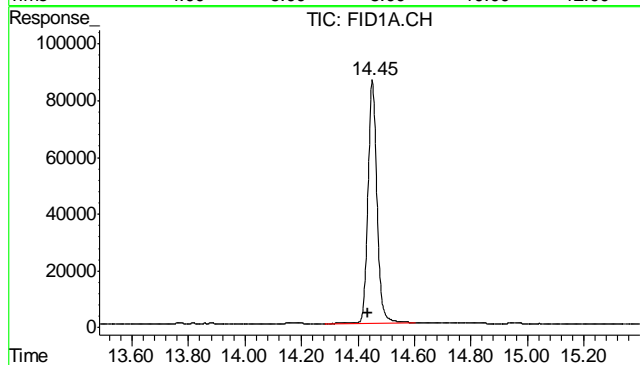
Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Mar 02 07:54:10 2017
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

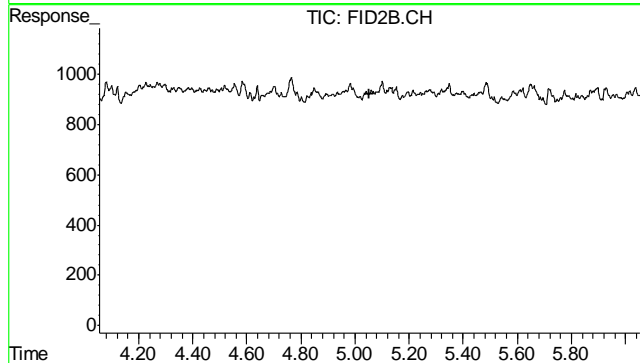




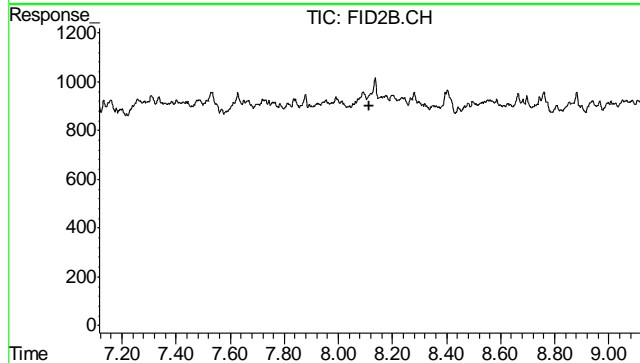
#1 TVH-Gasoline
R.T.: 7.635 min
Delta R.T.: 0.000 min
Response: 495661
Conc: 0.01 mg/L m



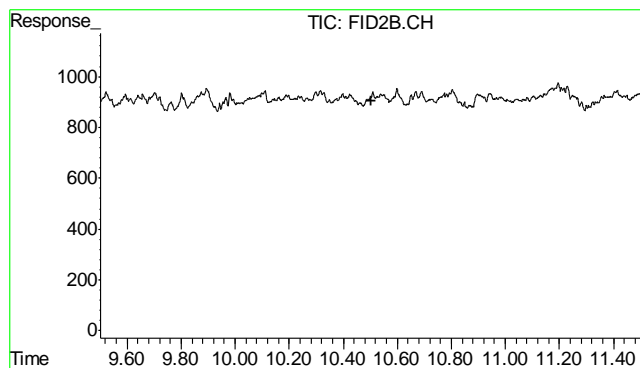
#2 1,2,4-Trichlorobenzene
R.T.: 14.451 min
Delta R.T.: 0.016 min
Response: 1913618
Conc: 98.85 %



#4 Benzene
R.T.: 0.000 min
Exp R.T.: 5.054 min
Response: 0
Conc: N.D.

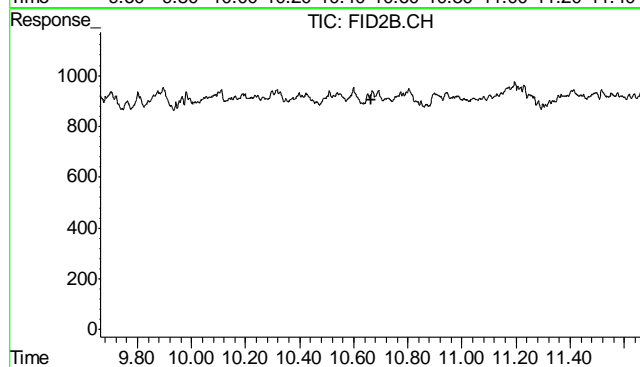


#5 Toluene
R.T.: 0.000 min
Exp R.T.: 8.116 min
Response: 0
Conc: N.D.



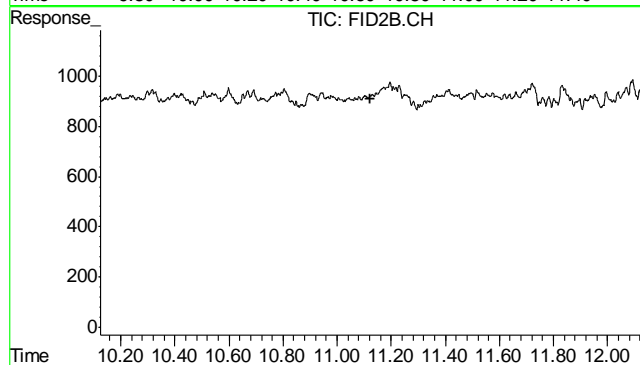
#6 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.502 min
Response: 0
Conc: N.D.



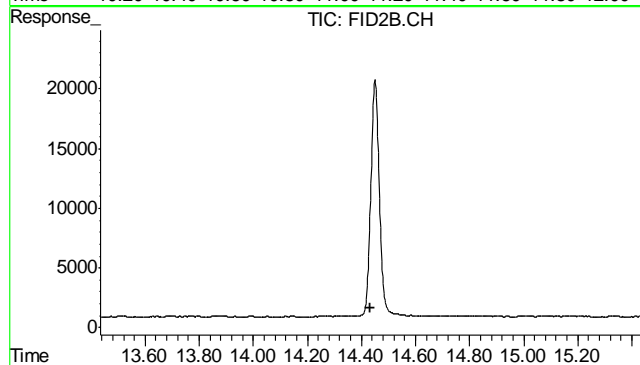
#7 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.663 min
Response: 0
Conc: N.D.



#8 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.124 min
Response: 0
Conc: N.D.



#9 1,2,4-Trichlorobenzene (P)

R.T.: 0.000 min
Exp R.T. : 14.434 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39262.D\FID1A.CH Vial: 25
 Signal #2 : Y:\1\DATA\030917\GB39262.D\FID2B.CH
 Acq On : 10 Mar 2017 1:07 am Operator: DANR
 Sample : D91855-2 Inst : GC/MS Ins
 Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 10 09:22:13 2017 Quant Results File: TB1934GB1934WATER.RES

Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Mar 02 07:54:10 2017
 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	14.45	1893513	97.813 %	
9) S 1,2,4-Trichlorobenzene (P)	0.00	0	N.D. %	d
Target Compounds				
1) H TVH-Gasoline	7.63	513499	0.011 mg/L	
4) T Benzene	0.00	0	N.D. ug/L	d
5) T Toluene	0.00	0	N.D. ug/L	d
6) T Ethylbenzene	0.00	0	N.D. ug/L	d
7) T m,p-Xylene	0.00	0	N.D. ug/L	d
8) T o-Xylene	0.00	0	N.D. ug/L	d

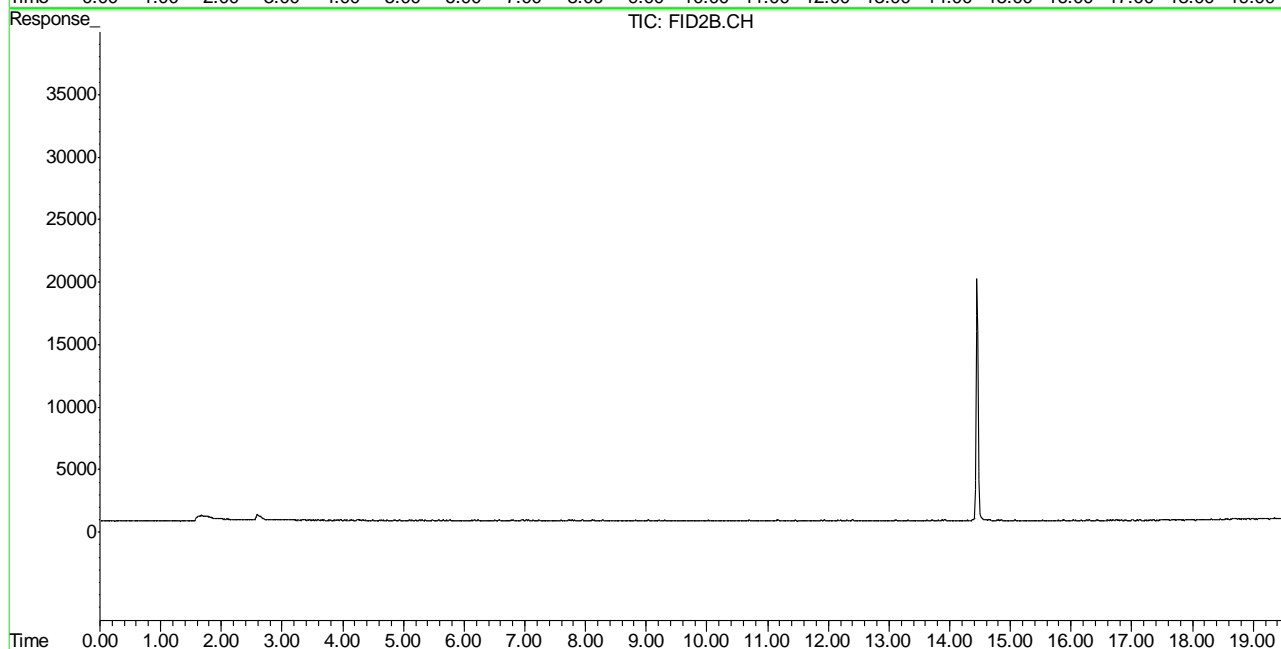
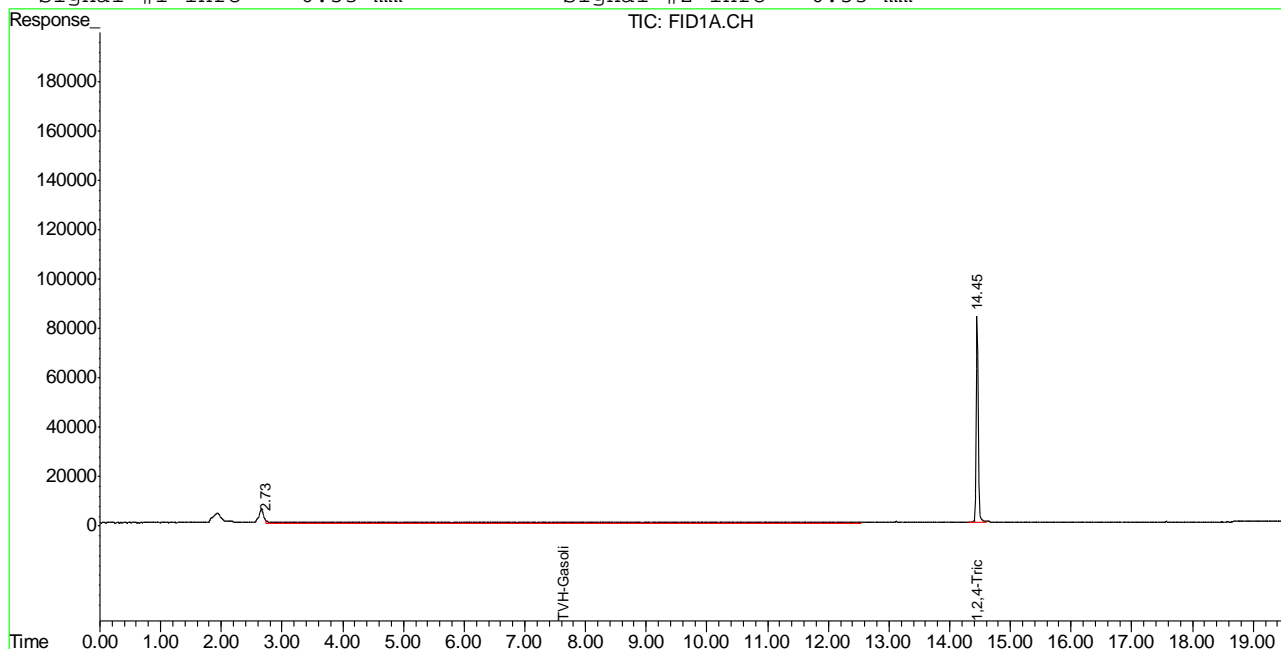
9.12
9

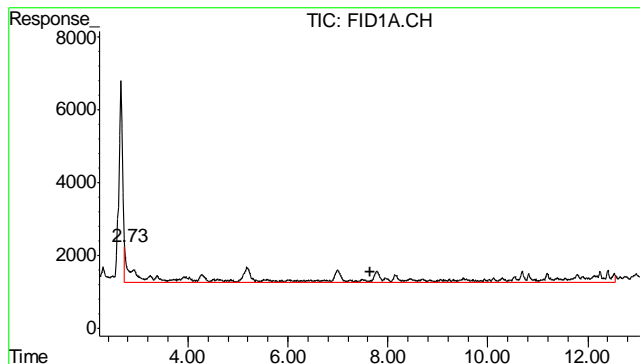
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39262.D\FID1A.CH Vial: 25
 Signal #2 : Y:\1\DATA\030917\GB39262.D\FID2B.CH
 Acq On : 10 Mar 2017 1:07 am Operator: DANR
 Sample : D91855-2 Inst : GC/MS Ins
 Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 10 11:26 2017 Quant Results File: TB1934GB1934WATER.RES

Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Mar 02 07:54:10 2017
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

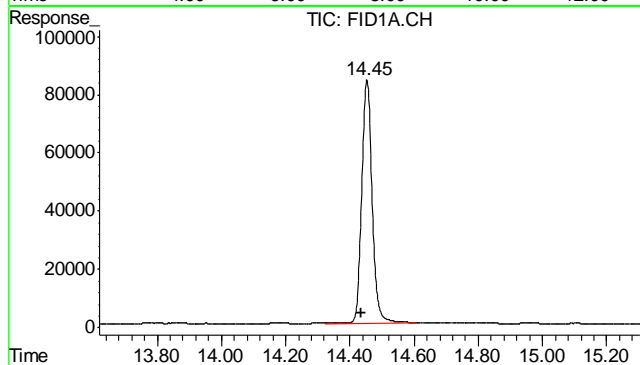
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





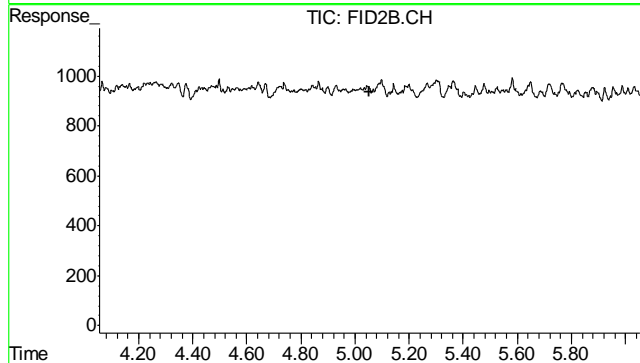
#1 TVH-Gasoline

R.T.: 7.635 min
Delta R.T.: 0.000 min
Response: 513499
Conc: 0.01 mg/L m



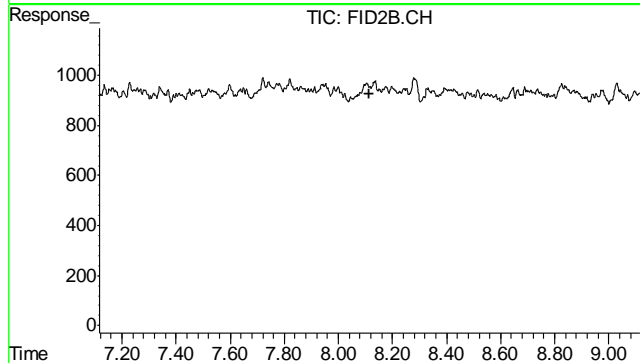
#2 1,2,4-Trichlorobenzene

R.T.: 14.453 min
Delta R.T.: 0.018 min
Response: 1893513
Conc: 97.81 %



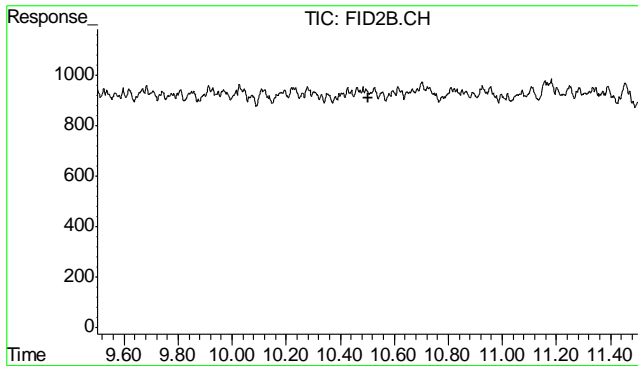
#4 Benzene

R.T.: 0.000 min
Exp R.T.: 5.054 min
Response: 0
Conc: N.D.



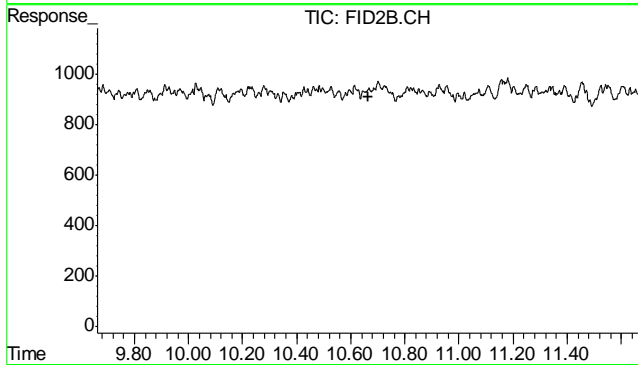
#5 Toluene

R.T.: 0.000 min
Exp R.T.: 8.116 min
Response: 0
Conc: N.D.



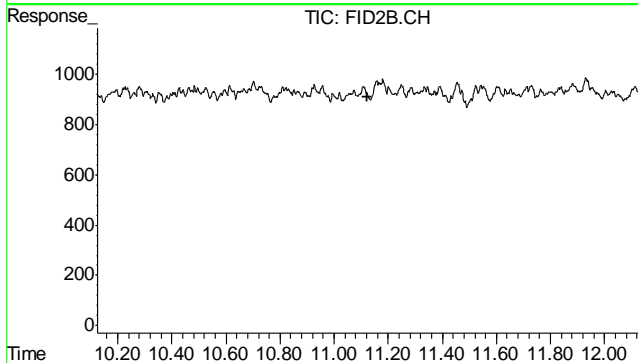
#6 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.502 min
Response: 0
Conc: N.D.



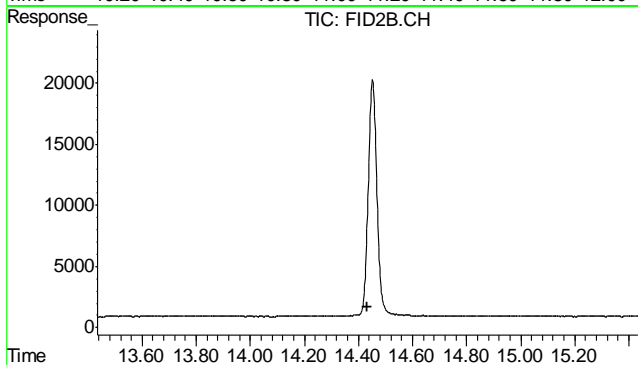
#7 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.663 min
Response: 0
Conc: N.D.



#8 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.124 min
Response: 0
Conc: N.D.



#9 1,2,4-Trichlorobenzene (P)

R.T.: 0.000 min
Exp R.T. : 14.434 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18565.D Vial: 22
Acq On : 10 Mar 2017 1:11 pm Operator: GRANTN
Sample : D91855-1 Inst : FID 4
Misc : GC6662,GFB872,39,22,500,4,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 13:14:20 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Initial Calibration
DataAcq Meth : GAS.M

Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Methane	0.62f	406516243	116520.424 rawvpm
2) Ethene	0.00	0	N.D. rawvp
3) Ethane	1.29f	2460459	368.632 rawvp
4) Propane	2.33	118492	11.965 rawvp

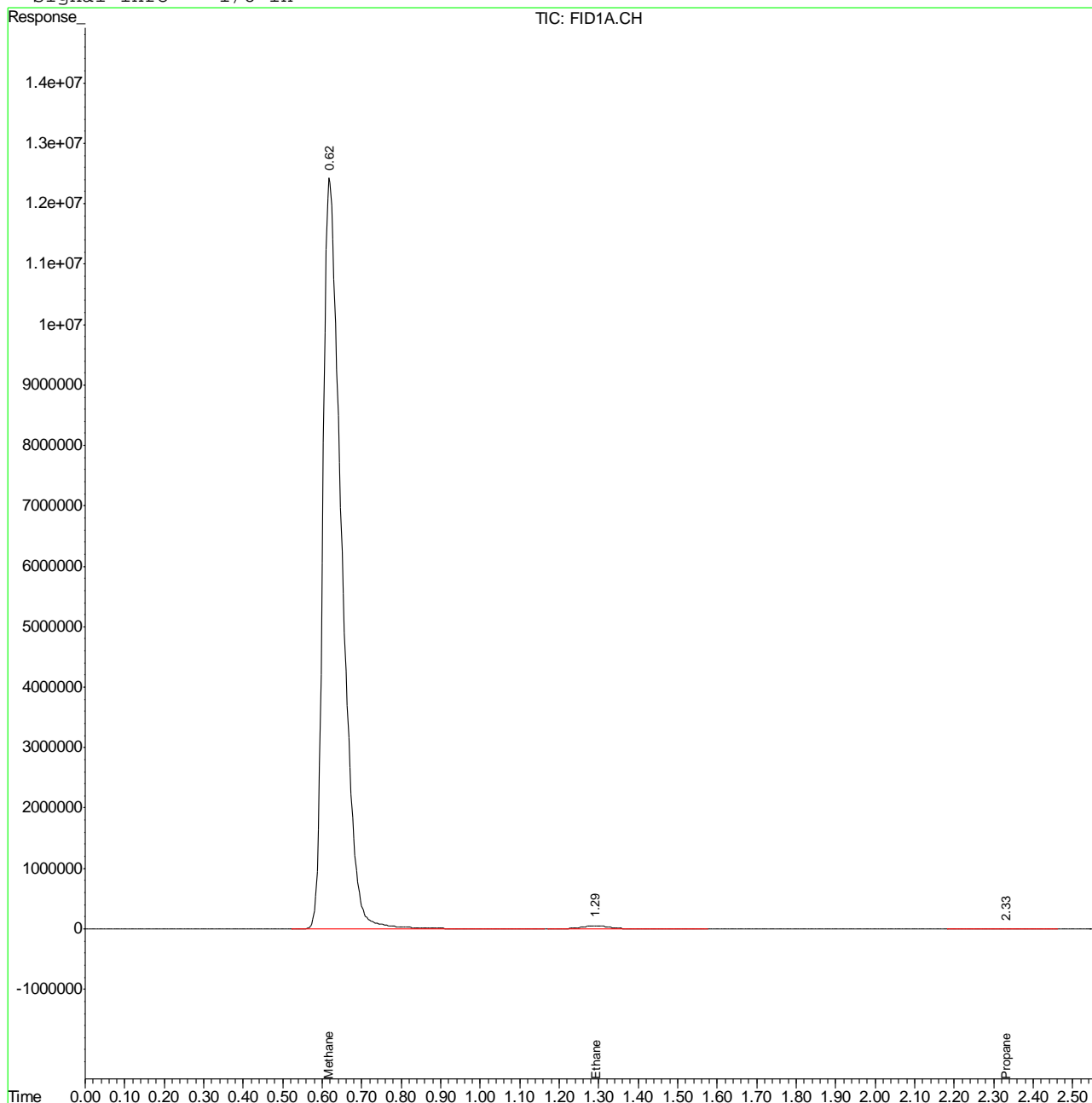
9.1.3
9

Quantitation Report (QT Reviewed)

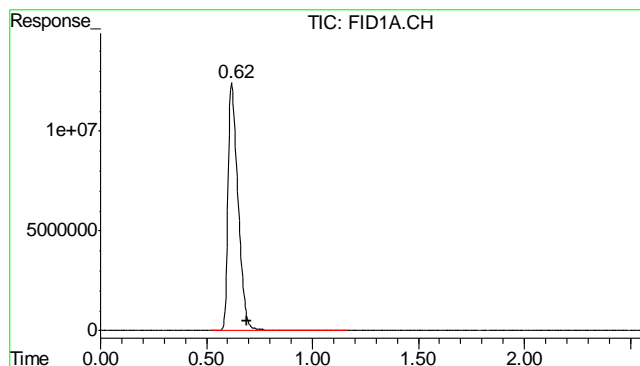
Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18565.D Vial: 22
 Acq On : 10 Mar 2017 1:11 pm Operator: GRANTN
 Sample : D91855-1 Inst : FID 4
 Misc : GC6662,GFB872,39,22,500,4,1 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Mar 10 14:14 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
 Title : RSK 175 Methane, Ethene, Ethane, and Propane
 Last Update : Thu Feb 23 14:11:02 2017
 Response via : Single Level Calibration
 DataAcq Meth : GAS.M

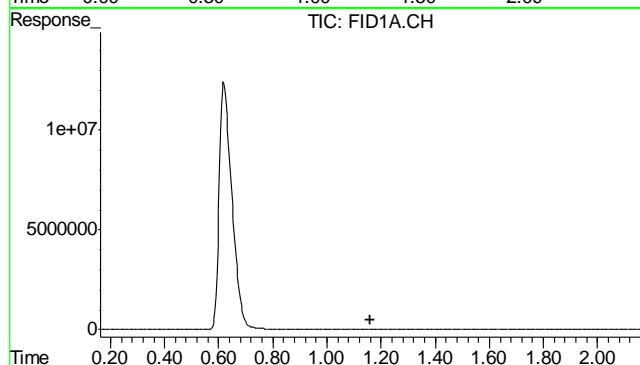
Volume Inj. : 100ul
 Signal Phase : Porapak Q 80/100
 Signal Info : 1/8 in



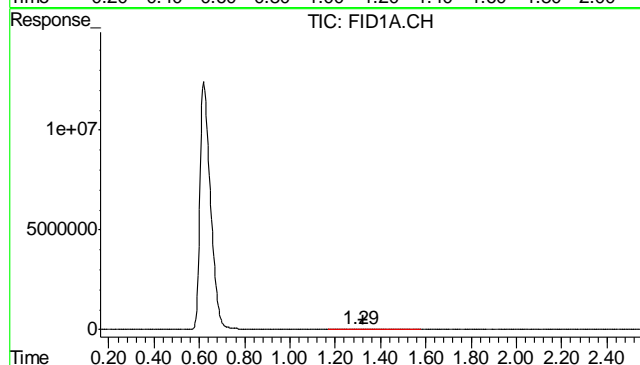
9.1.3
6



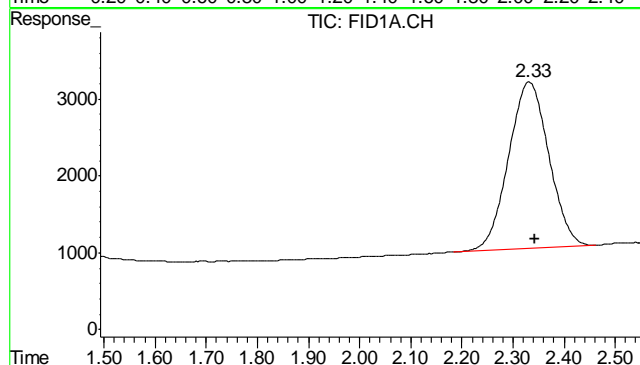
#1 Methane
 R.T.: 0.618 min
 Delta R.T.: -0.072 min
 Response: 406516243
 Conc: 116520.42 rawvppm m



#2 Ethene
 R.T.: 0.000 min
 Exp R.T.: 1.160 min
 Response: 0
 Conc: N.D.



#3 Ethane
 R.T.: 1.293 min
 Delta R.T.: -0.033 min
 Response: 2460459
 Conc: 368.63 rawvppm



#4 Propane
 R.T.: 2.332 min
 Delta R.T.: -0.011 min
 Response: 118492
 Conc: 11.96 rawvppm

Dissolved Gases Raw Data Summary

Sample Number: D91855-1

Lab FileID: FB18565.D

Injection Time: 03/10/17 13:11

Method: RSK175 MOD

Sample Volume: 39.0 ml

Headspace: 4.0 ml

Volume Injected: 500 ul

Temperature: 22.0 Deg. C

Parameter	CAS	MW	Result (ppmv)	Henry's Constant	Total	Units
Methane	74-82-8	16	116520.42	39080	8.55	mg/l
Ethane	74-84-0	30	368.63	27860	0.0570	mg/l
Ethene	74-85-1	28	0	10680	0.0	mg/l
Propane	74-98-6	44	11.96	33643	0.0025	mg/l

Henry's Constants	17	18	19	20	21	22	23	24	25	26	27
Methane	35290	36060	36830	37600	38340	39080	39820	40560	41300	42020	42740
Ethane	24020	24780	25540	26300	27080	27860	28640	29420	30200	31000	31800
Ethene	9480	9720	9960	10200	10440	10680	10920	11160	11400	11660	11920
Propane	28308	29352	30408	31474	32552	33643	34744	35857	36978	38107	39244

9.1.3.1
9

Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18568.D Vial: 25
Acq On : 10 Mar 2017 1:25 pm Operator: GRANTN
Sample : D91855-1, 25X Inst : FID 4
Misc : GC6662,GFB872,39,22,500,4,25 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 13:27:48 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Initial Calibration
DataAcq Meth : GAS.M

Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Methane	0.67f	14301470	4095.984 rawvp
2) Ethene	0.00	0	N.D. rawvp
3) Ethane	1.32	91603	13.724 rawvp
4) Propane	0.00	0	N.D. rawvp

9.1.4

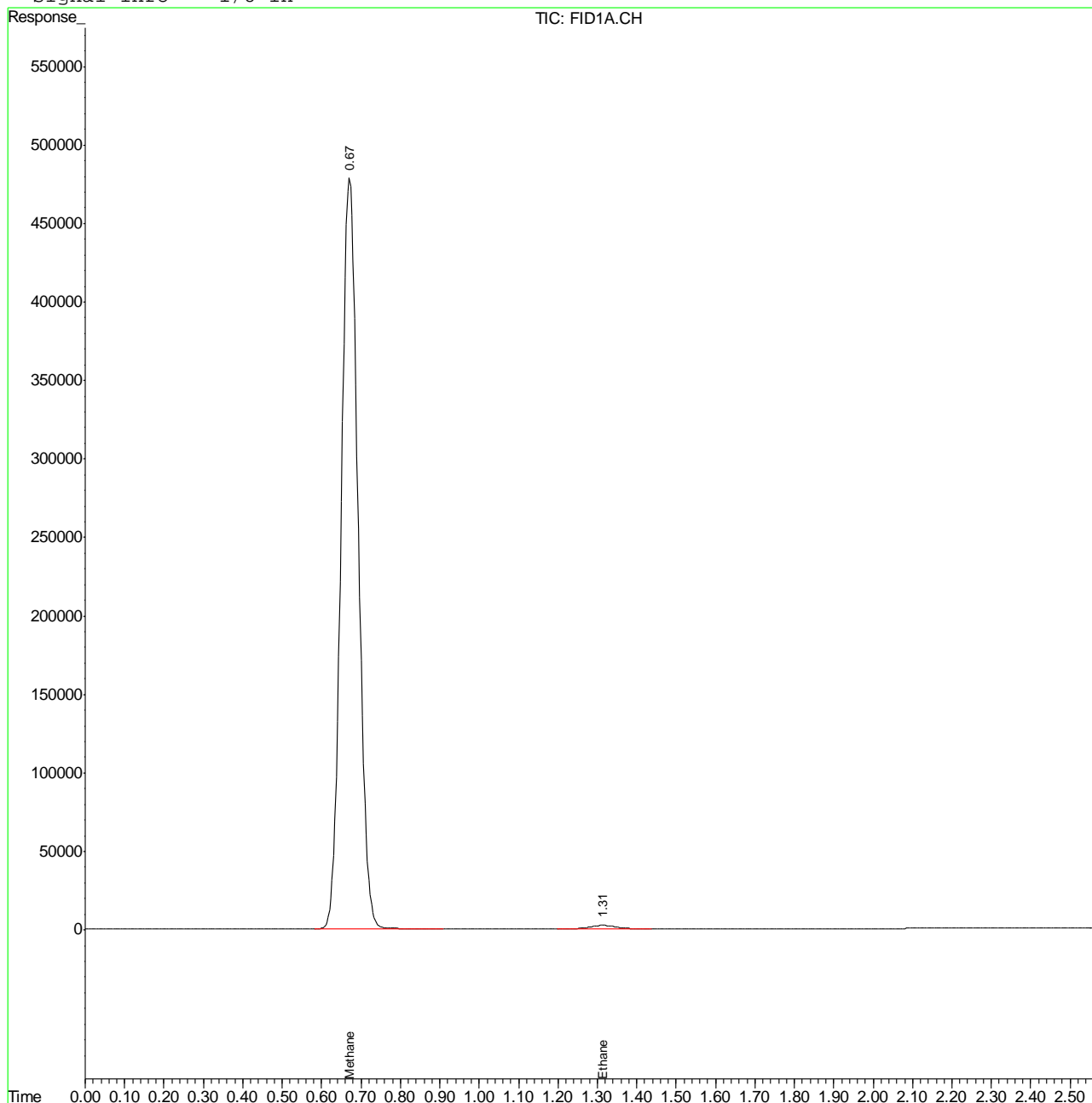
9

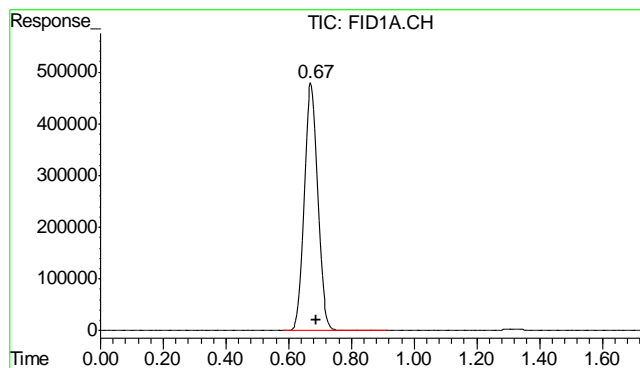
Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18568.D Vial: 25
Acq On : 10 Mar 2017 1:25 pm Operator: GRANTN
Sample : D91855-1, 25X Inst : FID 4
Misc : GC6662,GFB872,39,22,500,4,25 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 14:27 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Single Level Calibration
DataAcq Meth : GAS.M

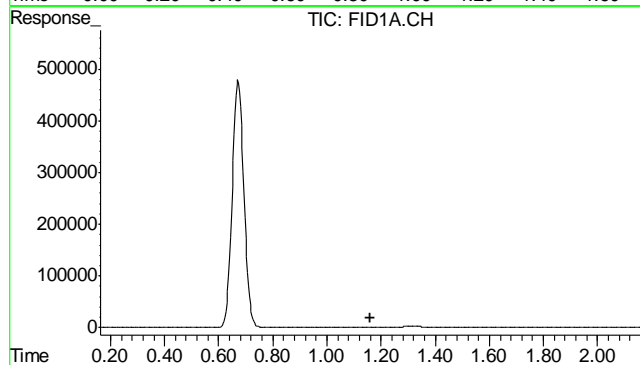
Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in





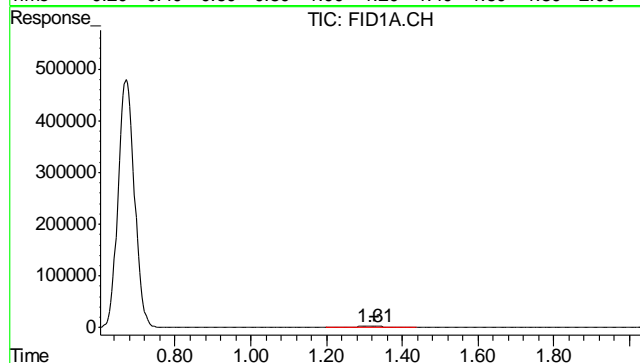
#1 Methane

R.T.: 0.672 min
Delta R.T.: -0.018 min
Response: 14301470
Conc: 4095.98 rawvppm



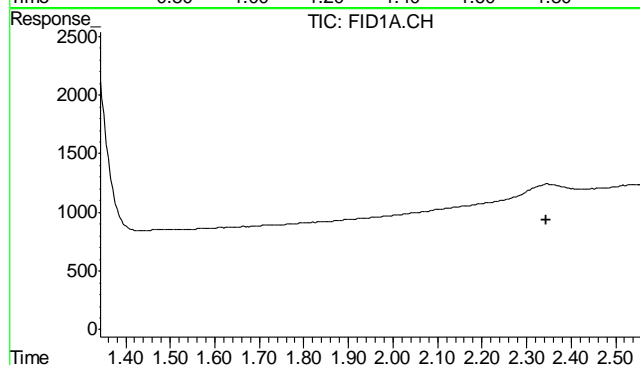
#2 Ethene

R.T.: 0.000 min
Exp R.T.: 1.160 min
Response: 0
Conc: N.D.



#3 Ethane

R.T.: 1.316 min
Delta R.T.: -0.010 min
Response: 91603
Conc: 13.72 rawvppm



#4 Propane

R.T.: 0.000 min
Exp R.T.: 2.343 min
Response: 0
Conc: N.D.

Dissolved Gases Raw Data Summary

Sample Number: D91855-1

Lab FileID: FB18568.D

Injection Time: 03/10/17 13:25

Method: RSK175 MOD

Sample Volume: 39.0 ml

Headspace: 4.0 ml

Volume Injected: 500 ul

Temperature: 22.0 Deg. C

Parameter	CAS	MW	Result (ppmv)	Henry's Constant	Total	Units
Methane	74-82-8	16	4095.98	39080	7.51	mg/l
Ethane	74-84-0	30	13.72	27860	0.0531	mg/l
Ethene	74-85-1	28	0	10680	0.0	mg/l
Propane	74-98-6	44	0	33643	0.0	mg/l

Henry's Constants	17	18	19	20	21	22	23	24	25	26	27
Methane	35290	36060	36830	37600	38340	39080	39820	40560	41300	42020	42740
Ethane	24020	24780	25540	26300	27080	27860	28640	29420	30200	31000	31800
Ethene	9480	9720	9960	10200	10440	10680	10920	11160	11400	11660	11920
Propane	28308	29352	30408	31474	32552	33643	34744	35857	36978	38107	39244

9.1.4.1
9

Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18570.D Vial: 27
Acq On : 10 Mar 2017 1:34 pm Operator: GRANTN
Sample : D91855-2 Inst : FID 4
Misc : GC6662,GFB872,39,23,500,4,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 13:36:26 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Initial Calibration
DataAcq Meth : GAS.M

Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Methane	0.62f	435437422	124810.390 rawvpm
2) Ethene	0.00	0	N.D. rawvp
3) Ethane	1.29f	2483443	372.075 rawvp
4) Propane	2.33	135530	13.685 rawvp

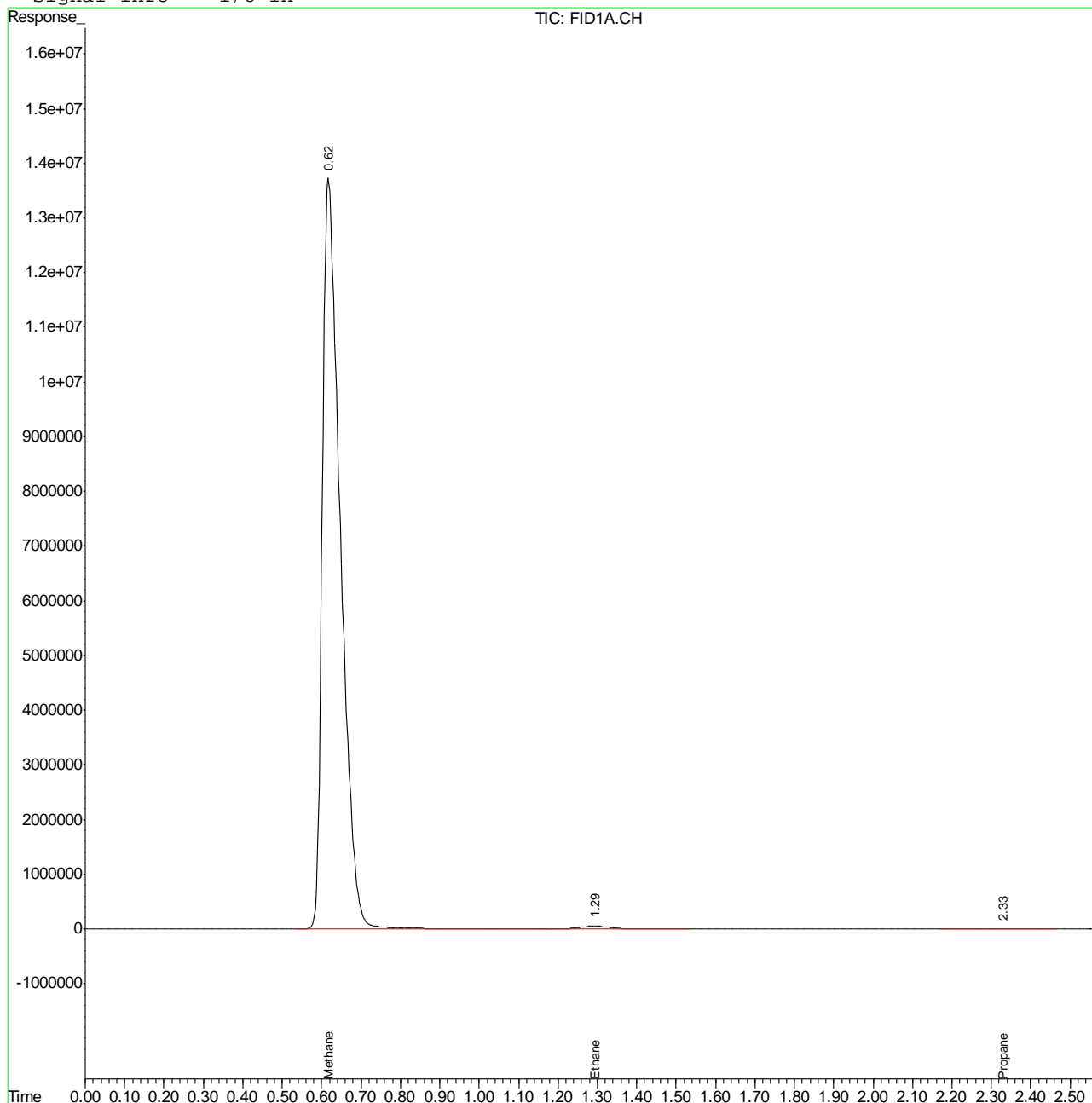
9.1.5
9

Quantitation Report (QT Reviewed)

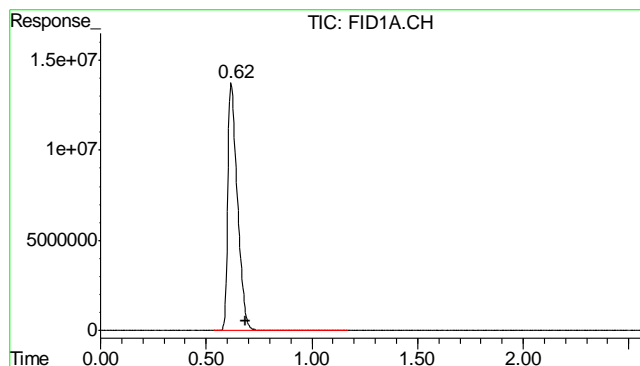
Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18570.D Vial: 27
 Acq On : 10 Mar 2017 1:34 pm Operator: GRANTN
 Sample : D91855-2 Inst : FID 4
 Misc : GC6662,GFB872,39,23,500,4,1 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Mar 10 14:36 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
 Title : RSK 175 Methane, Ethene, Ethane, and Propane
 Last Update : Thu Feb 23 14:11:02 2017
 Response via : Single Level Calibration
 DataAcq Meth : GAS.M

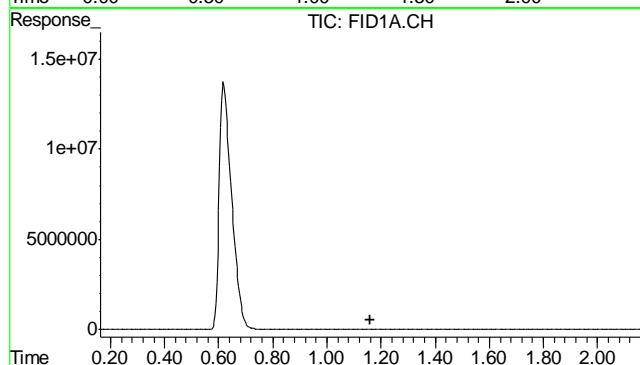
Volume Inj. : 100ul
 Signal Phase : Porapak Q 80/100
 Signal Info : 1/8 in



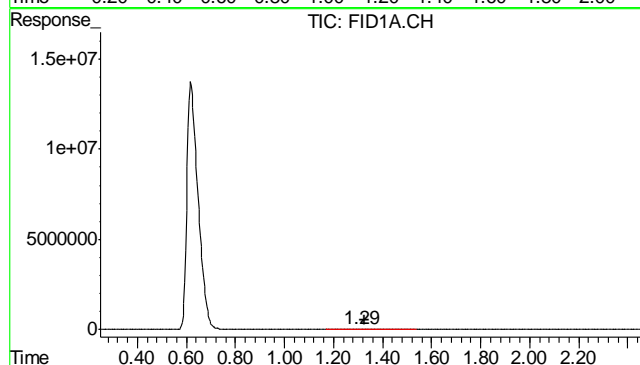
9.1.5
6



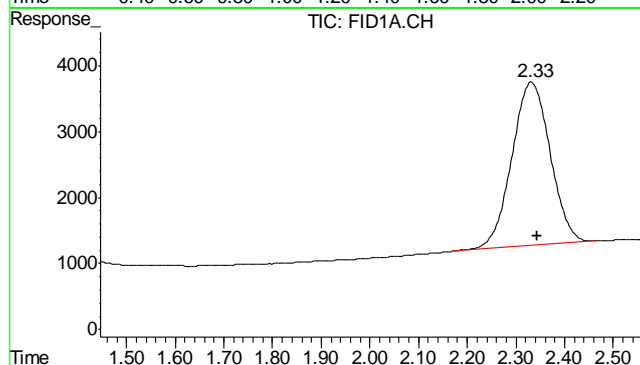
#1 Methane
 R.T.: 0.617 min
 Delta R.T.: -0.073 min
 Response: 435437422
 Conc: 124810.39 rawvppm m



#2 Ethene
 R.T.: 0.000 min
 Exp R.T.: 1.160 min
 Response: 0
 Conc: N.D.



#3 Ethane
 R.T.: 1.295 min
 Delta R.T.: -0.031 min
 Response: 2483443
 Conc: 372.08 rawvppm



#4 Propane
 R.T.: 2.332 min
 Delta R.T.: -0.011 min
 Response: 135530
 Conc: 13.69 rawvppm

Dissolved Gases Raw Data Summary

Sample Number: D91855-2

Lab FileID: FB18570.D

Injection Time: 03/10/17 13:34

Method: RSK175 MOD

Sample Volume: 39.0 ml

Headspace: 4.0 ml

Volume Injected: 500 ul

Temperature: 23.0 Deg. C

Parameter	CAS	MW	Result (ppmv)	Henry's Constant	Total	Units
Methane	74-82-8	16	124810.39	39820	9.08	mg/l
Ethane	74-84-0	30	372.08	28640	0.0568	mg/l
Ethene	74-85-1	28	0	10920	0.0	mg/l
Propane	74-98-6	44	13.69	34744	0.0029	mg/l

Henry's Constants	17	18	19	20	21	22	23	24	25	26	27
Methane	35290	36060	36830	37600	38340	39080	39820	40560	41300	42020	42740
Ethane	24020	24780	25540	26300	27080	27860	28640	29420	30200	31000	31800
Ethene	9480	9720	9960	10200	10440	10680	10920	11160	11400	11660	11920
Propane	28308	29352	30408	31474	32552	33643	34744	35857	36978	38107	39244

9.1.5.1
9

Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18572.D Vial: 29
Acq On : 10 Mar 2017 1:42 pm Operator: GRANTN
Sample : D91855-2, 25X Inst : FID 4
Misc : GC6662,GFB872,39,23,500,4,25 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 13:45:10 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Initial Calibration
DataAcq Meth : GAS.M

Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in

Compound	R.T.	Response	Conc Units

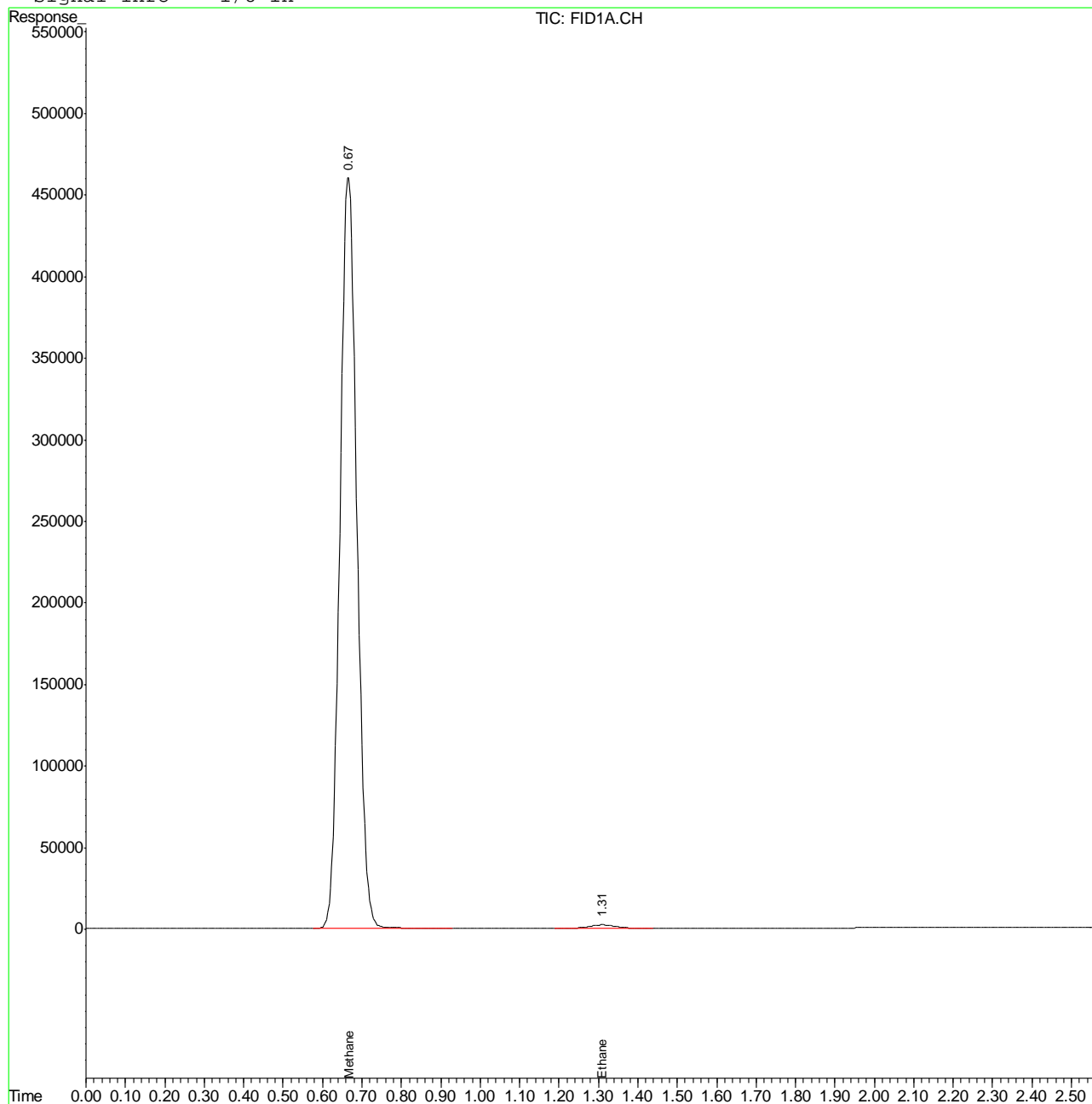
Target Compounds			
1) Methane	0.67f	13777443	3945.777 rawvp
2) Ethene	0.00	0	N.D. rawvp
3) Ethane	1.31	84185	12.613 rawvp
4) Propane	0.00	0	N.D. rawvp

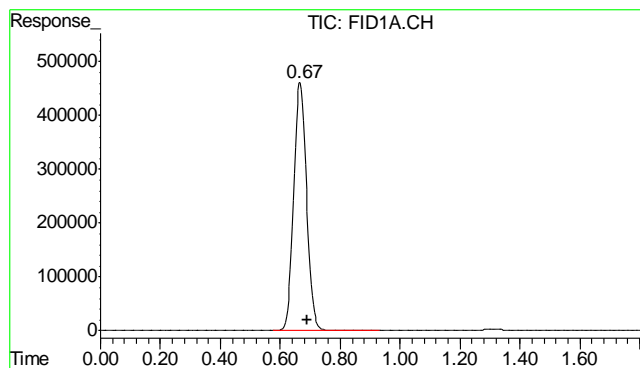
Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18572.D Vial: 29
Acq On : 10 Mar 2017 1:42 pm Operator: GRANTN
Sample : D91855-2, 25X Inst : FID 4
Misc : GC6662,GFB872,39,23,500,4,25 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 14:45 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Single Level Calibration
DataAcq Meth : GAS.M

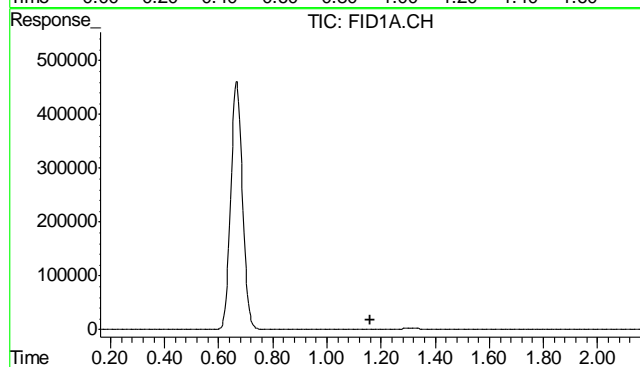
Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in





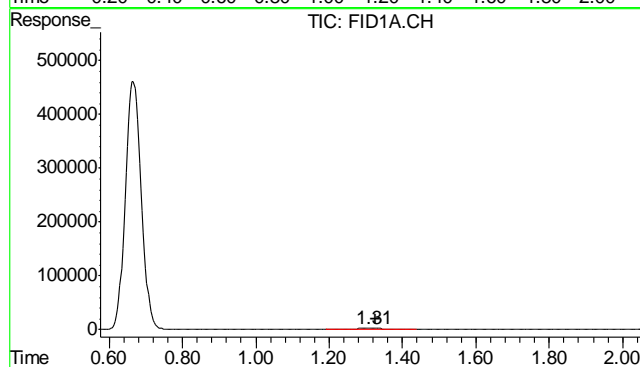
#1 Methane

R.T.: 0.666 min
Delta R.T.: -0.023 min
Response: 13777443
Conc: 3945.78 rawvppm



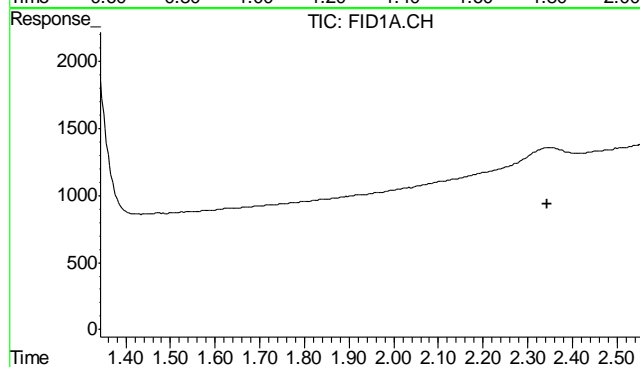
#2 Ethene

R.T.: 0.000 min
Exp R.T.: 1.160 min
Response: 0
Conc: N.D.



#3 Ethane

R.T.: 1.311 min
Delta R.T.: -0.015 min
Response: 84185
Conc: 12.61 rawvppm



#4 Propane

R.T.: 0.000 min
Exp R.T.: 2.343 min
Response: 0
Conc: N.D.

Dissolved Gases Raw Data Summary

Sample Number: D91855-2

Lab FileID: FB18572.D

Injection Time: 03/10/17 13:42

Method: RSK175 MOD

Sample Volume: 39.0 ml

Headspace: 4.0 ml

Volume Injected: 500 ul

Temperature: 23.0 Deg. C

Parameter	CAS	MW	Result (ppmv)	Henry's Constant	Total	Units
Methane	74-82-8	16	3945.78	39820	7.18	mg/l
Ethane	74-84-0	30	12.61	28640	0.0482	mg/l
Ethene	74-85-1	28	0	10920	0.0	mg/l
Propane	74-98-6	44	0	34744	0.0	mg/l

Henry's Constants	17	18	19	20	21	22	23	24	25	26	27
Methane	35290	36060	36830	37600	38340	39080	39820	40560	41300	42020	42740
Ethane	24020	24780	25540	26300	27080	27860	28640	29420	30200	31000	31800
Ethene	9480	9720	9960	10200	10440	10680	10920	11160	11400	11660	11920
Propane	28308	29352	30408	31474	32552	33643	34744	35857	36978	38107	39244

9.1.6.1
9

Katie Michel
03/10/17 13:21

Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18546.D Vial: 3
Acq On : 10 Mar 2017 11:21 am Operator: GRANTN
Sample : MB Inst : FID 4
Misc : GC6662,GFB872,39,21,500,4,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 11:23:28 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Initial Calibration
DataAcq Meth : GAS.M

Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Methane	0.60f	27288	4.433 rawvpm
2) Ethene	0.00	0	N.D. rawvp
3) Ethane	0.00	0	N.D. rawvp
4) Propane	0.00	0	N.D. rawvp

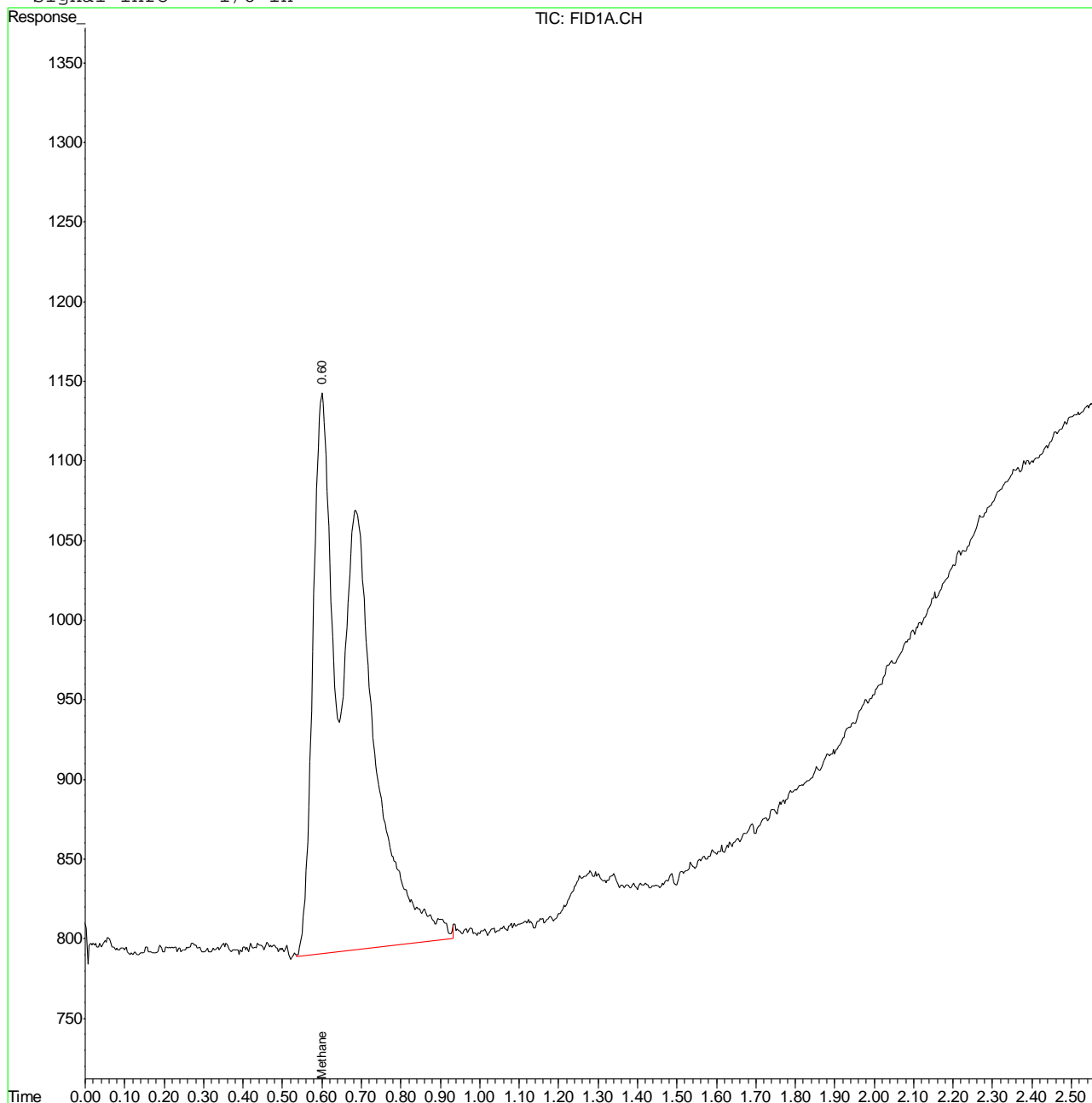
9.2.1
9

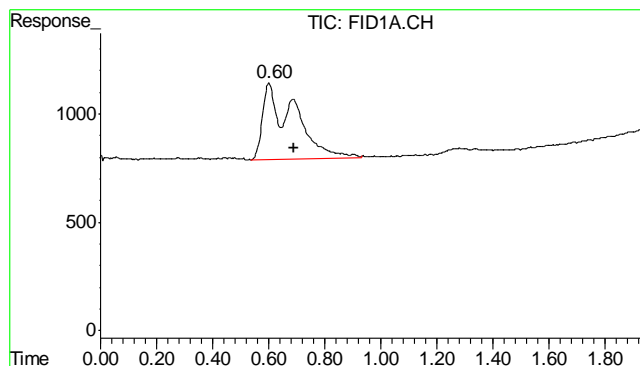
Quantitation Report (QT Reviewed)

Data File : C:\SHARED\FB\2017\MAR\FB031017\FB18546.D Vial: 3
Acq On : 10 Mar 2017 11:21 am Operator: GRANTN
Sample : MB Inst : FID 4
Misc : GC6662,GFB872,39,21,500,4,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 11:23 2017 Quant Results File: MEEP-GFB863.RES

Quant Method : C:\MSDCHEM\2...\MEEP-GFB863.M (Chemstation Integrator)
Title : RSK 175 Methane, Ethene, Ethane, and Propane
Last Update : Thu Feb 23 14:11:02 2017
Response via : Single Level Calibration
DataAcq Meth : GAS.M

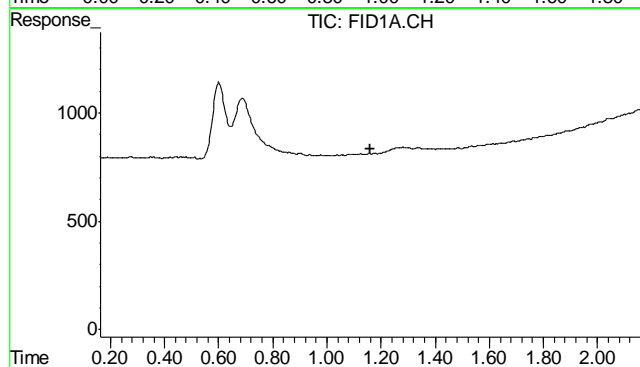
Volume Inj. : 100ul
Signal Phase : Porapak Q 80/100
Signal Info : 1/8 in





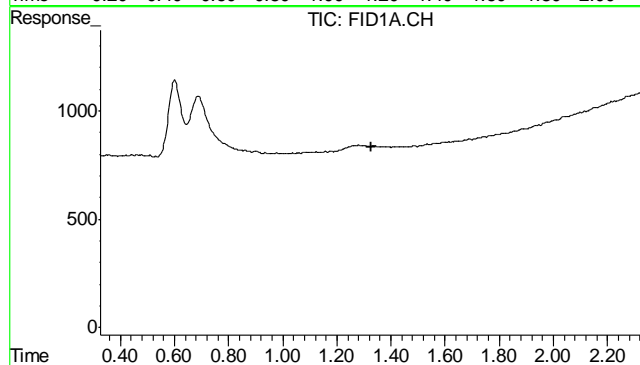
#1 Methane

R.T.: 0.600 min
Delta R.T.: -0.089 min
Response: 27288
Conc: 4.43 rawvppm m



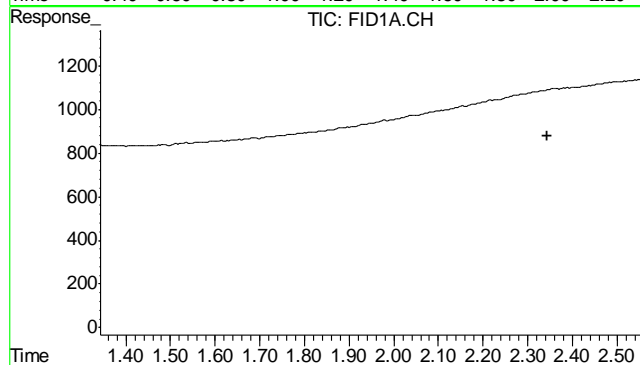
#2 Ethene

R.T.: 0.000 min
Exp R.T.: 1.160 min
Response: 0
Conc: N.D.



#3 Ethane

R.T.: 0.000 min
Exp R.T.: 1.326 min
Response: 0
Conc: N.D.



#4 Propane

R.T.: 0.000 min
Exp R.T.: 2.343 min
Response: 0
Conc: N.D.

Dissolved Gases Raw Data Summary

Sample Number: GFB872-MB

Lab FileID: FB18546.D

Injection Time: 03/10/17 11:21

Method: RSK175 MOD

Sample Volume: 39.0 ml

Headspace: 4.0 ml

Volume Injected: 500 ul

Temperature: 21.0 Deg. C

Parameter	CAS	MW	Result (ppmv)	Henry's Constant	Total	Units
Methane	74-82-8	16	4.43	38340	0.0	mg/l
Ethane	74-84-0	30	0	27080	0.0	mg/l
Ethene	74-85-1	28	0	10440	0.0	mg/l
Propane	74-98-6	44	0	32552	0.0	mg/l

Henry's Constants	17	18	19	20	21	22	23	24	25	26	27
Methane	35290	36060	36830	37600	38340	39080	39820	40560	41300	42020	42740
Ethane	24020	24780	25540	26300	27080	27860	28640	29420	30200	31000	31800
Ethene	9480	9720	9960	10200	10440	10680	10920	11160	11400	11660	11920
Propane	28308	29352	30408	31474	32552	33643	34744	35857	36978	38107	39244

9.2.1.1
9

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39241.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030917\GB39241.D\FID2B.CH
Acq On : 9 Mar 2017 12:53 pm Operator: DANR
Sample : MB Inst : GC/MS Ins
Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 09:21:04 2017 Quant Results File: TB1934GB1934WATER.RES

Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Mar 02 07:54:10 2017
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	14.44	1823058	94.174	%
9) S 1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	% d
Target Compounds				
1) H TVH-Gasoline	7.63	1449794	0.031	mg/L
4) T Benzene	0.00	0	N.D.	ug/L d
5) T Toluene	0.00	0	N.D.	ug/L d
6) T Ethylbenzene	0.00	0	N.D.	ug/L d
7) T m,p-Xylene	0.00	0	N.D.	ug/L d
8) T o-Xylene	0.00	0	N.D.	ug/L d

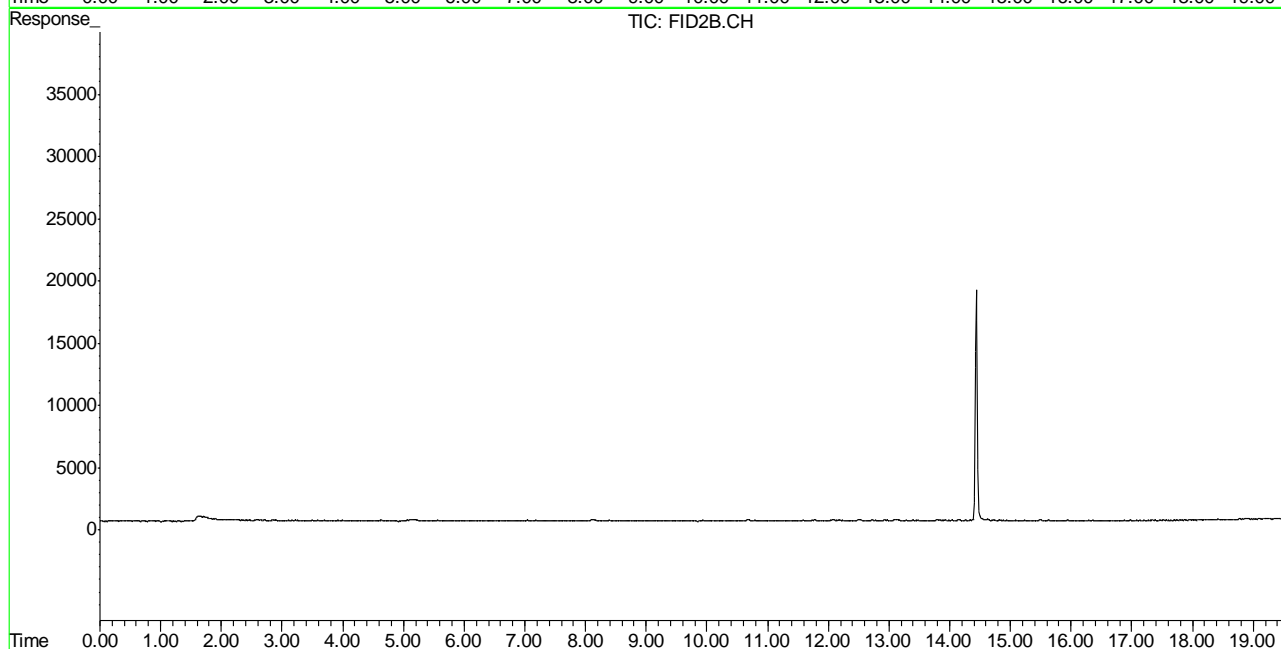
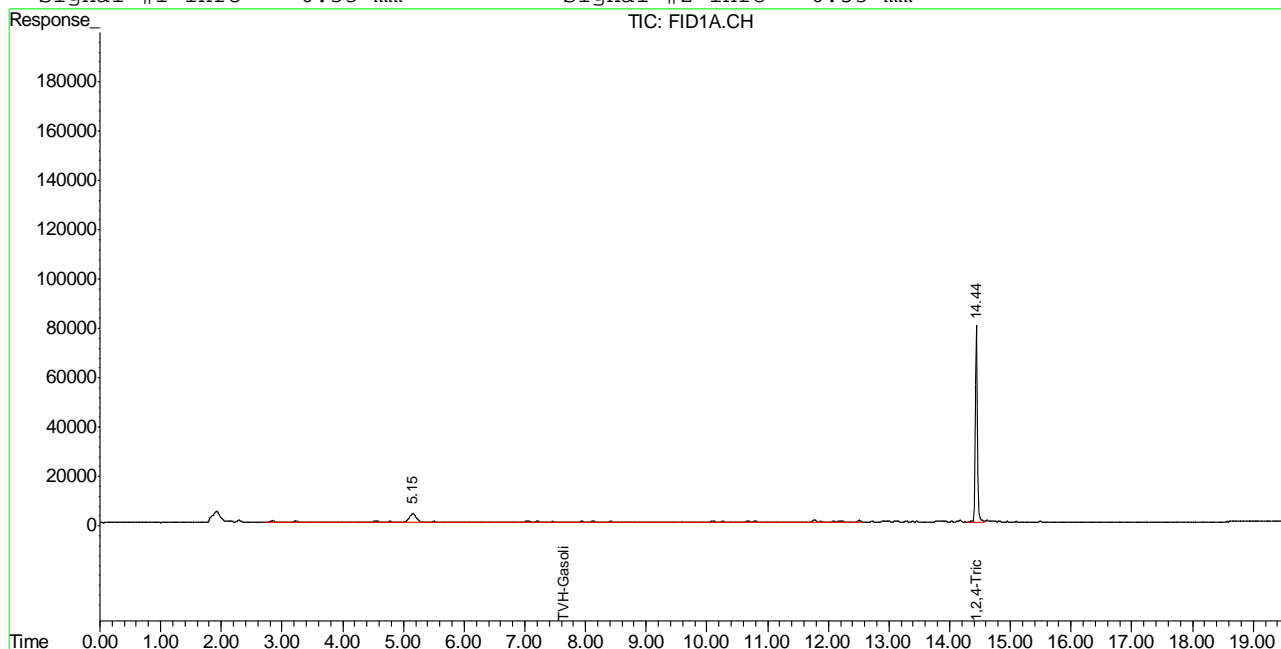
(f)=RT Delta > 1/2 Window (m)=manual int.
GB39241.D TB1934GB1934WATER.M Fri Mar 10 10:11:32 2017 GC

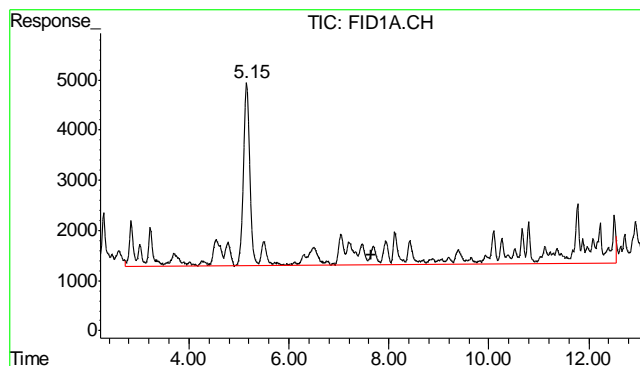
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030917\GB39241.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030917\GB39241.D\FID2B.CH
Acq On : 9 Mar 2017 12:53 pm Operator: DANR
Sample : MB Inst : GC/MS Ins
Misc : GC6657,GGB1958,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 11:12 2017 Quant Results File: TB1934GB1934WATER.RES

Quant Method : C:\MSDCHEM\1...\TB1934GB1934WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Mar 02 07:54:10 2017
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

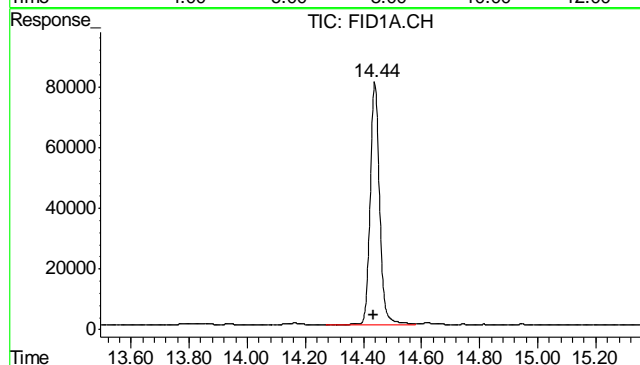
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





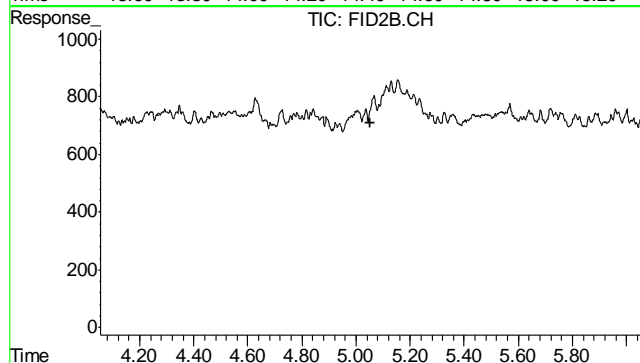
#1 TVH-Gasoline

R.T.: 7.635 min
Delta R.T.: 0.000 min
Response: 1449794
Conc: 0.03 mg/L m



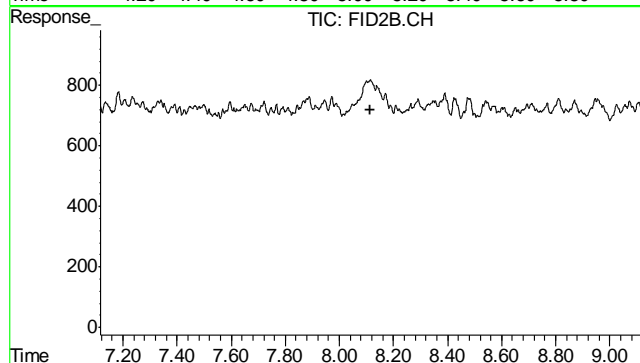
#2 1,2,4-Trichlorobenzene

R.T.: 14.439 min
Delta R.T.: 0.005 min
Response: 1823058
Conc: 94.17 %



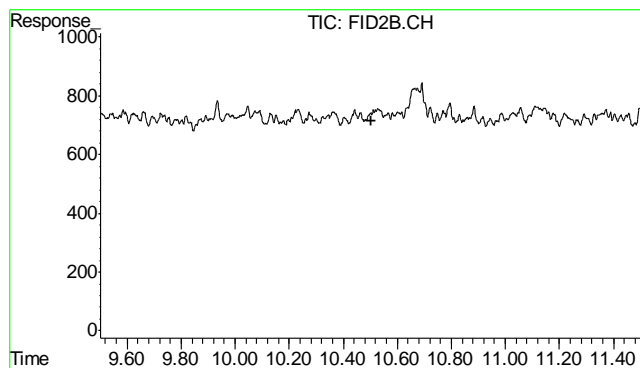
#4 Benzene

R.T.: 0.000 min
Exp R.T.: 5.054 min
Response: 0
Conc: N.D.



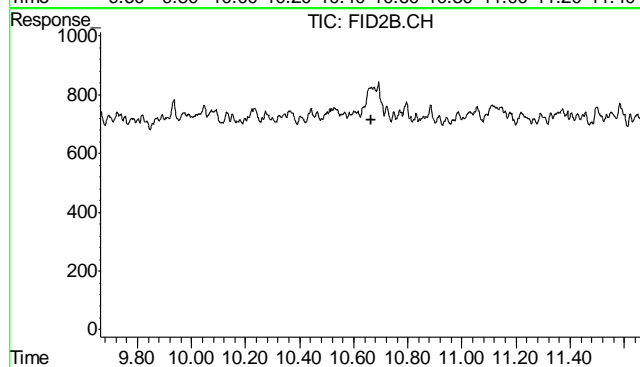
#5 Toluene

R.T.: 0.000 min
Exp R.T.: 8.116 min
Response: 0
Conc: N.D.



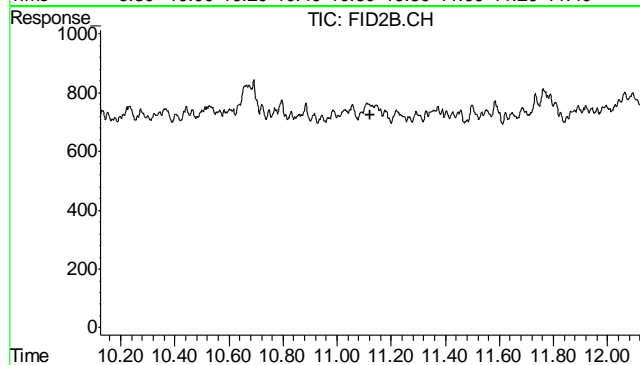
#6 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.502 min
Response: 0
Conc: N.D.



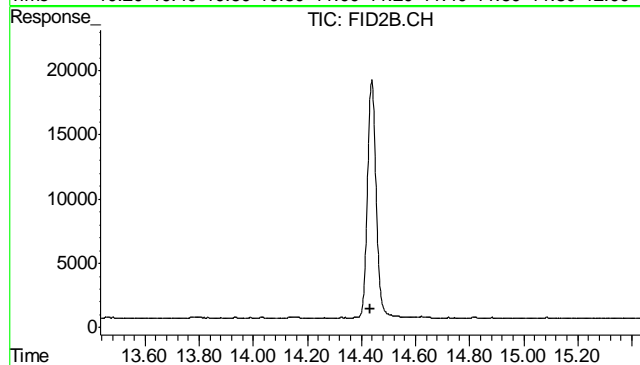
#7 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.663 min
Response: 0
Conc: N.D.



#8 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.124 min
Response: 0
Conc: N.D.



#9 1,2,4-Trichlorobenzene (P)

R.T.: 0.000 min
Exp R.T. : 14.434 min
Response: 0
Conc: N.D.

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: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14725-MB	FI51662.D	1	03/09/17	GN	03/09/17	OP14725	GFI2174

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

D91855-1, D91855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	125% 11-142%

10.1.1
10

Blank Spike Summary

Page 1 of 1

Job Number: D91855
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14725-BS	FI51664.D	1	03/09/17	GN	03/09/17	OP14725	GFI2174

The QC reported here applies to the following samples:

Method: SW846-8015B

D91855-1, D91855-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	3.92	78	22-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	117%	11-142%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D91855
 Account: AGWCODN A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14725-MS	FI51666.D	1	03/09/17	GN	03/09/17	OP14725	GFI2174
OP14725-MSD	FI51668.D	1	03/09/17	GN	03/09/17	OP14725	GFI2174
D91478-18	FI51670.D	1	03/09/17	GN	03/09/17	OP14725	GFI2174

The QC reported here applies to the following samples:

Method: SW846-8015B

D91855-1, D91855-2

CAS No.	Compound	D91478-18 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	5	2.19	44	5	0.899	18* a	84* a	20-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D91478-18	Limits
84-15-1	o-Terphenyl	61%	23%	128%	11-142%

(a) Outside control limits due to matrix.

* = Outside of Control Limits.



GC Semi-volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51708.D Vial: 50
Acq On : 10 Mar 2017 9:52 am Operator: GRANTN
Sample : D91855-1 Inst : Fid6
Misc : OP14725,GFI2174,1050,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 10:17:31 2017 Quant Results File: DROORO-GFI2158R.RES

Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Initial Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um

Compound		R.T.	Response	Conc Units

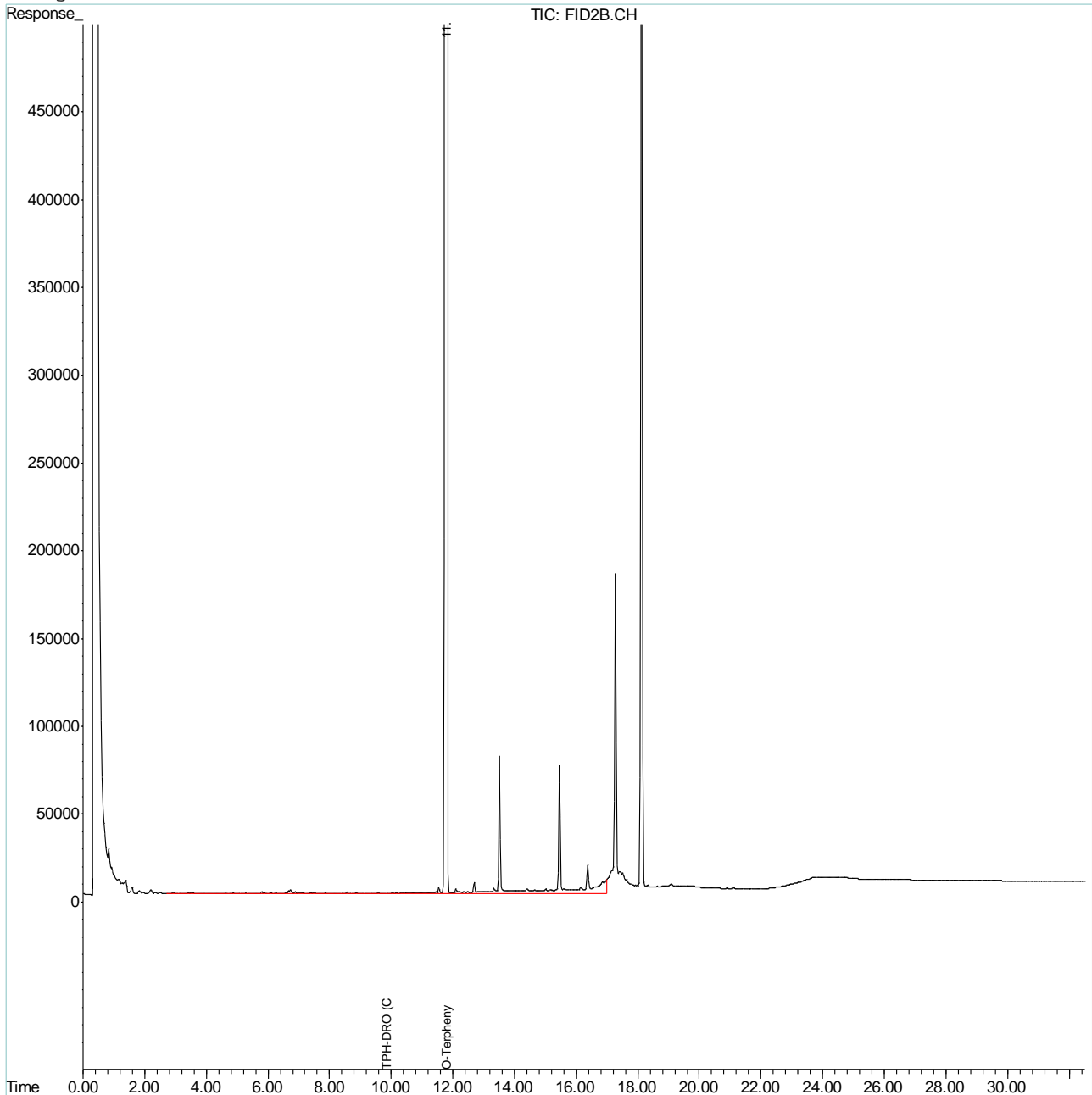
System Monitoring Compounds				
1) S	O-Terphenyl	11.81	179944171	2404.576 mg/L
Target Compounds				
2) H	TPH-DRO (C10-C28)	9.85	12557706	74.034 mg/L
3) H	TPH-DRO (C10-C32)	0.00	0	N.D. mg/L
4) H	TPH-ORO (>C28-C40)	0.00	0	N.D. mg/L

Quantitation Report (QT Reviewed)

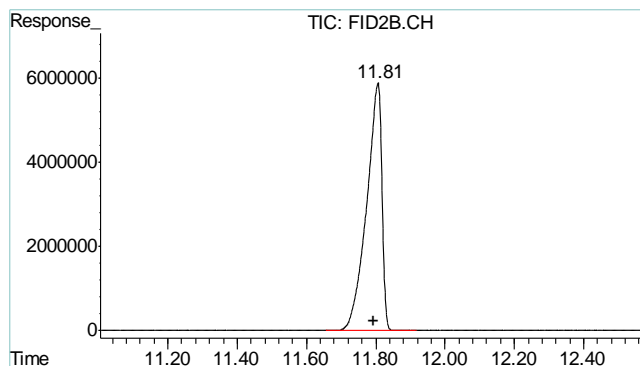
Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51708.D Vial: 50
Acq On : 10 Mar 2017 9:52 am Operator: GRANTN
Sample : D91855-1 Inst : Fid6
Misc : OP14725,GFI2174,1050,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 10:17 2017 Quant Results File: DROORO-GFI2158R.RES

Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Multiple Level Calibration
DataAcq Meth : DUAL_B2.M

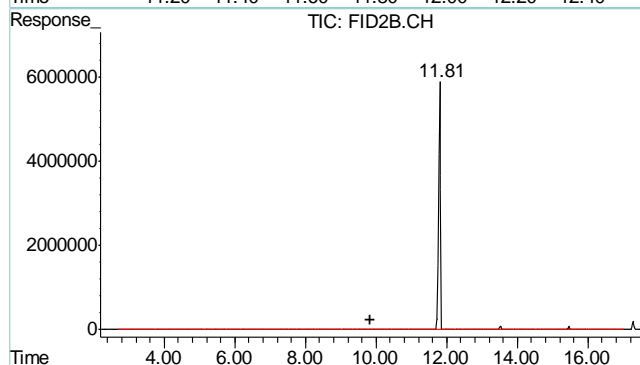
Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um



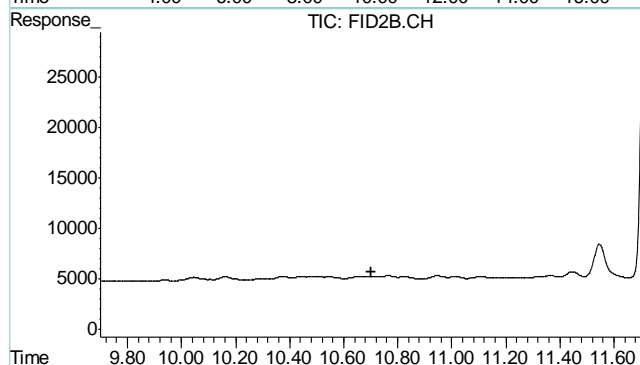
11.1.1
11



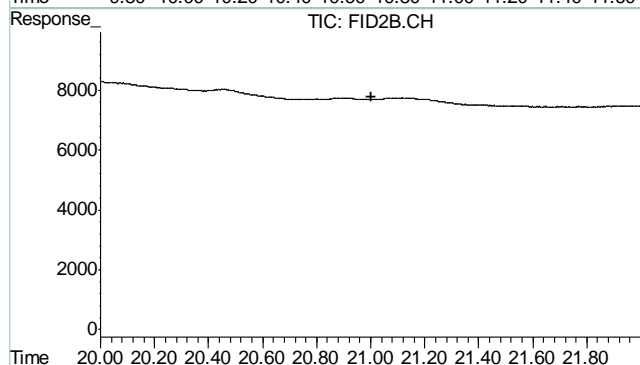
#1 O-Terphenyl
 R.T.: 11.806 min
 Delta R.T.: 0.011 min
 Response: 179944171
 Conc: 2404.58 mg/L



#2 TPH-DRO (C10-C28)
 R.T.: 9.850 min
 Delta R.T.: 0.000 min
 Response: 12557706
 Conc: 74.03 mg/L m



#3 TPH-DRO (C10-C32)
 R.T.: 0.000 min
 Exp R.T.: 10.700 min
 Response: 0
 Conc: N.D.



#4 TPH-ORO (>C28-C40)
 R.T.: 0.000 min
 Exp R.T.: 21.000 min
 Response: 0
 Conc: N.D.

11.1.1
 11

Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51710.D Vial: 76
Acq On : 10 Mar 2017 10:34 am Operator: GRANTN
Sample : D91855-2 Inst : Fid6
Misc : OP14725,GFI2174,1045,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 12:12:13 2017 Quant Results File: DROORO-GFI2158R.RES

Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Initial Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um

Compound		R.T.	Response	Conc Units

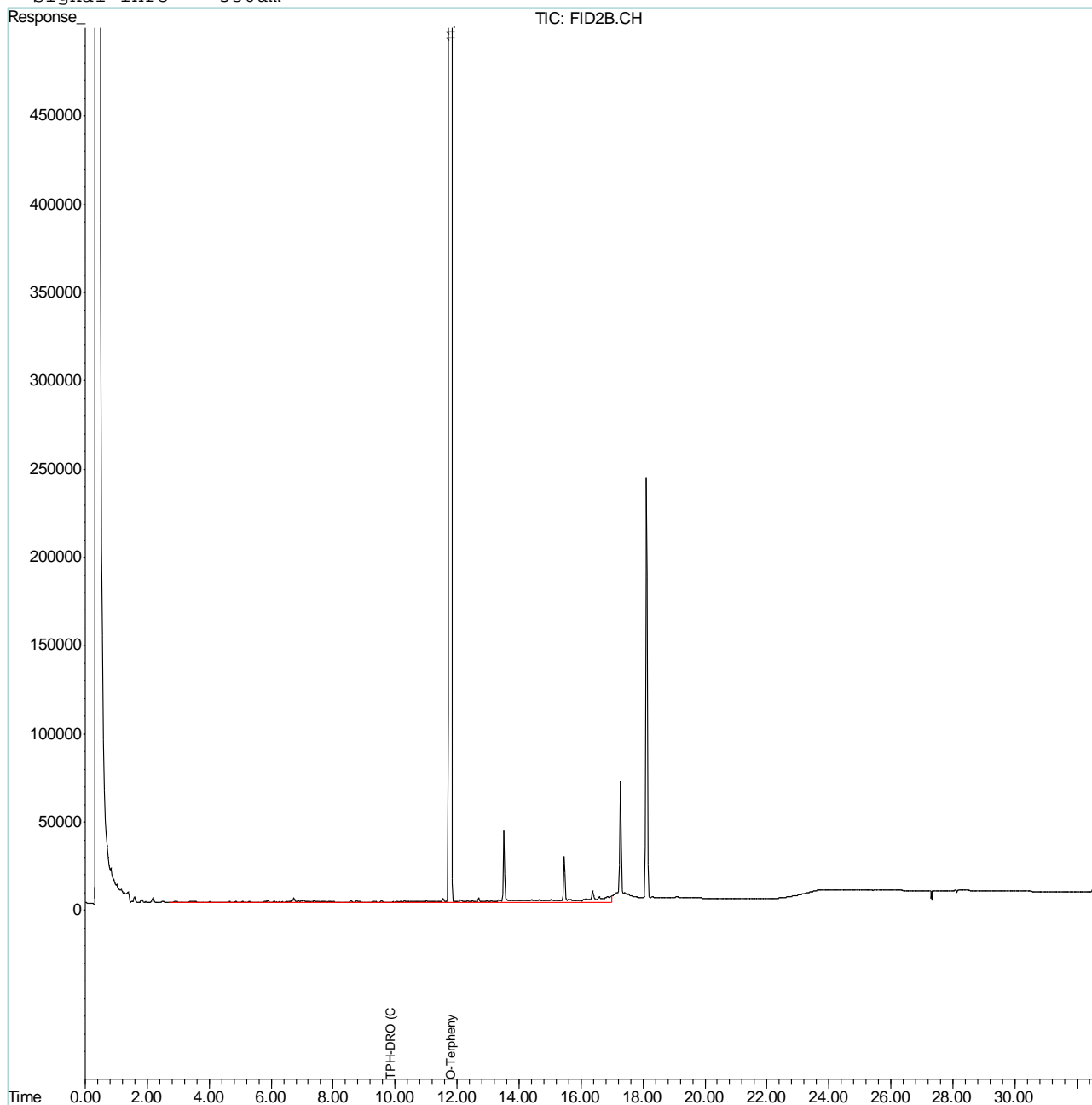
System Monitoring Compounds				
1) S	O-Terphenyl	11.80	167237359	2234.776 mg/L
Target Compounds				
2) H	TPH-DRO (C10-C28)	9.85	7427879	16.348 mg/L
3) H	TPH-DRO (C10-C32)	0.00	0	N.D. mg/L
4) H	TPH-ORO (>C28-C40)	0.00	0	N.D. mg/L

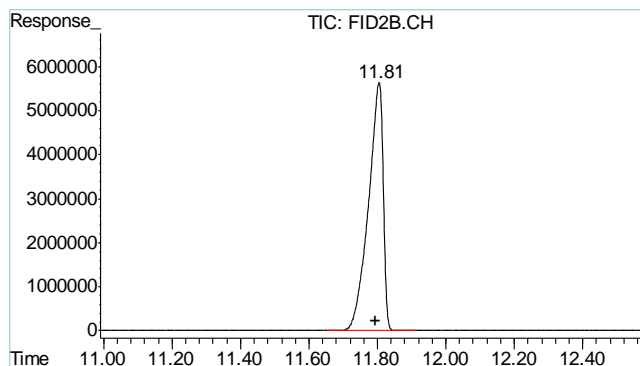
Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51710.D Vial: 76
Acq On : 10 Mar 2017 10:34 am Operator: GRANTN
Sample : D91855-2 Inst : Fid6
Misc : OP14725,GFI2174,1045,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 12:12 2017 Quant Results File: DROORO-GFI2158R.RES

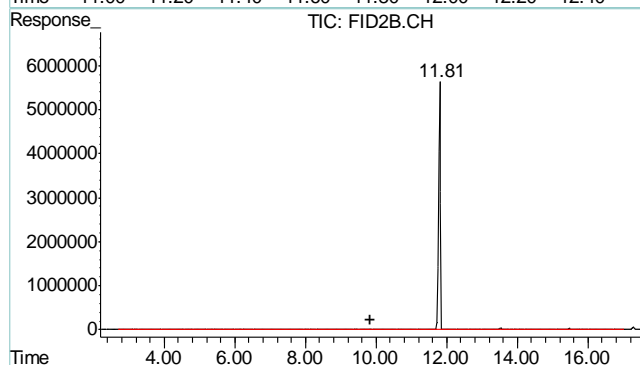
Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Multiple Level Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um

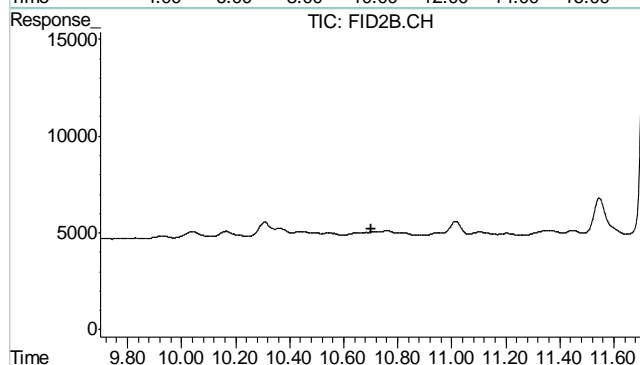




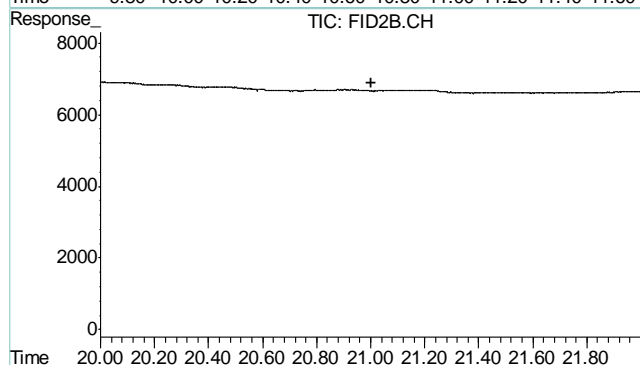
#1 O-Terphenyl
 R.T.: 11.805 min
 Delta R.T.: 0.010 min
 Response: 167237359
 Conc: 2234.78 mg/L



#2 TPH-DRO (C10-C28)
 R.T.: 9.850 min
 Delta R.T.: 0.000 min
 Response: 7427879
 Conc: 16.35 mg/L m



#3 TPH-DRO (C10-C32)
 R.T.: 0.000 min
 Exp R.T.: 10.700 min
 Response: 0
 Conc: N.D.



#4 TPH-ORO (>C28-C40)
 R.T.: 0.000 min
 Exp R.T.: 21.000 min
 Response: 0
 Conc: N.D.

11.12
 11

Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51662.D Vial: 28
Acq On : 9 Mar 2017 6:22 pm Operator: GRANTN
Sample : OP14725-MB Inst : Fid6
Misc : OP14725,GFI2174,1000,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 08:53:27 2017 Quant Results File: DROORO-GFI2158R.RES

Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Initial Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um

Compound	R.T.	Response	Conc	Units

System Monitoring Compounds				
1) S O-Terphenyl	11.81	186581353	2493.268	mg/L
Target Compounds				
2) H TPH-DRO (C10-C28)	9.85	2948718	N.D.	mg/L
3) H TPH-DRO (C10-C32)	0.00	0	N.D.	mg/L
4) H TPH-ORO (>C28-C40)	0.00	0	N.D.	mg/L

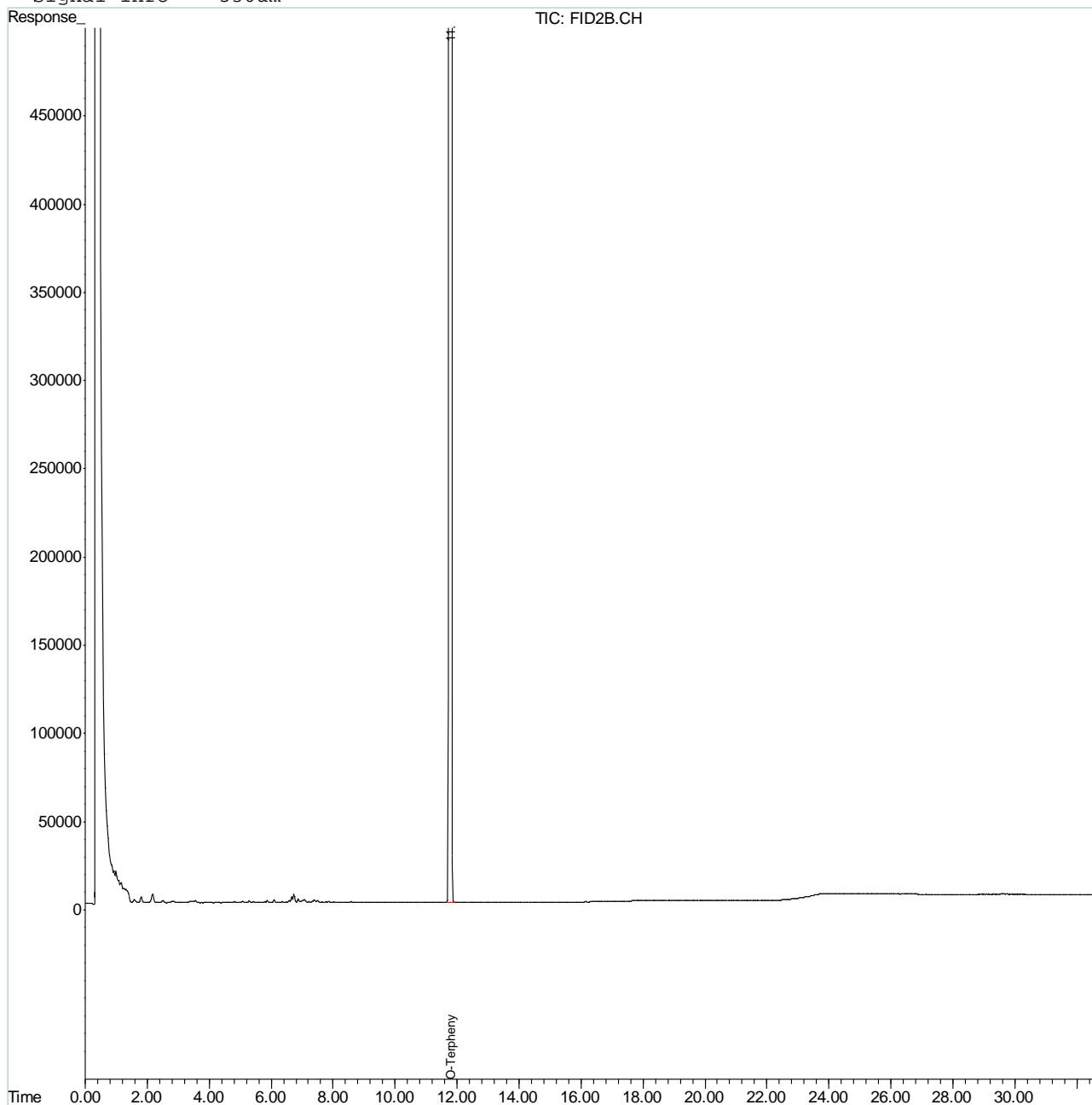
(f)=RT Delta > 1/2 Window (m)=manual int.
FI51662.D DROORO-GFI2158R.M Fri Mar 10 09:19:48 2017 TEH

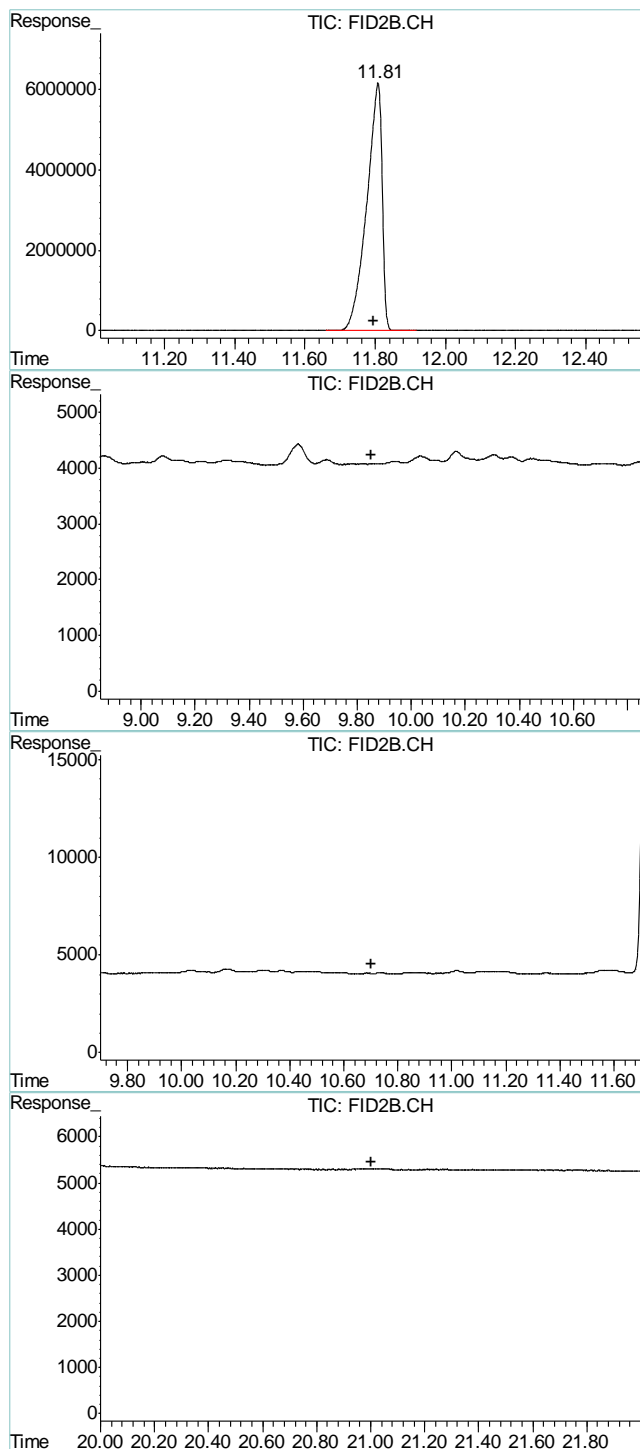
Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\2017\01-JAN\FI030917.SEC\FI51662.D Vial: 28
Acq On : 9 Mar 2017 6:22 pm Operator: GRANTN
Sample : OP14725-MB Inst : Fid6
Misc : OP14725,GFI2174,1000,,,1,1 Multiplr: 1.00
IntFile : AUTOINT1.E
Quant Time: Mar 10 9:02 2017 Quant Results File: DROORO-GFI2158R.RES

Quant Method : C:\MSDCHEM\1...\DROORO-GFI2158R.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Tue Feb 28 09:19:40 2017
Response via : Multiple Level Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 2 ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 11.808 min
Delta R.T.: 0.013 min
Response: 186581353
Conc: 2493.27 mg/L

#2 TPH-DRO (C10-C28)

R.T.: 9.850 min
Delta R.T.: 0.000 min
Response: 2948718
Conc: N.D.

#3 TPH-DRO (C10-C32)

R.T.: 0.000 min
Exp R.T.: 10.700 min
Response: 0
Conc: N.D.

#4 TPH-ORO (>C28-C40)

R.T.: 0.000 min
Exp R.T.: 21.000 min
Response: 0
Conc: N.D.

11.21
11

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: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21023
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/09/17

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079	0.17	<2.0
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Cadmium	0.10	.036	.042		
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13		
Iron	10	3.5	4.6		
Lead	0.50	.0079	.008		
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13		
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21	0.0020	<0.40
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96		

Associated samples MP21023: D91855-1F, D91855-2F

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: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21023
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/09/17

Metal	D91809-1F Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	47.6	464	400	110.3	70-130
Beryllium					
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	0.40	205	200	102.3	70-130
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP21023: D91855-1F, D91855-2F

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: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21023
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/09/17

Metal	D91809-1F Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	43.7	477	400	113.5	2.8	20
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	0.0	211	200	105.3	2.9	20
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP21023: D91855-1F, D91855-2F

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: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21023
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/09/17

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	427	400	106.8	85-115
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	208	200	104.0	85-115
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP21023: D91855-1F, D91855-2F

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

12.1.3
12

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/09/17

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	46		
Antimony	30	2.1	8.7		
Arsenic	25	3.8	12		
Barium	10	.2	.2		
Beryllium	10	.9	1.6		
Boron	50	.8	3.7	0.20	<50
Cadmium	10	.2	.6		
Calcium	400	2.4	22	15.4	<400
Chromium	10	.3	1		
Cobalt	5.0	.5	1.2		
Copper	10	.8	2.9		
Iron	10	1.5	6.9	3.7	<10
Lead	50	2.1	9.1		
Lithium	5.0	.4	1		
Magnesium	200	6.8	39	5.1	<200
Manganese	5.0	.5	.4	0.0	<5.0
Molybdenum	10	.4	3.6		
Nickel	30	.5	2.1		
Phosphorus	100	15	47		
Potassium	1000	99	61	43.7	<1000
Selenium	50	7.1	15		
Silicon	50	4.7	6.2		
Silver	30	.3	.9		
Sodium	400	7.3	14	-15	<400
Strontium	5.0	.01	.3	0.10	<5.0
Thallium	10	1.8	9.1		
Tin	50	12	25		
Titanium	10	.1	2.5		
Uranium	50	2.9	4.4		
Vanadium	10	.4	.6		
Zinc	30	.4	3.5		

Associated samples MP21026: D91855-1F, D91855-2F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/09/17

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/09/17

Metal	D91800-1F Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron	111	1180	1000	107.3	70-130
Cadmium					
Calcium	3780	28300	25000	97.4	70-130
Chromium	anr				
Cobalt					
Copper					
Iron	11.2	5230	5000	104.4	70-130
Lead					
Lithium					
Magnesium	811	25800	25000	99.7	70-130
Manganese	8.9	473	500	92.8	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	200	24800	25000	92.9	70-130
Selenium					
Silicon					
Silver					
Sodium	209000	236000	25000	36.0 (a)	70-130
Strontium	116	629	500	101.4	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP21026: D91855-1F, D91855-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/09/17

Metal	D91800-1F Original MS	Spikelot ICPALL2	% Rec	QC Limits
-------	--------------------------	---------------------	-------	--------------

(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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/09/17

	D91800-1F		Spikelot		MSD	QC
Metal	Original	MSD	ICPALL2	% Rec	RPD	Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	111	1180	1000	107.3	0.0	20
Cadmium						
Calcium	3780	28200	25000	97.0	0.4	20
Chromium	anr					
Cobalt						
Copper						
Iron	11.2	5210	5000	104.0	0.4	20
Lead						
Lithium						
Magnesium	811	26000	25000	100.5	0.8	20
Manganese	8.9	474	500	93.0	9.1	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	200	25000	25000	93.7	0.8	20
Selenium						
Silicon						
Silver						
Sodium	209000	233000	25000	24.0 (a)	1.3	20
Strontium	116	626	500	100.8	0.5	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP21026: D91855-1F, D91855-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D91855
 Account: AGWCODN - A.G. Wassenaar, Inc.
 Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/09/17

Metal	D91800-1F Original MSD	SpikeLot ICPALL2 % Rec	MSD RPD	QC Limit
-------	---------------------------	---------------------------	------------	-------------

(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.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D91855

Account: AGWCODN - A.G. Wassenaar, Inc.

Project: Ocho LD Baseline Groudwater Sampling

QC Batch ID: MP21026

Methods: EPA 200.7

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

03/09/17

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1060	1000	106.0	85-115
Cadmium				
Calcium	25100	25000	100.4	85-115
Chromium	anr			
Cobalt				
Copper				
Iron	5170	5000	103.4	85-115
Lead				
Lithium				
Magnesium	24600	25000	98.4	85-115
Manganese	485	500	97.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	23000	25000	92.0	85-115
Selenium				
Silicon				
Silver				
Sodium	24500	25000	98.0	85-115
Strontium	498	500	99.6	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP21026: D91855-1F, D91855-2F

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

12.2.3
12

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

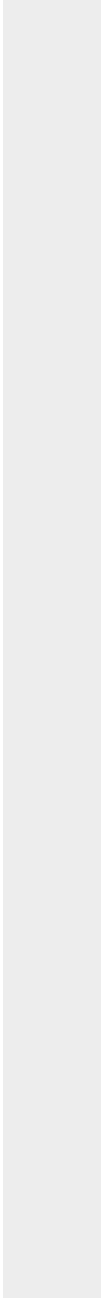
QC Batch ID: MP21026
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/09/17

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
-------	---------------	---------------------	-------	--------------

(anr) Analyte not requested



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: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN37973	5.0	2.0	mg/l	100	96.9	96.9	90-110%
Alkalinity, Carbonate	GN37974	5.0	2.0	mg/l	100	96.9	96.9	80-120%
Alkalinity, Total as CaCO3	GN37971	5.0	2.0	mg/l	100	96.9	96.9	90-110%
Bromide	GP19884/GN37984	0.050	0.0	mg/l	0.5	0.495	99.0	90-110%
Bromide	GP19897/GN38000	0.050	0.0	mg/l	0.5	0.507	101.4	90-110%
Chloride	GP19884/GN37984	0.50	0.0	mg/l	5	5.00	100.0	90-110%
Chloride	GP19897/GN38000	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Fluoride	GP19884/GN37984	0.10	0.0	mg/l	1	0.939	93.9	90-110%
Fluoride	GP19897/GN38000	0.10	0.0	mg/l	1	0.962	96.2	90-110%
Iron-Related Bacteria	MB843	25	<25	CFU/ml				
Nitrogen, Nitrate	GP19884/GN37984	0.010	0.0	mg/l	0.1	0.102	102.0	90-110%
Nitrogen, Nitrate	GP19897/GN38000	0.010	0.0	mg/l	0.1	0.101	101.0	90-110%
Nitrogen, Nitrite	GP19884/GN37984	0.0040	0.0	mg/l	0.05	0.0506	101.2	90-110%
Nitrogen, Nitrite	GP19897/GN38000	0.0040	0.0	mg/l	0.05	0.0497	99.4	90-110%
Phosphorus, Total	GP19882/GN37982	0.010	0.0	mg/l	.17	0.166	97.4	80-120%
Slime Forming Bacteria	MB844	500	<500	CFU/ml				
Solids, Total Dissolved	GN37958	10	0.0	mg/l	400	408	102.0	90-110%
Specific Conductivity	GP19890/GN37991			umhos/cm	99.0	102	103.1	90-110%
Sulfate	GP19884/GN37984	0.50	0.0	mg/l	5	4.96	99.2	90-110%
Sulfate	GP19897/GN38000	0.50	0.0	mg/l	5	4.94	98.8	90-110%
Sulfate Reducing Bacteria	MB845	200	<200	CFU/ml				
pH	GN37964			su	8.00	8.04	100.5	99.1-100.9%

Associated Samples:

Batch MB843: D91855-1B, D91855-2B
Batch MB844: D91855-1B, D91855-2B
Batch MB845: D91855-1B, D91855-2B
Batch GN37958: D91855-1, D91855-2
Batch GN37964: D91855-1, D91855-2
Batch GN37971: D91855-1, D91855-2
Batch GN37973: D91855-1, D91855-2
Batch GN37974: D91855-1, D91855-2
Batch GP19882: D91855-1, D91855-2
Batch GP19884: D91855-1, D91855-2
Batch GP19890: D91855-1, D91855-2
Batch GP19897: D91855-1, D91855-2

(*) Outside of QC limits

13.1
13

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO ₃	GN37971	D91874-1	mg/l	120	121	0.2	0-20%
Phosphorus, Total	GP19882/GN37982	D91732-1	mg/l	0.130	0.136	2.2	0-20%
Solids, Total Dissolved	GN37958	D91760-1	mg/l	1110	1080	2.7	0-5%
Specific Conductivity	GP19890/GN37991	D91819-5	umhos/cm	380	380(a)	0.0	0-20%

Associated Samples:

Batch GN37958: D91855-1, D91855-2

Batch GN37971: D91855-1, D91855-2

Batch GP19882: D91855-1, D91855-2

Batch GP19890: D91855-1, D91855-2

(*) Outside of QC limits

(a) Result equivalent to 0.38 dS/m

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO ₃	GN37971	D91760-1	mg/l	160	100	264	104.0	80-120%
Bromide	GP19884/GN37984	D91811-1	mg/l	0.63 U	12.5	12.6	100.8	80-120%
Bromide	GP19897/GN38000	D91952-1	mg/l	0.0	12.5	12.9	103.2	80-120%
Chloride	GP19884/GN37984	D91811-1	mg/l	152	125	284	105.6	80-120%
Chloride	GP19897/GN38000	D91952-1	mg/l	40.8	125	159	94.6	80-120%
Fluoride	GP19897/GN38000	D91952-1	mg/l	1.9	25	25.4	94.0	80-120%
Nitrogen, Nitrate	GP19884/GN37984	D91811-1	mg/l	5.6	2.5	8.0	96.0	80-120%
Nitrogen, Nitrate	GP19897/GN38000	D91952-1	mg/l	0.0	2.5	2.6	104.0	80-120%
Nitrogen, Nitrite	GP19884/GN37984	D91811-1	mg/l	0.075 U	1.25	1.2	96.0	80-120%
Nitrogen, Nitrite	GP19897/GN38000	D91952-1	mg/l	0.0	1.25	1.3	104.0	80-120%
Phosphorus, Total	GP19882/GN37982	D91758-1	mg/l	0.022	0.40	0.432	104.5	80-120%
Sulfate	GP19884/GN37984	D91811-1	mg/l	115	125	240	100.0	80-120%
Sulfate	GP19897/GN38000	D91952-1	mg/l	269	125	393	99.2	80-120%

Associated Samples:

Batch GN37971: D91855-1, D91855-2

Batch GP19882: D91855-1, D91855-2

Batch GP19884: D91855-1, D91855-2

Batch GP19897: D91855-1, D91855-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D91855
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Ocho LD Baseline Groudwater Sampling

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO ₃	GN37971	D91760-1	mg/l	160	100	263	0.5	20%
Bromide	GP19884/GN37984	D91811-1	mg/l	0.63 U	12.5	12.5	0.8	20%
Bromide	GP19897/GN38000	D91952-1	mg/l	0.0	12.5	12.9	0.0	20%
Chloride	GP19884/GN37984	D91811-1	mg/l	152	125	284	0.0	20%
Chloride	GP19897/GN38000	D91952-1	mg/l	40.8	125	159	0.0	20%
Fluoride	GP19897/GN38000	D91952-1	mg/l	1.9	25	25.2	0.8	20%
Nitrogen, Nitrate	GP19884/GN37984	D91811-1	mg/l	5.6	2.5	8.0	0.0	20%
Nitrogen, Nitrate	GP19897/GN38000	D91952-1	mg/l	0.0	2.5	2.6	0.0	20%
Nitrogen, Nitrite	GP19884/GN37984	D91811-1	mg/l	0.075 U	1.25	1.2	0.0	20%
Nitrogen, Nitrite	GP19897/GN38000	D91952-1	mg/l	0.0	1.25	1.3	0.0	20%
Phosphorus, Total	GP19882/GN37982	D91758-1	mg/l	0.022	.40	0.434	0.5	20%
Sulfate	GP19884/GN37984	D91811-1	mg/l	115	125	240	0.0	20%
Sulfate	GP19897/GN38000	D91952-1	mg/l	269	125	392	0.3	20%

Associated Samples:

Batch GN37971: D91855-1, D91855-2

Batch GP19882: D91855-1, D91855-2

Batch GP19884: D91855-1, D91855-2

Batch GP19897: D91855-1, D91855-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits