TETRA TECH

December 15, 2022

Mr. Duc Nguyen
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Subject: **Trip Report**
                  Bridger Railroad Spill Site
                  Bridger, Carbon County, Montana
                  U.S. EPA Region 8 START V, Contract No. 68HE0820D0001
                  Technical Direction No. 2080-2210-01
                  DTN 1143

Dear Mr. Nguyen:

The Tetra Tech, Inc. Superfund Technical Assessment and Response Team (START) is submitting this letter report for the Bridger Railroad Spill Site (Site), located in Bridger, Carbon County, Montana as per the technical direction (TD) 2080-2210-01 requirement. This report summarizes field activities conducted at the Site on October 1 and 2, 2022 and the analytical results of the samples collected. The overall scope of this TD was to provide sampling and analytical services to assess potential impacts of a gasoline spill. Enclosure 1 provides figures that depict the site location and sampling locations. Enclosure 2 provides the field notes from the emergency response/removal assessment. Enclosure 3 provides a photographic log of sample locations and photographic documentation of the Site along with descriptions. Enclosure 4 provides tables that summarize field monitoring data and validated laboratory analytical results for water samples. Enclosure 5 provides the data validation report. Enclosure 6 provides the laboratory analytical data package for the samples.

SITE LOCATION AND CHARACTERISTICS

The Site is located approximately 0.5 miles east of Bridger, Montana, near the intersection of East Bridger Road and South River Road (Enclosure 1, Figure 2). Geographic coordinates for the approximate center of the Site are 45.289509 north latitude and 108.891649 west longitude. The Site occupies approximately 38,500 square feet in a mixed agricultural and sparsely populated residential region and is approximately 180.5 feet northwest to the Clarks Fork Yellowstone River (Enclosure 1, Figure 2).

SITE BACKGROUND INFORMATION

On October 1, 2022, the U.S. Environmental Protection Agency (EPA) Region 8 received notification of a train derailment in Carbon County, Montana that occurred the previous night. Overly saturated soils caused the track to sink in and become unaligned. The incident involved 15 train cars derailing near the intersection of East Bridger Road and South River Road, between the railroad markers BNSF 486 and 487. Of the derailed cars, four tank cars were carrying gasoline, others carried consumables, particle board, coal, animal fat, and sorghum, and unidentified non-hazardous contents. Two of the tank cars carrying gasoline were damaged in the incident, causing a spill of 28,000 to 30,000 gallons of gasoline in the immediate area (Enclosure 1, Figure 2). Based on the spill area's proximity to the Clarks Fork Yellowstone River, local responders expressed concern about possible contamination to the river and the area's groundwater table.

After receiving the notification of the emergency spill, the EPA tasked START with mobilizing to the Site to collect any necessary analytical samples around 10:30 a.m. on October 1, 2022. Personnel on call at the time of the emergency response include Lauren Foster and Brandi Davis. Steve Szocik was requested to join as an on-site chemist. Prior to mobilization, START initiated the preparation of a Sampling and Analysis Plan (SAP), a Site-Specific Data Management Plan (SDMP) and a Health and Safety Program (HASP), all of which were completed during the drive from the EPA warehouse located in Arvada, Colorado, to the Site.

FIELD ACTIVITIES

On October 1, 2022, START personnel mobilized to the Site and met on site with EPA On-Scene Coordinator (OSC) Duc Nguyen and Rob Bailey with Burlington Northern Santa Fe (BNSF) Railway at approximately 10 p.m. After receiving an initial briefing on the situation from OSC Nguyen who had previously spoken to the BNSF representatives, START was directed to conduct a reconnaissance of the outer east perimeter of the spill area. START documented observations and site conditions in a handwritten field logbook and on an electronic tablet using photo-documentation applications (Survey123 and Quick Capture) (Enclosure 2 and 3).

Field sampling began on October 2, 2022, after a morning meeting conducted with START, EPA, BNSF's environmental consultant, Arcadis, and Carbon County Police and Fire Department officials to create a joint sampling plan. After aforementioned parties observed the lack of any visible oil sheen in the Clarks Fork Yellowstone River, it was determined that the horizontal extent of the oil spill was closer to the tracks. To find the vertical extent of the spill, Arcadis was instructed to investigate subsurface soil conditions by taking soil cores along the west side of the tracks, 37.5 and 75 feet from the right of way (ROW) of the tracks until groundwater was reached. BNSF representatives stated the groundwater table was approximately 4 to 5 feet below ground surface (bgs) and that the ROW was 35 feet out from the tracks. The heavy saturation of the soil did not allow Arcadis to complete the borings with a Geoprobe, so each investigative location was hand dug with a shovel. The shovel was decontaminated between each hole. BNSF's environmental contractor, Arcadis, collected excavated soil in a re-sealable plastic bag and monitored the headspace inside the bag with a MiniRAE photoionization detector (PID).

Prior to and during the collection of water samples, START monitored the headspace above the water that had pooled in each of the hand dug investigative locations using an EPA MultiRAE Pro portable PID. START conducted monitoring for total volatile organic compounds (VOC) by using tubing attached to the MultiRAE to monitor directly over the water that had accumulated in the excavated holes. Information related to the subsurface soil investigative locations and maximum PID readings can be found in Enclosure 4, Table 1.

Eleven water samples, including two quality control samples, were collected at nine locations (Enclosure 1, Figure 2). All samples were collected to the west and downgradient of the spill. A summary of the samples collected is presented below:

- Four samples (BTD-P01-20221002, BTD-P02-20221002, BTD-P03-20221002, and BTD-P04-20221002) were collected from the subsurface investigative borings dug by Arcadis and located 75.0 feet from the ROW. The depth to the water table at these locations ranged from 3.5 to 4.5 feet bgs.
- Three samples (BTD-P05-20221002, BTD-P06-20221002, and BTD-P07-20221002) were collected from the subsurface investigative borings dug by Arcadis and located 37.5 feet from the ROW. The depth to the water table at these locations ranged from 4 to 4.5 bgs.

- One groundwater sample (BTD-GW01-20221002) was collected on the property where the spill occurred; specifically, the sample was collected from the source well that delivers water to the residence and livestock feeding tanks. The homeowner informed all related parties that the well has a depth of 20 ft.
- One groundwater sample (BTD-GW02-20221002) was collected from the drinking water source well on the property adjacent to the property where the spill occurred.

Samples were collected and preserved in accordance with the approved Bridger Railroad Spill SAP and the sampling methodology provided in EPA Standard Operating Procedure (SOP) #2013, "Surface Water Sampling." and EPA SOP #2007, "Groundwater Well Sampling", and shipped following the methodology outlined in SOP019 "Packaging and Shipping Samples. 2020." All samples remained under START custody until shipment via FedEx to SGS North America on October 3, 2022, for analysis for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH)(which together are summed up to be the total petroleum hydrocarbons (TPH)), along with START's chain-of-custody documentation.

ANALYTICAL RESULTS

START received preliminary data from the laboratory in the form of a PDF and as an electronic data deliverable (EDD) on October 31, 2022 and final data package on November 02, 2022. Stage 2A validation was conducted on the received data in accordance with to the Tetra Tech *Final Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (Tetra Tech 2021) and the *EPA National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2020). The Data Validation report can be found in Enclosure 5 and the laboratory analytical data package can be found in Enclosure 6.

The results from all samples analyzed came back below EPA Tap water RSLs and MDEQ groundwater screening levels for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH). Analytical sample results are summarized in Enclosure 4, Table 2.

DATA MANAGEMENT

All analytical field data were published to a site-specific SCRIBE database. On-site activities were supported by an approved site-specific data management plan (SDMP) that detailed the project responsibilities for all Site participants, how often data should be updated, Site objectives, and applications used for necessary updates (Tetra Tech, 2022b). There were no deviations from the SDMP.

Please contact me at (619) 829-0360 or via email at Brandi.Davis@TetraTech.com if you have any questions regarding this report.

Sincerely,

12/15/2022

Brandi Davis
START V Technical Direction Manager

REFERENCES

U.S. Environmental Protection Agency (EPA). 2021. Programmatic Quality Assurance Project Plan Emergency Response Section. December.

Tetra Tech Inc. (Tetra Tech). 2022a. "Field Sampling and Analysis Plan. Bridger Railroad Spill" Prepared for EPA Region 8 – Superfund Technical Assessment and Response Team (START V). Revision 0. October.

Tetra Tech. 2022b. "Site Data Management Plan. Bridger Railroad Spill" Prepared for EPA Region 8 – Superfund Technical Assessment and Response Team (START V). Revision 0. October.

Tetra Tech. 2022c. "Health and Safety Program. Bridger Railroad Spill" Prepared for EPA Region 8 – Superfund Technical Assessment and Response Team (START V). Revision 0. October.

EPA. 2020. National Functional Guidelines for Organic Superfund Methods Data Review. November.

ENCLOSURES (6)

1 – FIGURES
2 – FIELD NOTES
3 – PHOTOGRAPHIC LOG
4 – DATA SUMMARY TABLES
5 – DATA VALIDATION REPORT
6 – ANALYTICAL LABORATORY DATA PACKAGES
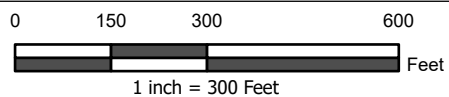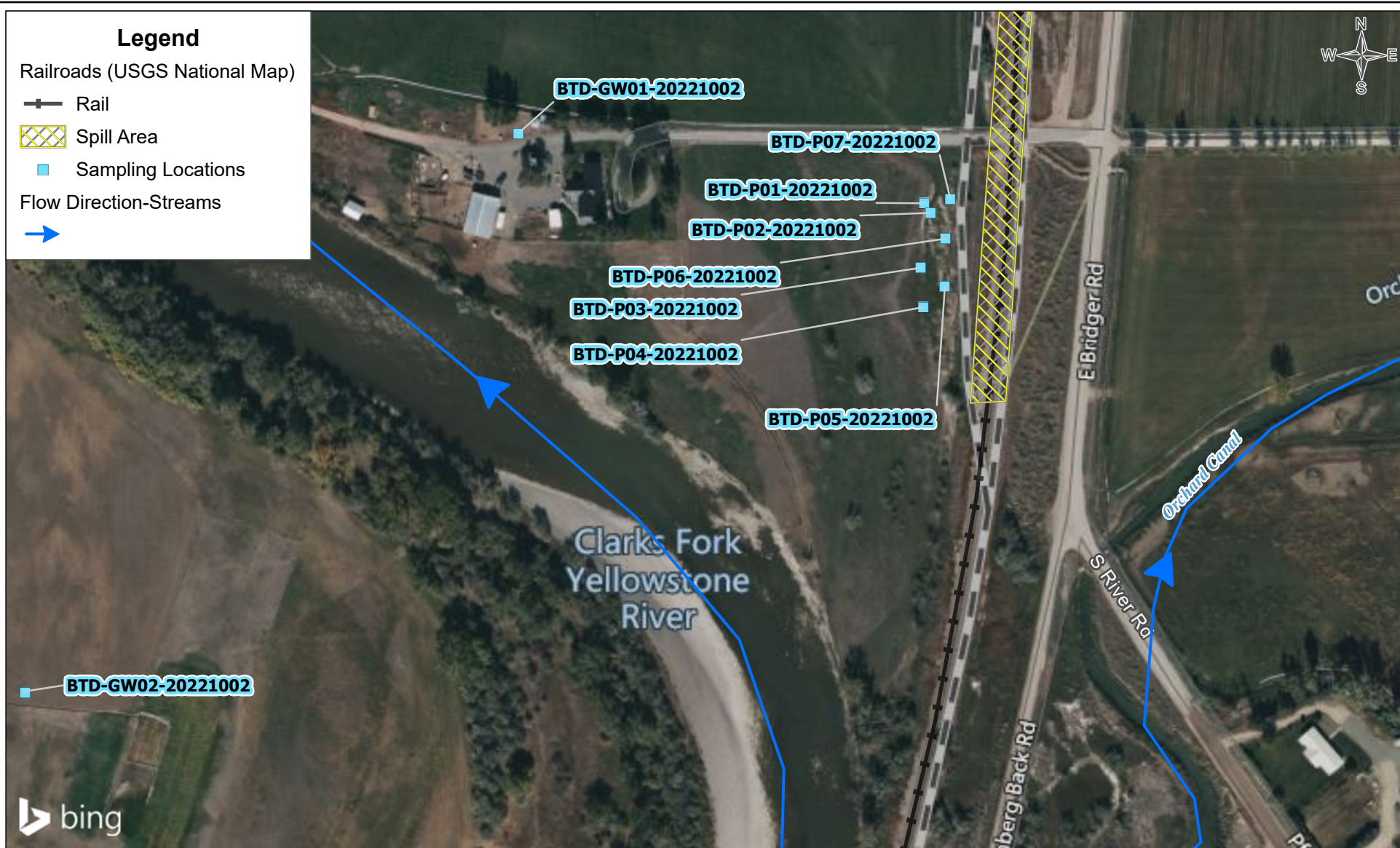
ENCLOSURE 1

FIGURES

Legend

Approximate Site Boundary

Railroads (USGS National Map)

+— Rail

Streams

Mileposts

● Rail Mileposts

Flow Direction-Streams

→ (Flow Direction arrow)

– – – Montana Roads (Montana State Library)

0   0.5   1 Miles
1 inch = 0.5 Miles

Source:
Background: ESRI TOPO Basemap
Railroads: USGS National Map
Streams/ Flow Direction: USGS NHD REST Service
Railroad Mileposts: FRA Railroad Mileposts REST Service
Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

United States Environmental Protection Agency

Region 8 START V
TD: 2080-2210-01

TETRA TECH

Analyst: M. Caldwell
Date: 12/15/2022

Bridger Railroad Spill

Bridger, Carbon County, Montana

**Figure 1
Site Location**

Path: M:\R08_STARTV\BridgerMT\ArcGIS_Pro\Region 8 START Bridger.aprx

Figure 2
Sample Locations

Legend

Railroads (USGS National Map)

Rail

Spill Area

Sampling Locations

Flow Direction-Streams

Sampling location labels on map:
- BTD-GW01-20221002
- BTD-P07-20221002
- BTD-P01-20221002
- BTD-P02-20221002
- BTD-P06-20221002
- BTD-P03-20221002
- BTD-P04-20221002
- BTD-P05-20221002
- BTD-GW02-20221002

Clarks Fork Yellowstone River

E Bridger Rd

Orchard Canal

S River Rd

0   150   300   600 Feet

1 inch = 300 Feet

Source:
Background: ESRI TOPO Basemap
Railroads: USGS National Map
Sample Locations: Region 8 STARTV (Tetra Tech)
Streams/ Flow Direction: USGS NHD REST Service
Railroad Mileposts: FRA Railroad Mileposts REST Service
Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

United States
Environmental
Protection Agency

Region 8 START V
TD: 2080-2210-01

TETRA TECH

Analyst: M. Caldwell
Date: 12/15/2022

Bridger Railroad Spill

Bridger, Carbon County, Montana

MT
ND
ID
SD
WY

ENCLOSURE 2

FIELD NOTES

Rite in the Rain®

TACOMA, WA, USA — EST. 1916 —

— DEFYING MOTHER NATURE —

START FIELD LOGBOOK

Logbook Tracking Number **LTN#075**

Site Name **Bridger Montana Derailment Railroad** BCO 12/15/22 **Spill**

Issue to **Brandi Davis**

Date Issued **10/01/2022**

TD # **2080-2210-01**

Project **Railroad container spill in**
Bridger, MT, under OSC Duc Nguyen
Montana
BCO 12/15/22

MADE USA · RITE GREEN · Archival paper

RiteintheRain.com

CONTENTS

PAGE	REFERENCE	DATE
3	N/A	10/01
4		10/02

10/01/2022
EPA

1130: START Davis arrived @ Warehouse in Arvada and begin collecting + preparing bottleware + ERT necessities
BCD 10/05/2022

1815: START Davis + Foster departed EPA warehouse in Arvada, CO in the ERT + began PX'd to site in Bridger, MT.
BCD 10/05/2022

2210: START Davis + Foster arrived on site @ 749.5+FF3 Bridger, MT.
BCD 10/05/2022

2230: START DAVIS BEGAN CALIBRATING MULTI-RAES
BCD 10/05/2022
965860   passed Fresh air
10.1 PPM 50
965868   passed fresh air   passed 4 gas 50   50
BCD 10/05/2022
passed VOC 10.1

2240: START Foster Met w/ EPA to discuss site ★
BNSF
2300: Meeting between START, EPA + AGCP to discuss
BCD 10/01/22
site action plan moving forward. ★
BCD 10/05/22
START Began Taking site photos

★ action plan meeting: Discussed meeting time (0030) to allow walking of the river to see any visable sheen. Walking the site b how it was unsafe at night. Taking surface water
downgradient
samples + taking groundwater from well found ~~near~~ site
BCD 10/01/22

★ START Foster Note: BNSF had consultant sample well water but they don't know how it looks. No resident complaints. Incident report generated. Current goal is to get all gas loaded to the refinery then clean b vent
(CHB Billings)
Piper- 1C. Spoke w/ Bailey BNSF
10/01/22

4 @ 10/02/22

0730: START HAS morning meeting w/ EPA to discuss action plan and sampling plan. Discussion to take samples upgradient. Safety meeting = situational awareness
BCD 10/05/2022

0805: START & EPA Departed Alpine Lodge
ERT giving low tire pressure warning.

0807: START stops at Cenaco gas station to put air in front tire. EPA notifies START of change in meeting location. New location will be at the Command Center @ kelly Bean Company.

0818: START LEAVES gas station & HEADS towards
Command Center @ kelly Bean Company
BCD 10/05/2022

0853: START arrived @ kelly Bean Company Command Center

0859: Meeting/Planning between all party's involved on project, EPA, START, Arcadis, Olympus, BNSF Remediation, County Fire Dept, County Sheriff, local responders, Homeowner of land spill occured on, BNSF was on what had already been moved out (how much oil was trucked off), the moving from response to remediation & changing of command, action plan for locating the spilled oil (potholing), request of homeowners to take well samples, explanations of drilling/excavating soil around railway to 3ft only (soil compaction)
BCD 10/05/2022

5

10/02/2022

1023: START FOSTER CALIBRATES multi rae 9165868
fresh air : pass
4 gas : pass
VOC : pass
BCD 10/05/2022

1034: START began following BNSF Remediation to site where pot holing will is occuring. START will monitor and observe pot holes for any visible sheen. Any suspect pot holes are to be sampled. (BNSF is potholing to navies Arcadis locate where spilled gas is located.
BCD 10/05/2022

1053: Met w/ Arcadis Engineer who explained the method & location of potholes. BNSF
potholes are aligned 75 ft off along right away of 70ft along railroad & digging to groundwater (4ft) 75 ft chosen based on BNSF Remediation starting with the type of soil, its unlikely to move this far out. Planned for more potholes. Each pothole has PID headspace reading done by Arcadis or for exposed soil. START Foster is getting multi-rae readings for each pothole, exposed soil, & PID headspace soil bag. Exposed soil is being tested w/ for scent & saturation texture
BCD 10/05/2022

1222: START Returned to ERT to acquire sampling supplies for groundwater samples
BCD 10/05/2022

1273: Trip blanks created for HCL VOA vials

1337: START HEADS back to area of site w/ potholes to take samples
BCD 10/05/2022

Olympus

1357: START ↓ ARCADIS begin sampling [Alex's peristaltic pump]

sample 01 BCD 10/02/22	time taken	Multirae VOC
- BTD - Pothole - 01	1409	0 ppb

~ 4.5' depth , refer to Survey 123 form

| 02 BCD 10/02/22 | | |
| - BTD - Pothole - 02 | 1425 | 0 ppb |

~ 3.5' depth

| 03 BCD 10/02/22 | | |
| - BTD - Pothole - 03 | 1443 | 0 ppb |

B ~

| 04 BCD 10/02/22 | | |
| - BTD - Pothole - 04 | 1458 | 0 ppb |

~ 4.5' depth

| 05 BCD 10/02/22 | | |
| - BTD - Pothole - 05 | 1505 | 0 ppb |

~ 4.0' depth

| 06 BCD 10/02/22 | | |
| - BTD - Pothole - 06 | 1516 | 0 ppb |

~ 4.5' depth

| 07 BCD 10/02/22 | | |
| - BTD - Pothole - 07 | 1526 | 0 ppb |

~ 4.5' depth

* notes: Arcadis has not seen any sheen. Potholes dug

38.5 ft from right away.

refer to Survey 123 forms

~~1547~~ 1557: START ↓ Arcadis take sample (groundwater) from well of property ou

sample BTD · GW01	time 1550	sample BTD-GW02	time 1645

~ 5' below surface

1601: START Tosca ↓ Szech returned to CSA vehicle to acquire

bottleware to sample the well on the adjacent property where spill occurred

1635: START Szech returns to takes GW5. BTD-GW02 BCD 10/02/22

Sample located on neighboring property where spill
occured. Well water sampled

10/03/2022

10/02/2022   7

1739: START LLAVCS site after completing sampling

1805: START Returns to hotel to continue DATA submittion

BCD 10/03/22

N

END OF LOGBOOK

Rite in the Rain

ENCLOSURE 3

PHOTOGRAPHIC LOG

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/1/2022 11:04:00 PM
Photographer:	Foster, Lauren
Latitude:	45.29003362
Longitude:	-108.89109826
Photo Direction:	WNW
Photo Description:	Heavy Machinery working throughout the night to clean up a train derailment that had cars offloading gasoline product.

Date/Time Taken:	10/1/2022 11:05:00 PM
Photographer:	Foster, Lauren
Latitude:	45.28999092
Longitude:	-108.89111092
Photo Direction:	SW
Photo Description:	Heavy machinery working throughout the night, piling debris created from the train derailment.

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/1/2022 11:06:00 PM	
Photographer:	Foster, Lauren	
Latitude:	45.28999183	
Longitude:	-108.89110679	
Photo Direction:	WSW	
Photo Description:	Heavy machinery working throughout the night to clean-up the train derailment offloading product	

Date/Time Taken:	10/1/2022 11:06:00 PM	
Photographer:	Foster, Lauren	
Latitude:	45.29015762	
Longitude:	-108.89108212	
Photo Direction:	NW	
Photo Description:	Northern area of the train derailment where heavy machinery is working throughout the night to move derailed cars.	

TETRA TECH

PHOTOGRAPHIC LOG

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 10:42:00 AM	
Photographer:	Foster, Lauren	
Latitude:	45.29059338	
Longitude:	-108.89097613	
Photo Direction:	SSW	
Photo Description:	North of the spill. Heavy equipment is lined up and working on piling contaminated soil and debris into respective piles.	

Date/Time Taken:	10/2/2022 10:49:00 AM	
Photographer:	Foster, Lauren	
Latitude:	45.29027941	
Longitude:	-108.89136768	
Photo Direction:	S	
Photo Description:	Pile of train car debris to the north-center of where the spill occurred.	

TETRA TECH

Project Name:	Site Location:	Project No.
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 10:58:00 AM
Photographer:	Foster, Lauren
Latitude:	45.29010341
Longitude:	-108.89203497
Photo Direction:	NW
Photo Description:	North pothole created by Olympus workers 75 feet out along railway to locate.

Date/Time Taken:	10/2/2022 11:01:00 AM
Photographer:	Foster, Lauren
Latitude:	45.28994872
Longitude:	-108.89205113
Photo Direction:	SW
Photo Description:	Center pothole dug by Olympus to groundwater depth with visible water at the bottom of the hole.

![Tetra Tech logo] **TETRA TECH**

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 11:08:00 AM	
Photographer:	Foster, Lauren	
Latitude:	45.28972628	
Longitude:	-108.89206786	
Photo Direction:	N	
Photo Description:	Pothole 3 to the south of the spill. Pothole dug until groundwater was encountered. No visible sheen on water or smell from exposed soil.	

Date/Time Taken:	10/2/2022 11:29:00 AM	
Photographer:	Foster , Lauren	
Latitude:	45.29010844	
Longitude:	-108.89204063	
Photo Direction:	SE	
Photo Description:	Center-south of the spill, BNSF workers are repairing the rail line and offloading product.	

TETRA TECH

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 11:36:00 AM
Photographer:	Foster , Lauren
Latitude:	45.28992641
Longitude:	-108.89196675
Photo Direction:	E
Photo Description:	Rail car with approximately 1,000 gallons of gasoline lost (after being patched).

Date/Time Taken:	10/2/2022 11:37:00 AM
Photographer:	Foster , Lauren
Latitude:	45.28991096
Longitude:	-108.89194444
Photo Direction:	SE
Photo Description:	Rail car that suffered gasoline loss with heavy machinery piling debris in photo.

TETRA TECH

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 12:12:00 PM
Photographer:	Foster, Lauren
Latitude:	45.29025071
Longitude:	-108.89191944
Photo Direction:	E
Photo Description:	East side of the tracks. Crossing into the homeowner's land where spill occured. Heavy machinery is being using to pile debris and excavate contaminated soil on the west side of the tracks

Date/Time Taken:	10/2/2022 2:25:00 PM
Photographer:	Davis, Brandi
Latitude:	45.28986273
Longitude:	-108.89197584
Photo Direction:	E
Photo Description:	Wide shot of pothole 6 with green marker dug by Olympus. Pothole is located 35 feet from ROW of eastern railtracks. Damaged tanker having gasoline offloaded and debris can be seen in the background.

PHOTOGRAPHIC LOG

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 2:26:00 PM	
Photographer:	Davis, Brandi	
Latitude:	45.28966283	
Longitude:	-108.89194712	
Photo Direction:	SE	
Photo Description:	Pothole 4 dug 70 feet from ROW to the south of the spill by Olympus to groundwater. No visible oil sheen observed on water pooling at the bottom of the hole.	

Date/Time Taken:	10/2/2022 2:26:00 PM	
Photographer:	Davis, Brandi	
Latitude:	45.28966848	
Longitude:	-108.89198324	
Photo Direction:	E	
Photo Description:	Wide shot of pothole 5 dug by Olympus 35 feet from ROW to the center-south of the spill on the east side of the tracks.	

Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 2:27:00 PM
Photographer:	Davis, Brandi
Latitude:	45.28972959
Longitude:	-108.89211801
Photo Direction:	E
Photo Description:	Wide shot of pothole 4 dug 70 feet from ROW to the south of the spill, on the east side of the tracks.

Date/Time Taken:	10/2/2022 2:28:00 PM
Photographer:	Davis, Brandi
Latitude:	45.29009719
Longitude:	-108.89206441
Photo Direction:	ENE
Photo Description:	Wide shot of pothole 1 dug by Olympus to the north of the spill.

TETRA TECH

PHOTOGRAPHIC LOG

Date/Time Taken:	10/2/2022 3:06:00 PM
Photographer:	Davis, Brandi
Latitude:	45.29002088
Longitude:	-108.89189818
Photo Direction:	E
Photo Description:	Pothole 7 dug by Olympus to groundwater 35 feet north of the spill on east side of the tracks. No visible oil sheen observed on water pooling at the bottom of the hole.

Date/Time Taken:	10/2/2022 3:07:00 PM
Photographer:	Davis, Brandi
Latitude:	45.29002408
Longitude:	-108.8919192
Photo Direction:	ESE
Photo Description:	Wide shot of pothole 7, 35 feet from ROW to the north of the spill, on the east side of the tracks.

TETRA TECH

Project Name:		**Site Location:**	**Project No.**
Bridger Railroad Spill		Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 3:48:00 PM
Photographer:	Foster, Lauren
Latitude:	45.29031002
Longitude:	-108.89446028
Photo Direction:	NNW
Photo Description:	Well on the land of homeowner where spill occurred. Downgradient and northwest from spill.

Date/Time Taken:	10/2/2022 10:48:00 AM
Photographer:	Foster, Lauren
Latitude:	45.29028742
Longitude:	-108.89121728
Photo Direction:	S
Photo Description:	North of the spill. Heavy equipment is working on piling contaminated soil on plastic and moving debris into a seperate area.

![Tetra Tech logo] **TETRA TECH**

PHOTOGRAPHIC LOG

Project Name:	**Site Location:**	**Project No.**

Project Name: Bridger Railroad Spill

Site Location: Bridger, Carbon County, Montana

Project No. 2080-2210-01

Date/Time Taken:	10/2/2022 10:49:00 AM
Photographer:	Foster, Lauren
Latitude:	45.2902508
Longitude:	-108.89149106
Photo Direction:	S
Photo Description:	Flipped over gasoline tanker at the center of the spill with BNSF workers working to repair the railway.

Date/Time Taken:	10/2/2022 10:55:00 AM
Photographer:	Foster, Lauren
Latitude:	45.28987158
Longitude:	-108.8921408
Photo Direction:	SSE
Photo Description:	Olympus technicians digging potholes 75 feet along the ROW of the railway at the central location of the spill to determine extent and location of spilled gasoline.

Project Name:
Bridger Railroad Spill

Site Location:
Bridger, Carbon County, Montana

Project No.
2080-2210-01

Date/Time Taken:	10/2/2022 11:00:00 AM
Photographer:	Foster, Lauren
Latitude:	45.28995271
Longitude:	-108.89204155
Photo Direction:	SW
Photo Description:	START taking a volatile organic compound reading of the center pothole with the photoionization detector sensor in a MultiRAE to gain insight if groundwater had been contaminated by spilled gasoline.

Date/Time Taken:	10/2/2022 11:03:00 AM
Photographer:	Foster, Lauren
Latitude:	45.2899425
Longitude:	-108.89211664
Photo Direction:	E
Photo Description:	Pothole dug by Olympus technicians with green marker in the background indicting where the center of the spill occurred. Overturned and damaged gasoline tanker can be seen behind the marker.

Project Name:	Site Location:	Project No.
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 11:54:00 AM
Photographer:	Foster , Lauren
Latitude:	45.29026549
Longitude:	-108.8917005
Photo Direction:	SSE
Photo Description:	View facing south of the gasoline spill location along the west side of the tracks, covered with absorbent material. Car suffering approximately 1,000 gallon loss immediately east of tracks. Car suffering catastrophic loss moved further south and east of tracks.

Date/Time Taken:	10/2/2022 11:59:00 AM
Photographer:	Foster , Lauren
Latitude:	45.29021961
Longitude:	-108.89165284
Photo Direction:	SE
Photo Description:	Spill location on east side of tracks. Tanker that suffered approximately 1,000 gallon loss can be seen in the background as well as workers and heavy machinery being used to pile debris and repair rail line.

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Project Name:	**Site Location:**	**Project No.**
Bridger Railroad Spill	Bridger, Carbon County, Montana	2080-2210-01

Date/Time Taken:	10/2/2022 1:50:00 PM
Photographer:	Foster, Lauren
Latitude:	45.29012709
Longitude:	-108.8910264
Photo Direction:	WSW
Photo Description:	Stockpiled debris and contaminated soil with a rail scrapper in the background moving along the repaired track.

Date/Time Taken:	10/2/2022 2:24:00 PM
Photographer:	Davis, Brandi
Latitude:	45.28986285
Longitude:	-108.89194301
Photo Direction:	SSW
Photo Description:	Pothole 6 dug by Olympus to groundwater. Located 35 feet from ROW of center and east side of spill. Water can be seen pooling at the bottom of the hole with no visible oil sheen.

![Tetra Tech logo] **TETRA TECH**

PHOTOGRAPHIC LOG

Project Name:	**Site Location:**
Bridger Railroad Spill	Bridger, Carbon County, Montana

Project No.
2080-2210-01

Date/Time Taken:	10/2/2022 2:31:00 PM	
Photographer:	Davis, Brandi	
Latitude:	45.28997848	
Longitude:	-108.8920617	
Photo Direction:	S	
Photo Description:	START and Olympus working together using a peristaltic pump to collect groundwater samples from pothole 3, located 75 feet from the center of the ROW of the spill on the east side of the tracks.	

ENCLOSURE 4

DATA SUMMARY TABLES

Table 1 Summary of PID Screening Results

Monitoring Location	Depth to Water table (ft)	Soil VOCs (ppm)[1]	Water VOCs (ppb)[2]
BTD-P01	4.5	3.7	<10
BTD-P02	3.5	0.7	<10
BTD-P03	4	0.8	<10
BTD-P04	4.5	1.1	<10
BTD-P05	4	0.9	<10
BTD-P06	4.5	1.4	<10
BTD-P07	4.5	1.2	<10

Notes:

[1]	Measurement recorded by Arcadis with a MiniRAE
[2]	Measurement recorded by START with a MultiRAE Pro
ft	Feet
BTD	Bridger Train Derailment
PID	Photo-ionization Detector
ppb	Parts per billion
ppm	Parts per million
VOC	Volatile Organic Compounds

Table 2 Summary of Analytical Results

Analyte	CAS No.	RSL Tapwater ug/L	MDEQ Groundwater ug/L	Sample Concentrations (ug/L)								
				BTD-P01-20221002	BTD-P02-20221002	BTD-P03-20221002	BTD-P04-20221002	BTD-P05-20221002	BTD-P06-20221002	BTD-P07-20221002	BTD-GW01-20221002	BTD-GW02-20221002
Volatile Petroleum Hydrocarbons (VPH)												
Benzene	71-43-2	0.46	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	1.50	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
m,p-Xylene	179601-23-1	-----	-----	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Methyl Tert Butyl Ether	1634-04-4	14.30	30	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	91-20-3	0.12	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	95-47-6	193.00	0.0001	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	108-88-3	1100.00	1,000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
C5- C8 Aliphatics (Unadj.)	-----	-----	-----	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
C9- C12 Aliphatics (Unadj.)	-----	-----	-----	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
C5- C8 Aliphatics	-----	-----	-----	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
C9- C12 Aliphatics	-----	-----	-----	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
C9- C10 Aromatics	-----	-----	-----	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Extractable Petroleum Hydrocarbons (EPH)												
2-Methylnaphthalene	91-57-6	35.90		NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Acenaphthene	83-32-9	535.00	70	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Acenaphthylene	208-96-8		70	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Anthracene	120-12-7	1770.00	2,100	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Benzo(a)anthracene	56-55-3	0.03	0.5	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Benzo(a)pyrene	50-32-8	0.03	0.05	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ

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Analyte	CAS No.	RSL Tapwater ug/L	MDEQ Groundwater ug/L	Sample Concentrations (ug/L)								
				BTD-P01-20221002	BTD-P02-20221002	BTD-P03-20221002	BTD-P04-20221002	BTD-P05-20221002	BTD-P06-20221002	BTD-P07-20221002	BTD-GW01-20221002	BTD-GW02-20221002
Benzo(b)fluoranthene	205-99-2	0.25	0.5	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Benzo(g,h,i)perylene	191-24-2	-----	-----	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Benzo(k)fluoranthene	207-08-9	2.51	5	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Chrysene	218-01-9	25.10	50	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Dibenzo(a,h)anthracene	53-70-3	0.03	0.05	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Fluoranthene	206-44-0	802.00	20	NA	NA	NA	NA	NA	NA	NA	4.4 UJ	3.8 UJ
Fluorene	86-73-7	294.00	50	NA	NA	NA	NA	NA	NA	NA	2.2UJ	1.9 UJ
Indeno(1,2,3-cd)pyrene	193-39-5	0.25	0.5	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Naphthalene	91-20-3	0.12	100	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Phenanthrene	85-01-8	-----	-----	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
Pyrene	129-00-0	121.00	20	NA	NA	NA	NA	NA	NA	NA	2.2 UJ	1.9 UJ
C11-C22 Aromatics (Unadj.)	-----	-----	-----	NA	NA	NA	NA	NA	NA	NA	110 UJ	96 UJ
C11-C22 Aromatics	-----	-----	-----	NA	NA	NA	NA	NA	NA	NA	110 UJ	96 UJ
C9-C18 Aliphatics	-----	-----	-----	NA	NA	NA	NA	NA	NA	NA	110 UJ	96 UJ
C19-C36 Aliphatics	-----	-----	-----	NA	NA	NA	NA	NA	NA	NA	110 UJ	96 UJ

Notes:

-----	Does not exist
CAS	Chemical abstract service
ug/L	micrograms per liter
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.
NA	Not analyzed
MDEQ	Montana Department of Environmental Quality
RSL	Regional Screening Levels

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ENCLOSURE 5

DATA VALIDATION REPORT

TETRA TECH

November 29, 2020

Mr. Duc Nguyen
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 8
Superfund and Emergency Management Division
1595 Wynkoop Street
Denver, CO 80202

Subject: **Data Validation Report**
                   Bridger Railroad Spill Site
                   EPA Contract No.: 68HE0820D0001
                   Task Order/Technical Direction No.: 68HE0820F0080 / 2080-2210-01
                   Document Tracking No. 1106

Dear Mr. Nguyen:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for ten water samples (including one blank sample). The samples were collected on October 2, 2022 and were analyzed for target polyaromatic hydrocarbons (PAHs), carbon range extractable petroleum hydrocarbons (EPH), target BTEX compounds, and volatile carbon range petroleum hydrocarbons (VPH) by SGS Laboratories. The final laboratory data package was received on November 1, 2022.

Analytical data were evaluated in general accordance with the EPA *Programmatic Quality Assurance Project Plan for U.S. Environmental Protection Agency, Region 8, Superfund & Emergency Management Division, Version 1* (December 2021), the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020), and the Massachusetts Department of Environmental Protection (MADEP) *Method for the Determination of Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH)***,** *Revision 2.1* (December 2019).

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

If you have any questions regarding this data validation report, please call me at (303)-312-8828.

Sincerely,

Maura McAleese
Environmental Chemist

Enclosure
cc: Didi Fung, Tetra Tech Program Manager
           Brandi Davis, Tetra Tech Project Manager
           Clayton Longest, Tetra Tech Project Document Control Coordinator
           TO/TD File

ATTACHMENT

DATA VALIDATION REPORT
SGS LABORATORIES REPORT NO. JD53080

Site Name	Bridger Railroad Spill Site		TO/TD No.	68HE0820F0080 / 2080-2210-01
Document Tracking No.	1106			
Data Reviewer (signature and date)	*Chau Snider* 11/17/2022		Technical Reviewer (signature and date)	*Josh Cope* 11/23/2022
Laboratory Report No.	JD53080		Laboratory	SGS Laboratories – Dayton, NJ
Analyses	Target polyaromatic hydrocarbons (PAHs) with carbon range extractable petroleum hydrocarbons (EPH), and target BTEX compounds with volatile carbon range petroleum hydrocarbons (VPH) by Massachusetts Department of Environmental Protection (MADEP) EPH Revision 2.1			
Samples and Matrix	Ten water samples (including one trip blank)			
Collection Date(s)	October 2, 2022			
Field Duplicate Pairs	None			
Field QC Blanks	BTD-TP01-20221002			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the *EPA Programmatic Quality Assurance Project Plan for U.S. Environmental Protection Agency, Region 8, Superfund & Emergency Management Division, Version 1* (December 2021), the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020), and the Massachusetts Department of Environmental Protection (MADEP) *Method for the Determination of Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH), Revision 2.1* (December 2019).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

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Method blanks:

Within Criteria	Exceedance/Notes
Y	

Field blanks:

Within Criteria	Exceedance/Notes
Y	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
N	**MADEP EPH** • 1-Chlorooctadecane and o-terphenyl recovered below lower acceptance limits for BTD-GW01-20221002, BTD-GW02-20221002, and all associated quality control (QC) samples; therefore, C19-C36 aliphatics, C9-C18 aliphatics, and all PAH compounds were qualified as estimated with a low bias (flagged UJ)

MS/MSDs:

Within Criteria	Exceedance/Notes
N	A matrix spike (MS) and matrix spike duplicate (MSD) were performed on sample BTD-GW01-20221002 for all methods. • **MADEP VPH** is acceptable. • **MADEP EPH** recovered below lower acceptance limits for all compounds for both MS and MSD. The parent sample results for all analytes have been qualified as estimated (flagged UJ).

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

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Field duplicates:

Within Criteria	
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
N	• **MADEP VPH** is acceptable. • **MADEP EPH** OP42283-BS1 and OP42283-BSD recovered below lower acceptance limits for all compounds; therefore, all results for samples BTD-GW01-20221002 and BTD-GW02-20221002 have been qualified as estimated (flagged UJ).

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	All analytes were reported undiluted.

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results less than the reporting limit (RL) were not reported by the laboratory. Non-detects results were reported at the RL (flagged U) by the laboratory. Method detection limits (MDLs) and RLs are provided in the attached analytical data table. Elevated reporting limits are provided due to sample dilution performed by the laboratory.

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Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

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Sample	Method	Analyte	Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
BTD-GW01-20221002	MADEP EPH REV 2.1	2-Methylnaphthalene	2.2	U	0.7	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Acenaphthene	2.2	U	0.61	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Acenaphthylene	2.2	U	0.98	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Anthracene	2.2	U	0.87	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Benzo(a)anthracene	2.2	U	1.1	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Benzo(a)pyrene	2.2	U	0.96	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Benzo(b)fluoranthene	2.2	U	1.1	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Benzo(g,h,i)perylene	2.2	U	0.78	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Benzo(k)fluoranthene	2.2	U	0.76	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	C11-C22 Aromatics	110	U	14	110	ug/l	110	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	C11-C22 Aromatics (Unadj.)	110	U	14	110	ug/l	110	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	C19-C36 Aliphatics	110	U	13	110	ug/l	110	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	C9-C18 Aliphatics	110	U	8.5	110	ug/l	110	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Chrysene	2.2	U	0.91	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Dibenzo(a,h)anthracene	2.2	U	0.87	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Fluoranthene	4.4	U	3.7	4.4	ug/l	4.4	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Fluorene	2.2	U	0.92	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Indeno(1,2,3-cd)pyrene	2.2	U	1.1	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Naphthalene	2.2	U	0.62	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Phenanthrene	2.2	U	1	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP EPH REV 2.1	Pyrene	2.2	U	0.93	2.2	ug/l	2.2	UJ
BTD-GW01-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-GW01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-GW01-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-GW01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-GW01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-GW01-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-GW01-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U

Sample	Method	Analyte	Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
BTD-GW02-20221002	MADEP EPH REV 2.1	2-Methylnaphthalene	1.9	U	0.6	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Acenaphthene	1.9	U	0.53	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Acenaphthylene	1.9	U	0.85	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Anthracene	1.9	U	0.75	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Benzo(a)anthracene	1.9	U	0.98	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Benzo(a)pyrene	1.9	U	0.83	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Benzo(b)fluoranthene	1.9	U	0.93	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Benzo(g,h,i)perylene	1.9	U	0.68	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Benzo(k)fluoranthene	1.9	U	0.66	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	C11-C22 Aromatics	96	U	12	96	ug/l	96	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	C11-C22 Aromatics (Unadj.)	96	U	12	96	ug/l	96	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	C19-C36 Aliphatics	96	U	11	96	ug/l	96	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	C9-C18 Aliphatics	96	U	7.4	96	ug/l	96	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Chrysene	1.9	U	0.79	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Dibenzo(a,h)anthracene	1.9	U	0.75	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Fluoranthene	3.8	U	3.2	3.8	ug/l	3.8	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Fluorene	1.9	U	0.79	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Indeno(1,2,3-cd)pyrene	1.9	U	0.92	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Naphthalene	1.9	U	0.53	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Phenanthrene	1.9	U	0.87	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP EPH REV 2.1	Pyrene	1.9	U	0.8	1.9	ug/l	1.9	UJ
BTD-GW02-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-GW02-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-GW02-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-GW02-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-GW02-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-GW02-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-GW02-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U

Sample	Method	Analyte	Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
BTD-P01-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P01-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P01-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P01-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P02-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P02-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P02-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P02-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P02-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P02-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P03-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P03-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P03-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P03-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P03-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U

Sample	Method	Analyte	Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
BTD-P03-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P03-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P04-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P04-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P04-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P04-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P04-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P04-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P05-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P05-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P05-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P05-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P05-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P05-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P06-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P06-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P06-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P06-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U

Sample	Method	Analyte	Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
BTD-P06-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P06-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P07-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P07-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-P07-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-P07-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-P07-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-P07-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	Benzene	1	U	0.33	1	ug/l	1.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics	100	U	50	100	ug/l	100	U
BTD-TP01-20221002	MADEP VPH REV 2.1	C5- C8 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-TP01-20221002	MADEP VPH REV 2.1	C9- C10 Aromatics	100	U	50	100	ug/l	100	U
BTD-TP01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics	100	U	50	100	ug/l	100	U
BTD-TP01-20221002	MADEP VPH REV 2.1	C9- C12 Aliphatics (Unadj.)	100	U	50	100	ug/l	100	U
BTD-TP01-20221002	MADEP VPH REV 2.1	Ethylbenzene	2	U	0.26	2	ug/l	2.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	m,p-Xylene	2	U	0.6	2	ug/l	2.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	Methyl Tert Butyl Ether	1	U	0.32	1	ug/l	1.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	Naphthalene	2	U	0.28	2	ug/l	2.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	o-Xylene	2	U	0.3	2	ug/l	2.0	U
BTD-TP01-20221002	MADEP VPH REV 2.1	Toluene	2	U	0.33	2	ug/l	2.0	U

ENCLOSURE 6

LABORATORY ANALYTICAL DATA PACKAGE

SGS

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech

R8 START: Bridger Train Derailment, Bridger, MT

SGS Job Number: JD53080

Sampling Date: 10/02/22

Report to:

Tetra Tech
1560 Broadway Street Suite 1400
Denver, CO 80202
Lauren.Foster@tetratech.com; R8START.LabReports@tetratechinc.onmicrosoft.com

ATTN: Lauren Foster

Total number of pages in report: 421

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.

David Chastain
General Manager

Client Service contact: Jadon Schiller   732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC,
OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

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Sample Summary

Tetra Tech

Job No: JD53080

R8 START: Bridger Train Derailment, Bridger, MT

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies:							
Organics ND			= Not detected above the MDL				
JD53080-1	10/02/22	14:09	SS	10/05/22	AQ	Ground Water	BTD-P01-20221002
JD53080-2	10/02/22	14:25	SS	10/05/22	AQ	Ground Water	BTD-P02-20221002
JD53080-3	10/02/22	14:43	SS	10/05/22	AQ	Ground Water	BTD-P03-20221002
JD53080-4	10/02/22	14:55	SS	10/05/22	AQ	Ground Water	BTD-P04-20221002
JD53080-5	10/02/22	15:05	SS	10/05/22	AQ	Ground Water	BTD-P05-20221002
JD53080-6	10/02/22	15:16	SS	10/05/22	AQ	Ground Water	BTD-P06-20221002
JD53080-7	10/02/22	15:26	SS	10/05/22	AQ	Ground Water	BTD-P07-20221002
JD53080-8	10/02/22	15:50	SS	10/05/22	AQ	Ground Water	BTD-GW01-20221002
JD53080-8D	10/02/22	15:50	SS	10/05/22	AQ	Water Dup/MSD	BTD-GW01-20221002
JD53080-8S	10/02/22	15:50	SS	10/05/22	AQ	Water Matrix Spike	BTD-GW01-20221002
JD53080-9	10/02/22	16:50	SS	10/05/22	AQ	Ground Water	BTD-GW02-20221002
JD53080-10	10/02/22	13:15	SS	10/05/22	AQ	Ground Water	BTD-TP01-20221002

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Tetra Tech   **Job No:** JD53080

Site: R8 START: Bridger Train Derailment, Bridger, MT   **Report Date** 10/31/2022 6:39:08 P

On 10/05/2022, 10 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD53080 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

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.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

GC Volatiles By Method MADEP VPH REV 2.1

Matrix: AQ	**Batch ID:** GBH1321

■ All samples were analyzed within the recommended method holding time.

■ Sample(s) JD53080-8MS, JD53080-8MSD were used as the QC samples indicated.

■ All method blanks for this batch meet method specific criteria.

GC/LC Semi-volatiles By Method MADEP EPH REV 2.1

Matrix: AQ	**Batch ID:** OP42283

- All samples were extracted within the recommended method holding time.

- Sample(s) JD53080-8MS, JD53080-8MSD were used as the QC samples indicated.

- All method blanks for this batch meet method specific criteria.

- Blank Spike Recovery(s) for 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, C19-C36 Aliphatics, C9-C18 Aliphatics, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene are outside control limits.

- Matrix Spike Recovery(s) for 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, C9-C18 Aliphatics, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene are outside control limits. Probable cause due to matrix interference.

- Matrix Spike Duplicate Recovery(s) for 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, C19-C36 Aliphatics, C9-C18 Aliphatics, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene are outside control limits. Probable cause due to matrix interference.

- Sample(s) JD53080-8, JD53080-9 have surrogates outside control limits. Probable cause due to matrix interference.

- JD53080-8: Associated blank spike outside control limits biased low. Unable to re-extract sample due to expired hold time.

- JD53080-9: Associated blank spike outside control limits biased low. Unable to re-extract sample due to expired hold time.

- JD53080-8 for 1-Chlorooctadecane: Outside of in house control limits.

- JD53080-9 for 1-Chlorooctadecane: Outside of in house control limits.

- OP42283-BS1 for Benzo(a)anthracene: Outside of in house control limits.

- OP42283-MB1 for 1-Chlorooctadecane: Outside of in house control limits.

- OP42283-MB1 for o-Terphenyl: Outside of in house control limits.

- OP42283-BS1 for Dibenzo(a,h)anthracene: Outside of in house control limits.

- OP42283-BS1 for 2-Fluorobiphenyl: Outside of in house control limits.

- OP42283-BSD for o-Terphenyl: Outside of in house control limits.

- OP42283-BS1 for Acenaphthene: Outside of in house control limits.

- OP42283-BS1 for 2-Methylnaphthalene: Outside of in house control limits.

- OP42283-BS1 for Anthracene: Outside of in house control limits.

- OP42283-BS1 for Benzo(a)pyrene: Outside of in house control limits.

- OP42283-BS1 for Benzo(b)fluoranthene: Outside of in house control limits.

- OP42283-BS1 for Benzo(g,h,i)perylene: Outside of in house control limits.

- OP42283-BS1 for Benzo(k)fluoranthene: Outside of in house control limits.

- OP42283-BS1 for C11-C22 Aromatics (Unadj.): Outside of in house control limits.

- OP42283-BS1 for C19-C36 Aliphatics: Outside of in house control limits.

- OP42283-BSD for Anthracene: Analytical precision exceeds in-house control limits.

- OP42283-BS1 for Chrysene: Outside of in house control limits.

- OP42283-BS1 for 1-Chlorooctadecane: Outside of in house control limits.

- OP42283-BSD for Benzo(a)anthracene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Benzo(a)pyrene: Analytical precision exceeds in-house control limits.

- OP42283-BS1 for Acenaphthylene: Outside of in house control limits.

- OP42283-BSD for Fluorene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for C19-C36 Aliphatics: Analytical precision exceeds in-house control limits.

- OP42283-BS1 for o-Terphenyl: Outside of in house control limits.

- OP42283-BS1 for Naphthalene: Outside of in house control limits.

Monday, October 31, 2022   **Page 2 of 3**

GC/LC Semi-volatiles By Method MADEP EPH REV 2.1

| **Matrix:** AQ | **Batch ID:** OP42283 |

- OP42283-BS1 for Indeno(1,2,3-cd)pyrene: Outside of in house control limits.

- OP42283-BS1 for Fluorene: Outside of in house control limits.

- OP42283-BS1 for Pyrene: Outside of in house control limits.

- OP42283-BS1 for Fluoranthene: Outside of in house control limits.

- OP42283-BSD for C11-C22 Aromatics (Unadj.): Analytical precision exceeds in-house control limits.

- OP42283-BS1 for C9-C18 Aliphatics: Outside of in house control limits.

- OP42283-BSD for Chrysene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Acenaphthylene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Fluoranthene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Acenaphthene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Indeno(1,2,3-cd)pyrene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Naphthalene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Phenanthrene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Pyrene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for 1-Chlorooctadecane: Outside of in house control limits.

- OP42283-BSD for 2-Fluorobiphenyl: Outside of in house control limits.

- OP42283-BSD for Benzo(k)fluoranthene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Benzo(b)fluoranthene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for Benzo(g,h,i)perylene: Analytical precision exceeds in-house control limits.

- OP42283-BSD for 2-Methylnaphthalene: Analytical precision exceeds in-house control limits.

- OP42283-BS1 for Phenanthrene: Outside of in house control limits.

- OP42283-BSD for Dibenzo(a,h)anthracene: Analytical precision exceeds in-house control limits.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the 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.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD53080
Account: Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT
Collected: 10/02/22

3

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

JD53080-1   BTD-P01-20221002

No hits reported in this sample.

JD53080-2   BTD-P02-20221002

No hits reported in this sample.

JD53080-3   BTD-P03-20221002

No hits reported in this sample.

JD53080-4   BTD-P04-20221002

No hits reported in this sample.

JD53080-5   BTD-P05-20221002

No hits reported in this sample.

JD53080-6   BTD-P06-20221002

No hits reported in this sample.

JD53080-7   BTD-P07-20221002

No hits reported in this sample.

JD53080-8   BTD-GW01-20221002

No hits reported in this sample.

JD53080-9   BTD-GW02-20221002

No hits reported in this sample.

JD53080-10   BTD-TP01-20221002

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	BTD-P01-20221002	
Lab Sample ID:	JD53080-1	**Date Sampled:** 10/02/22
Matrix:	AQ - Ground Water	**Date Received:** 10/05/22
Method:	MADEP VPH REV 2.1	**Percent Solids:** n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34898.D	1	10/06/22 17:31	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	91%		70-130%
	2,3,4-Trifluorotoluene	95%		70-130%

ND = Not detected   MDL = Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	BTD-P02-20221002
Lab Sample ID:	JD53080-2
Matrix:	AQ - Ground Water
Method:	MADEP VPH REV 2.1
Project:	R8 START: Bridger Train Derailment, Bridger, MT

Date Sampled:	10/02/22
Date Received:	10/05/22
Percent Solids:	n/a

4.2

4

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34899.D	1	10/06/22 18:14	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	89%		70-130%
	2,3,4-Trifluorotoluene	95%		70-130%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value	
RL = Reporting Limit		B = Indicates analyte found in associated method blank	
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound	

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-P03-20221002			
Lab Sample ID:	JD53080-3		**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water		**Date Received:**	10/05/22
Method:	MADEP VPH REV 2.1		**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT			

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	BH34900.D	1	10/06/22 18:57	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	88%		70-130%
	2,3,4-Trifluorotoluene	94%		70-130%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	BTD-P04-20221002
Lab Sample ID:	JD53080-4
Matrix:	AQ - Ground Water
Method:	MADEP VPH REV 2.1
Project:	R8 START: Bridger Train Derailment, Bridger, MT

Date Sampled:	10/02/22
Date Received:	10/05/22
Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34901.D	1	10/06/22 19:39	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	88%		70-130%
	2,3,4-Trifluorotoluene	93%		70-130%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	BTD-P05-20221002
Lab Sample ID:	JD53080-5
Matrix:	AQ - Ground Water
Method:	MADEP VPH REV 2.1
Project:	R8 START: Bridger Train Derailment, Bridger, MT

Date Sampled:	10/02/22
Date Received:	10/05/22
Percent Solids:	n/a

4.5

4

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34902.D	1	10/06/22 20:21	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	89%		70-130%
	2,3,4-Trifluorotoluene	93%		70-130%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-P06-20221002		
Lab Sample ID:	JD53080-6	**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water	**Date Received:**	10/05/22
Method:	MADEP VPH REV 2.1	**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34903.D	1	10/06/22 21:04	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	89%		70-130%
	2,3,4-Trifluorotoluene	92%		70-130%

ND = Not detected   MDL = Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	BTD-P07-20221002			
Lab Sample ID:	JD53080-7		**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water		**Date Received:**	10/05/22
Method:	MADEP VPH REV 2.1		**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34904.D	1	10/06/22 21:46	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	89%		70-130%
	2,3,4-Trifluorotoluene	92%		70-130%

ND = Not detected   MDL = Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-GW01-20221002
Lab Sample ID:	JD53080-8
Matrix:	AQ - Ground Water
Method:	MADEP VPH REV 2.1
Project:	R8 START: Bridger Train Derailment, Bridger, MT

Date Sampled:	10/02/22
Date Received:	10/05/22
Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34905.D	1	10/06/22 22:29	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	92%		70-130%
	2,3,4-Trifluorotoluene	94%		70-130%

ND = Not detected MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit	B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range	N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-GW01-20221002
Lab Sample ID:	JD53080-8
Matrix:	AQ - Ground Water
Method:	MADEP EPH REV 2.1 SW846 3510C
Project:	R8 START: Bridger Train Derailment, Bridger, MT

Date Sampled:	10/02/22
Date Received:	10/05/22
Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Y85984.D	1	10/26/22 23:33	TL	10/07/22 11:30	OP42283	G3Y3363
Run #2							

	Initial Volume	Final Volume
Run #1	900 ml	2.0 ml
Run #2		

MAEPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	2.2	0.61	ug/l	
208-96-8	Acenaphthylene	ND	2.2	0.98	ug/l	
120-12-7	Anthracene	ND	2.2	0.87	ug/l	
56-55-3	Benzo(a)anthracene	ND	2.2	1.1	ug/l	
50-32-8	Benzo(a)pyrene	ND	2.2	0.96	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	2.2	1.1	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.2	0.78	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	2.2	0.76	ug/l	
218-01-9	Chrysene	ND	2.2	0.91	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.2	0.87	ug/l	
206-44-0	Fluoranthene	ND	4.4	3.7	ug/l	
86-73-7	Fluorene	ND	2.2	0.92	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.2	1.1	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.70	ug/l	
91-20-3	Naphthalene	ND	2.2	0.62	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.0	ug/l	
129-00-0	Pyrene	ND	2.2	0.93	ug/l	
	C11-C22 Aromatics (Unadj.)	ND	110	14	ug/l	
	C11-C22 Aromatics	ND	110	14	ug/l	
	C9-C18 Aliphatics	ND	110	8.5	ug/l	
	C19-C36 Aliphatics	ND	110	13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3386-33-2	1-Chlorooctadecane	11% [b]		40-140%
84-15-1	o-Terphenyl	10% [b]		40-140%
321-60-8	2-Fluorobiphenyl	87%		40-140%

(a) Associated blank spike outside control limits biased low. Unable to re-extract sample due to expired hold
   time.
(b) Outside of in house control limits.

ND = Not detected MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit	B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range	N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-GW02-20221002			
Lab Sample ID:	JD53080-9		**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water		**Date Received:**	10/05/22
Method:	MADEP VPH REV 2.1		**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BH34910.D	1	10/07/22 02:00	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	98%		70-130%
	2,3,4-Trifluorotoluene	97%		70-130%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

SGS North America Inc.

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Client Sample ID:	BTD-GW02-20221002		
Lab Sample ID:	JD53080-9	**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water	**Date Received:**	10/05/22
Method:	MADEP EPH REV 2.1 SW846 3510C	**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT		

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1 ᵃ	3Y85987.D	1	10/27/22 01:23	TL	10/07/22 11:30	OP42283	G3Y3363
Run #2							

	Initial Volume	**Final Volume**
Run #1	1040 ml	2.0 ml
Run #2		

MAEPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.9	0.53	ug/l	
208-96-8	Acenaphthylene	ND	1.9	0.85	ug/l	
120-12-7	Anthracene	ND	1.9	0.75	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.9	0.98	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.9	0.83	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.9	0.93	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.9	0.68	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.9	0.66	ug/l	
218-01-9	Chrysene	ND	1.9	0.79	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.9	0.75	ug/l	
206-44-0	Fluoranthene	ND	3.8	3.2	ug/l	
86-73-7	Fluorene	ND	1.9	0.79	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.9	0.92	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.9	0.60	ug/l	
91-20-3	Naphthalene	ND	1.9	0.53	ug/l	
85-01-8	Phenanthrene	ND	1.9	0.87	ug/l	
129-00-0	Pyrene	ND	1.9	0.80	ug/l	
	C11-C22 Aromatics (Unadj.)	ND	96	12	ug/l	
	C11-C22 Aromatics	ND	96	12	ug/l	
	C9-C18 Aliphatics	ND	96	7.4	ug/l	
	C19-C36 Aliphatics	ND	96	11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3386-33-2	1-Chlorooctadecane	10% ᵇ		40-140%
84-15-1	o-Terphenyl	16% ᵇ		40-140%
321-60-8	2-Fluorobiphenyl	43%		40-140%

(a) Associated blank spike outside control limits biased low. Unable to re-extract sample due to expired hold time.

(b) Outside of in house control limits.

ND = Not detected   MDL = Method Detection Limit   J = Indicates an estimated value

RL = Reporting Limit   B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	BTD-TP01-20221002			
Lab Sample ID:	JD53080-10	**Date Sampled:**	10/02/22
Matrix:	AQ - Ground Water	**Date Received:**	10/05/22
Method:	MADEP VPH REV 2.1	**Percent Solids:**	n/a
Project:	R8 START: Bridger Train Derailment, Bridger, MT		

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	BH34911.D	1	10/07/22 02:42	JN	n/a	n/a	GBH1321
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

MADEP VPH List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	96%		70-130%
	2,3,4-Trifluorotoluene	94%		70-130%

ND = Not detected   MDL = Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

5

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

GW
TB

SGS

EHSA-QAC-0023-04-FORM-Standard COC

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

JD53080

Page 1 of 1

ED-EX Tracking #	Bottle Order Control #
7700 9983 7662	
SGS Quote #	SGS Job #

Client / Reporting Information

Company Name: Tetra Tech, Inc.

Street Address: 1560 Broadway Suite 1400

City: Denver, CO **State** **Zip** 80202

Project Contact / E-mail:
Maura McAleese, maura.mcaleese@tetratech.com
Rindy Mortensen, Rindy.Mortensen@tetratech.com
R8START.LabReports@tetratechinc.onmicrosoft.com

Phone # 609-827-7168

Sampler(s) Name(s): Steve Szocik **Phone #** 720-273-6384

Project Information

Project Name: R8 START Bridger Train Derailment

Street

Billing Information (if different from Report to)
Company Name

Street Address

City Bridger **State** MT

Project #

Client Purchase Order # **City** **State** **Zip**

Project Manager Lauren Foster **Attention:**

Requested Analysis

Requested Analysis columns: BMAEPH Carbon Ranged + TCL List, BMAVPH Carbon Ranged + TCL List

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

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO₃	H₂SO₄	NONE	DI Water	MEOH	ENCORE	BMAEPH	BMAVPH	pH Check	LAB USE ONLY
1	BTD-P01-20221002		10/2/22	1409	SS	G	N	GW	3	Y									✓		ES8
2	BTD-P02-20221002		10/2/22	1425	SS	G	N	GW	3	Y									✓		V713
3	BTD-P03-20221002		10/2/22	1443	SS	G	N	GW	3	Y									✓		
4	BTD-P04-20221002		10/2/22	1455	SS	G	N	GW	3	Y									✓		
5	BTD-P05-20221002		10/2/22	1505	SS	G	N	GW	3	Y									✓		
6	BTD-P06-20221002		10/2/22	1516	SS	G	N	GW	3	Y									✓		
7	BTD-P07-20221002		10/2/22	1526	SS	G	N	GW	3	Y									✓		
8	BTD-GW01-20221002		10/2/22	1550	SS	G	N	GW	12	Y								✓	✓		
9	BTD-GW02-20221002		10/2/22	1650	SS	G	N	GW	4	Y								✓	✓		
10	BTD-TP01-20221002		10/2/22	1315	SS	G	N	TB	3	Y									✓		

Turn Around Time (Business Days)

Approved By (SGS PM): / Date:

- ☒ 10 Business Days
- ☐ 5 Business Days
- ☐ 3 Business Days*
- ☐ 2 Business Days*
- ☐ 1 Business Day*
- ☐ Other

All data available via Lablink
* Approval needed for 1-3 Business Day TAT

Deliverable

- ☐ Commercial "A" (Level 1)
- ☒ Commercial "B" (Level 2)
- ☐ NJ Reduced (Level 3)
- ☒ Full Tier I (Level 4)
- ☐ Commercial "C"
- ☐ NJ DKQP
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ MA MCP Criteria____
- ☐ CT RCP Criteria____
- ☐ State Forms
- ☒ EDD Format _R8 SCRIBE
- ☐ DOD-QSM5

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data
Sample Custody must be documented below each time samples change possession, including courier delivery.

Comments / Special Instructions

1 L Amber jars had HCL perservative added via dropper.
MS/MSD on BTD-GW01-20221002
http://www.sgs.com/en/terms-and-conditions

Relinquished by	Date / Time	Received By	Relinquished By	Date / Time	Received By
1	10/3/22 13:59	1 Fedex	2 Fedex	10/5/22 9:26	2
3		3	4		4
5 Relinquished by	Date / Time	5 Received By	Custody Seal # ☐ Intact ☐ Not intact ☐ Absent	Therm ID: On ice ☐ See Sample Receipt Summary	Cooler Temp. °C

Initial Assessment IC 3B

Label Verification _____

3.1

SGS Sample Receipt Summary

Job Number: JD53080   **Client:** TETRA TECH INC.   **Project:** R8 START BRIDGE TRAIN DERAILMENT

Date / Time Received: 10/5/2022 9:26:00 AM   **Delivery Method:** FEDEX   **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (3.7);

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

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

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

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

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

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

Test Strip Lot #s: pH 1-12: _231619_   pH 12+: _203117A_   Other: (Specify) _____ _____

Comments

SM089-03
Rev. Date 12/7/17

SGS North America Inc.

Internal Sample Tracking Chronicle

Tetra Tech

R8 START: Bridger Train Derailment, Bridger, MT

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD53080-1 Collected: 02-OCT-22 14:09 By: SS BTD-P01-20221002				Received: 05-OCT-22 By: KG		
JD53080-1	MADEP VPH REV 2.1	06-OCT-22 17:31	JN			VMAVPH
JD53080-2 Collected: 02-OCT-22 14:25 By: SS BTD-P02-20221002				Received: 05-OCT-22 By: KG		
JD53080-2	MADEP VPH REV 2.1	06-OCT-22 18:14	JN			VMAVPH
JD53080-3 Collected: 02-OCT-22 14:43 By: SS BTD-P03-20221002				Received: 05-OCT-22 By: KG		
JD53080-3	MADEP VPH REV 2.1	06-OCT-22 18:57	JN			VMAVPH
JD53080-4 Collected: 02-OCT-22 14:55 By: SS BTD-P04-20221002				Received: 05-OCT-22 By: KG		
JD53080-4	MADEP VPH REV 2.1	06-OCT-22 19:39	JN			VMAVPH
JD53080-5 Collected: 02-OCT-22 15:05 By: SS BTD-P05-20221002				Received: 05-OCT-22 By: KG		
JD53080-5	MADEP VPH REV 2.1	06-OCT-22 20:21	JN			VMAVPH
JD53080-6 Collected: 02-OCT-22 15:16 By: SS BTD-P06-20221002				Received: 05-OCT-22 By: KG		
JD53080-6	MADEP VPH REV 2.1	06-OCT-22 21:04	JN			VMAVPH
JD53080-7 Collected: 02-OCT-22 15:26 By: SS BTD-P07-20221002				Received: 05-OCT-22 By: KG		
JD53080-7	MADEP VPH REV 2.1	06-OCT-22 21:46	JN			VMAVPH
JD53080-8 Collected: 02-OCT-22 15:50 By: SS BTD-GW01-20221002				Received: 05-OCT-22 By: KG		
JD53080-8	MADEP VPH REV 2.1	06-OCT-22 22:29	JN			VMAVPH
JD53080-8	MADEP EPH REV 2.1	26-OCT-22 23:33	TL	07-OCT-22	AC	BMAEPH

SGS North America Inc.

Internal Sample Tracking Chronicle

Tetra Tech

Job No: JD53080

R8 START: Bridger Train Derailment, Bridger, MT

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD53080-9	Collected: 02-OCT-22 16:50 By: SS BTD-GW02-20221002			Received: 05-OCT-22 By: KG		
JD53080-9	MADEP VPH REV 2.1	07-OCT-22 02:00	JN			VMAVPH
JD53080-9	MADEP EPH REV 2.1	27-OCT-22 01:23	TL	07-OCT-22	AC	BMAEPH
JD53080-10	Collected: 02-OCT-22 13:15 By: SS BTD-TP01-20221002			Received: 05-OCT-22 By: KG		
JD53080-10	MADEP VPH REV 2.1	07-OCT-22 02:42	JN			VMAVPH

SGS Internal Chain of Custody

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT
Received: 10/05/22

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD53080-1.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-1.1	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-1.1	John Nieradka		10/17/22 10:50	Depleted
JD53080-1.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-1.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-2.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-2.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-2.2	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-2.2	John Nieradka		10/17/22 10:50	Depleted
JD53080-2.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-3.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-3.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-3.2	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-3.2	John Nieradka		10/17/22 10:50	Depleted
JD53080-3.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-4.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-4.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-4.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-4.3	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-4.3	John Nieradka		10/17/22 10:50	Depleted
JD53080-5.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-5.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-5.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-5.3	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-5.3	John Nieradka		10/17/22 10:50	Depleted
JD53080-6.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-6.1	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-6.1	John Nieradka		10/17/22 10:50	Depleted

5.3

5

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT
Received: 10/05/22

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD53080-6.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-6.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-7.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-7.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-7.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-7.3	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-7.3	John Nieradka		10/17/22 10:50	Depleted
JD53080-8.1	Tsomore Carrington	Secured Storage	10/05/22 12:05	Return to Storage
JD53080-8.1 stage	Christian King	Secured Staging Area	10/06/22 20:19	Return to Storage
JD53080-8.1	Secured Staging Area	Edward Rue	10/07/22 07:32	Retrieve from Storage
JD53080-8.1	Edward Rue		10/07/22 14:28	Depleted
JD53080-8.2	Tsomore Carrington	Secured Storage	10/05/22 12:05	Return to Storage
JD53080-8.2 stage	Christian King	Secured Staging Area	10/06/22 20:19	Return to Storage
JD53080-8.2	Secured Staging Area	Edward Rue	10/07/22 07:32	Retrieve from Storage
JD53080-8.2	Edward Rue		10/07/22 14:28	Depleted
JD53080-8.3	Tsomore Carrington	Secured Storage	10/05/22 12:05	Return to Storage
JD53080-8.3 stage	Christian King	Secured Staging Area	10/06/22 20:19	Return to Storage
JD53080-8.3	Secured Staging Area	Edward Rue	10/07/22 07:32	Retrieve from Storage
JD53080-8.3	Edward Rue		10/07/22 14:28	Depleted
JD53080-8.3.1	Edward Rue	Organics Prep	10/07/22 10:23	Extract from JD53080-8.3
JD53080-8.3.1	Organics Prep	Alexander Luciano	10/07/22 22:10	Extract from JD53080-8.3
JD53080-8.3.1	Alexander Luciano	Extract Storage	10/07/22 22:11	Return to Storage
JD53080-8.3.1	Extract Storage	Thomas Lally	10/26/22 19:53	Retrieve from Storage
JD53080-8.3.1	Thomas Lally	GC3Y	10/26/22 19:53	Load on Instrument
JD53080-8.4	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.5	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.6	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.7	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.7	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage

5.3

5

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT
Received: 10/05/22

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD53080-8.7	John Nieradka		10/17/22 10:50	Depleted
JD53080-8.8	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.8	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-8.8	John Nieradka		10/17/22 10:50	Depleted
JD53080-8.9	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.10	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.11	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-8.11	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-8.11	John Nieradka		10/17/22 10:50	Depleted
JD53080-8.12	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-9.1	Tsomore Carrington	Secured Storage	10/05/22 12:05	Return to Storage
JD53080-9.1 stage	Christian King	Secured Staging Area	10/06/22 20:19	Return to Storage
JD53080-9.1	Secured Staging Area	Edward Rue	10/07/22 07:32	Retrieve from Storage
JD53080-9.1	Edward Rue		10/07/22 14:28	Depleted
JD53080-9.1.1	Edward Rue	Organics Prep	10/07/22 10:23	Extract from JD53080-9.1
JD53080-9.1.1	Organics Prep	Alexander Luciano	10/07/22 22:10	Extract from JD53080-9.1
JD53080-9.1.1	Alexander Luciano	Extract Storage	10/07/22 22:11	Return to Storage
JD53080-9.1.1	Extract Storage	Thomas Lally	10/26/22 19:53	Retrieve from Storage
JD53080-9.1.1	Thomas Lally	GC3Y	10/26/22 19:53	Load on Instrument
JD53080-9.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-9.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-9.3	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-9.3	John Nieradka		10/17/22 10:50	Depleted
JD53080-9.4	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-10.1	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-10.1	Secured Storage	John Nieradka	10/17/22 10:47	Retrieve from Storage
JD53080-10.1	John Nieradka		10/17/22 10:50	Depleted
JD53080-10.2	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage
JD53080-10.3	Tsomore Carrington	Secured Storage	10/05/22 13:01	Return to Storage

5.3

5

GC Volatiles

QC Data Summaries

Includes the following where applicable:

• Method Blank Summaries
• Blank Spike Summaries
• Matrix Spike and Duplicate Summaries
• Surrogate Recovery Summaries
• GC Surrogate Retention Time Summaries
• Initial and Continuing Calibration Summaries
• Run Sequence Reports

Method Blank Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH1321-MB	BH34891.D	1	10/06/22	JN	n/a	n/a	GBH1321

The QC reported here applies to the following samples: **Method:** MADEP VPH REV 2.1

JD53080-1, JD53080-2, JD53080-3, JD53080-4, JD53080-5, JD53080-6, JD53080-7, JD53080-8, JD53080-9, JD53080-10

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.33	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.32	ug/l	
91-20-3	Naphthalene	ND	2.0	0.28	ug/l	
108-88-3	Toluene	ND	2.0	0.33	ug/l	
	m,p-Xylene	ND	2.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.30	ug/l	
	C5- C8 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C9- C12 Aliphatics (Unadj.)	ND	100	50	ug/l	
	C5- C8 Aliphatics	ND	100	50	ug/l	
	C9- C12 Aliphatics	ND	100	50	ug/l	
	C9- C10 Aromatics	ND	100	50	ug/l	

CAS No.	Surrogate Recoveries		Limits
	2,3,4-Trifluorotoluene	89%	70-130%
	2,3,4-Trifluorotoluene	97%	70-130%

Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH1321-BS	BH34892.D	1	10/06/22	JN	n/a	n/a	GBH1321
GBH1321-BSD	BH34893.D	1	10/06/22	JN	n/a	n/a	GBH1321

The QC reported here applies to the following samples: **Method:** MADEP VPH REV 2.1

JD53080-1, JD53080-2, JD53080-3, JD53080-4, JD53080-5, JD53080-6, JD53080-7, JD53080-8, JD53080-9, JD53080-10

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	50	45.6	91	47.2	94	3	70-130/25
100-41-4	Ethylbenzene	50	47.8	96	50.4	101	5	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	44.6	89	45.2	90	1	70-130/25
91-20-3	Naphthalene	50	51.5	103	54.5	109	6	70-130/25
108-88-3	Toluene	50	46.4	93	48.6	97	5	70-130/25
	m,p-Xylene	100	98.6	99	105	105	6	70-130/25
95-47-6	o-Xylene	50	49.6	99	52.4	105	5	70-130/25
	C5- C8 Aliphatics (Unadj.)	150	140	96	140	96	0	70-130/25
	C9- C12 Aliphatics (Unadj.)	100	98	98	99	99	1	70-130/25
	C9- C10 Aromatics	50	51	103	53	106	3	70-130/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	89%	96%	70-130%
	2,3,4-Trifluorotoluene	96%	98%	70-130%

---

* = Outside of Control Limits.

6.2.1

6

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JD53080-8MS	BH34906.D	1	10/06/22	JN	n/a	n/a	GBH1321
JD53080-8MSD	BH34907.D	1	10/06/22	JN	n/a	n/a	GBH1321
JD53080-8	BH34905.D	1	10/06/22	JN	n/a	n/a	GBH1321

The QC reported here applies to the following samples: **Method:** MADEP VPH REV 2.1

JD53080-1, JD53080-2, JD53080-3, JD53080-4, JD53080-5, JD53080-6, JD53080-7, JD53080-8, JD53080-9, JD53080-10

CAS No.	Compound	JD53080-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	55.1	110	50	55.3	111	0	70-130/50
100-41-4	Ethylbenzene	ND		50	58.9	118	50	58.0	116	2	70-130/50
1634-04-4	Methyl Tert Butyl Ether	ND		50	50.1	100	50	52.6	105	5	70-130/50
91-20-3	Naphthalene	ND		50	58.9	118	50	60.1	120	2	70-130/50
108-88-3	Toluene	ND		50	56.9	114	50	56.1	112	1	70-130/50
	m,p-Xylene	ND		100	118	118	100	116	116	2	70-130/50
95-47-6	o-Xylene	ND		50	59.1	118	50	57.8	116	2	70-130/50
	C5- C8 Aliphatics (Unadj.)	ND		150	140	95	150	150	97	2	70-130/50
	C9- C12 Aliphatics (Unadj.)	ND		100	98	98	100	98	98	0	70-130/50
	C9- C10 Aromatics	ND		50	60	119	50	58	117	2	70-130/50

CAS No.	Surrogate Recoveries	MS	MSD	JD53080-8	Limits
	2,3,4-Trifluorotoluene	103%	100%	92%	70-130%
	2,3,4-Trifluorotoluene	99%	93%	94%	70-130%

* = Outside of Control Limits.

Surrogate Recovery Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Method: MADEP VPH REV 2.1	**Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JD53080-1	BH34898.D	91	95
JD53080-2	BH34899.D	89	95
JD53080-3	BH34900.D	88	94
JD53080-4	BH34901.D	88	93
JD53080-5	BH34902.D	89	93
JD53080-6	BH34903.D	89	92
JD53080-7	BH34904.D	89	92
JD53080-8	BH34905.D	92	94
JD53080-9	BH34910.D	98	97
JD53080-10	BH34911.D	96	94
GBH1321-BS	BH34892.D	89	96
GBH1321-BSD	BH34893.D	96	98
GBH1321-MB	BH34891.D	89	97
JD53080-8MS	BH34906.D	103	99
JD53080-8MSD	BH34907.D	100	93

Surrogate Compounds	Recovery Limits
S1 = 2,3,4-Trifluorotoluene	70-130%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Check Std:	GBH1320-CC1313	Injection Date:	10/06/22
Lab File ID:	BH34889.D	Injection Time:	11:03
Instrument ID:	GCBH	Method:	MADEP VPH REV 2.1

	S1 [a] RT	S1 [b] RT
Check Std	24.09	24.09

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
GBH1321-MB	BH34891.D	10/06/22	12:34	24.09	24.09
GBH1321-BS	BH34892.D	10/06/22	13:16	24.09	24.09
GBH1321-BSD	BH34893.D	10/06/22	13:59	24.09	24.09
ZZZZZZ	BH34895.D	10/06/22	15:23	24.09	24.09
ZZZZZZ	BH34896.D	10/06/22	16:06	24.09	24.09
JD53080-1	BH34898.D	10/06/22	17:31	24.09	24.09
JD53080-2	BH34899.D	10/06/22	18:14	24.09	24.09
JD53080-3	BH34900.D	10/06/22	18:57	24.09	24.09
JD53080-4	BH34901.D	10/06/22	19:39	24.09	24.09
JD53080-5	BH34902.D	10/06/22	20:21	24.09	24.09
JD53080-6	BH34903.D	10/06/22	21:04	24.09	24.09
JD53080-7	BH34904.D	10/06/22	21:46	24.09	24.09
JD53080-8	BH34905.D	10/06/22	22:29	24.09	24.09
JD53080-8MS	BH34906.D	10/06/22	23:11	24.09	24.09
JD53080-8MSD	BH34907.D	10/06/22	23:54	24.09	24.09
JD53080-9	BH34910.D	10/07/22	02:00	24.09	24.09
JD53080-10	BH34911.D	10/07/22	02:42	24.09	24.09
ZZZZZZ	BH34912.D	10/07/22	03:25	24.09	24.09

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

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SGS

Initial Calibration Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: GBH1313-ICC1313
Lab FileID: BH34666.D

```
                    Response Factor Report  GCBH


 Method      : C:\MSDCHEM\1\METHODS\MBH1313.M (ChemStation Integrator)
 Title       : vph - master
 Last Update : Wed Sep 28 09:22:34 2022
 Response via : Initial Calibration


 Calibration Files
 1   =BH34661.d   2  =BH34662.d   5  =BH34663.d  10  =BH34664.d
 20  =BH34665.d   50  =BH34666.d  100 =BH34667.d  500 =BH34668.d
 1000=BH34669.d        =


  Compound
            1     2     5    10    20    50   100   500  1000    Avg    %RSD
 ----------------------------------------------------------------------------
 1)  pentane
         2.486 2.288 2.469 2.404 2.476 2.437 2.410 2.380 2.323   2.408 E5   2.86
 2)  2-methylpentane
         3.230 2.744 2.785 2.748 2.776 2.763 2.716 2.695 2.633   2.788 E5   6.18
 3)  Methyl Tert Butyl Ether
         2.221 2.005 2.118 2.000 2.013 1.977 1.958 1.826 1.720   1.982 E5   7.38
 4)  2,2,4-trimethylpentane
         3.330 2.837 2.774 2.756 2.852 2.812 2.811 2.542 2.191   2.767 E5  10.80
 5)  benzene
         3.959 3.660 3.776 3.768 3.795 3.787 3.709 3.759 3.743   3.773 E5   2.16
 6)  fluorobenzene
         2.622 2.617 2.632 2.633 2.645 2.644 2.741 2.757 2.874   2.685 E5   3.26
 7)  toluene
         3.813 3.682 3.861 3.722 3.712 3.716 3.626 3.693 3.676   3.722 E5   1.94
 8)  2,3,4-trifluorotoluene
         2.117 2.109 2.122 2.127 2.133 2.135 2.199 2.200 2.261   2.156 E5   2.40
 9)  nonane
         2.579 2.185 2.026 2.005 2.030 2.069 2.415 3.223 3.369   2.433 E5  21.68
 10) ethylbenzene
         4.150 3.694 3.664 3.661 3.664 3.678 3.606 3.643 3.600   3.707 E5   4.56
 11) m,p-xylene
         3.885 3.655 3.763 3.737 3.753 3.754 3.689 3.716 3.665   3.735 E5   1.84
 12) o-xylene
         4.201 3.882 3.899 3.874 3.869 3.869 3.822 3.853 3.822   3.899 E5   2.98
 13) decane
         1.992 1.795 1.758 1.734 1.714 1.865 2.721 3.406         2.123 E5  28.97
 14) 1,3,5-trimethylbenzene
         3.752 3.661 3.764 3.765 3.766 3.778 3.726 3.777 3.751   3.749 E5   0.98
 15) 1,2,4-trimethylbenzene
         3.738 3.568 3.662 3.696 3.697 3.715 3.684 3.723 3.687   3.686 E5   1.35
 16) butylcyclohexane
         2.421 2.207 2.230 2.135 2.153 2.193 2.513 3.375         2.403 E5  17.25
 17) naphthalene
         1.898 1.752 1.876 2.033 2.097 2.122 2.203 2.351 2.358   2.077 E5  10.10
 18) C5- C8 Aliphatics (Unadj.)
         3.015 2.623 2.676 2.636 2.701 2.670 2.646 2.539 2.382   2.654 E5   6.27
 19) C9- C12 Aliphatics (Unadj.)
         2.206 2.001 1.994 1.934 1.934 2.029 2.617 3.390         2.263 E5  22.48


 Signal #2


 21) Methyl Tert Butyl Ether #2
         1.438 1.363 1.341 1.325 1.325 1.324 1.336 1.268 1.176   1.322 E6   5.35
 22) benzene #2
         3.419 3.125 3.217 3.182 3.188 3.217 3.175 3.174 3.094   3.199 E6   2.86
```

Initial Calibration Summary

Job Number: JD53080

Account: TTCOD Tetra Tech

Project: R8 START: Bridger Train Derailment, Bridger, MT

Page 2 of 2

Sample: GBH1313-ICC1313

Lab FileID: BH34666.D

```
23)  fluorobenzene #2
        1.747 1.747 1.758 1.770 1.786 1.794 1.879 1.889 1.930   1.811 E6    3.83
24)  toluene #2
        2.964 2.836 2.951 2.901 2.920 2.956 2.892 2.898 2.803   2.902 E6    1.87
25)  2,3,4-trifluorotoluene #2
        1.027 1.021 1.040 1.041 1.049 1.062 1.099 1.107 1.085   1.059 E6    2.97
26)  ethylbenzene #2
        2.540 2.441 2.576 2.597 2.615 2.654 2.614 2.600 2.489   2.569 E6    2.64
27)  m,p-xylene #2
        3.038 2.942 3.089 3.102 3.113 3.129 3.063 2.956 2.764   3.022 E6    3.88
28)  o-xylene #2
        2.613 2.498 2.627 2.648 2.653 2.664 2.625 2.588 2.465   2.598 E6    2.70
29)  1,3,5-trimethylbenzene #2
        3.471 3.329 3.551 3.585 3.615 3.638 3.584 3.500 3.288   3.507 E6    3.55
30)  1,2,4-trimethylbenzene #2
        2.586 2.476 2.655 2.691 2.712 2.742 2.714 2.652 2.495   2.636 E6    3.67
31)  naphthalene #2
        1.737 1.656 1.810 1.999 2.073 2.129 2.194 2.267 2.140   2.001 E6   10.81
32)  C9- C10 Aromatics (Unadj.)
        2.586 2.476 2.655 2.691 2.712 2.742 2.714 2.652 2.495   2.636 E6    3.67
----------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###


        MBH1313.M        Wed Sep 28 09:41:20 2022
```

6.6.1

6

Initial Calibration Verification

Job Number: JD53080 **Sample:** GBH1313-ICV1313
Account: TTCOD Tetra Tech **Lab FileID:** BH34672.D
Project: R8 START: Bridger Train Derailment, Bridger, MT

```
                    Evaluate Continuing Calibration Report

  Data Path : C:\msdchem\1\DATA\GBH1313\
  Data File : BH34672.d
  Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
  Acq On    : 28 Sep 2022   2:35 am
  Operator  : johnn
  Sample    : icv1313-50
  Misc      : GC60296,GBH1313,5,,,,1
  ALS Vial  : 25   Sample Multiplier: 1

  Integration File signal 1: autoint1.e
  Integration File signal 2: autoint1.e
  Quant Time: Sep 28 09:22:55 2022
  Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
  Quant Title  : vph - master
  QLast Update : Wed Sep 28 09:22:34 2022
  Response via : Initial Calibration
  Integrator: ChemStation

  Volume Inj.    :
  Signal #1 Phase :                      Signal #2 Phase:
  Signal #1 Info  :                      Signal #2 Info :


  Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  20%     Max. Rel. Area : 150%


        Compound                  AvgRF    CCRF       %Dev  Area% Dev(Min)
  ---------------------------------------------------------------------------
  1     pentane                   240.796 203.039 E3  15.7   83   0.00
  2     2-methylpentane           278.771 242.400 E3  13.0   88   0.00
  3     Methyl Tert Butyl Ether   198.198 196.525 E3   0.8   99   0.00
  4     2,2,4-trimethylpentane    276.713 264.444 E3   4.4   94   0.00
  5     benzene                   377.290 378.546 E3  -0.3  100   0.00
  6  s  fluorobenzene             268.517 283.730 E3  -5.7  107   0.00
  7     toluene                   372.226 372.948 E3  -0.2  100   0.00
  8  s  2,3,4-trifluorotoluene    215.589 227.058 E3  -5.3  106   0.00
  9     nonane                    243.346 187.224 E3  23.1#  90   0.00
  10    ethylbenzene              370.657 370.137 E3   0.1  101   0.00
  11    m,p-xylene                373.526 373.556 E3  -0.0   99   0.00
  12    o-xylene                  389.890 388.099 E3   0.5  100   0.00
  13    decane                    212.296 169.377 E3  20.2#  91   0.00
  14    1,3,5-trimethylbenzene    374.882 381.075 E3  -1.7  101   0.00
  15    1,2,4-trimethylbenzene    368.560 368.180 E3   0.1   99   0.00
  16    butylcyclohexane          240.333 206.506 E3  14.1   94   0.00
  17    naphthalene               207.661 218.231 E3  -5.1  103   0.00
  18 h  C5- C8 Aliphatics (Unadj.) 265.427 236.627 E3 10.9   88
  19 h  C9- C12 Aliphatics (Unadj.) 226.315 187.942 E3 17.0   93


  Signal #2

  21    Methyl Tert Butyl Ether #2  1.322  1.067 E6  19.3   81   0.00
  22    benzene #2                  3.199  2.640 E6  17.5   82   0.00
  23 s  fluorobenzene #2            1.811  1.587 E6  12.4   88   0.00
  24    toluene #2                  2.902  2.433 E6  16.2   82   0.00
  25 s  2,3,4-trifluorotoluene #2   1.059  0.928 E6  12.4   87   0.00
  26    ethylbenzene #2             2.569  2.212 E6  13.9   83   0.00
  27 t  m,p-xylene #2               3.022  2.644 E6  12.5   85   0.00
```

Initial Calibration Verification

Job Number: JD53080

Account: TTCOD Tetra Tech

Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: GBH1313-ICV1313

Lab FileID: BH34672.D

28	o-xylene #2	2.598	2.282 E6	12.2	86	0.00
29	1,3,5-trimethylbenzene #2	3.507	3.195 E6	8.9	88	0.00
30	1,2,4-trimethylbenzene #2	2.636	2.412 E6	8.5	88	0.00
31	naphthalene #2	2.001	1.911 E6	4.5	90	0.00
32 h	C9- C10 Aromatics (Unadj.)	2.636	2.412 E6	8.5	88	

(#) = Out of Range   SPCC's out = 0   CCC's out = 0

MBH1313.M Wed Sep 28 09:49:32 2022

6.6.2

6

Continuing Calibration Summary

Job Number: JD53080 **Sample:** GBH1320-CC1313
Account: TTCOD Tetra Tech **Lab FileID:** BH34889.D
Project: R8 START: Bridger Train Derailment, Bridger, MT

```
                    Evaluate Continuing Calibration Report

   Data Path : C:\msdchem\1\DATA\GBH1320\
   Data File : BH34889.d
   Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
   Acq On    :  6 Oct 2022  11:03 am
   Operator  : johnn
   Sample    : cc1313-50
   Misc      : GC60355,GBH1320,5,,100,5,1
   ALS Vial  : 31   Sample Multiplier: 1

   Integration File signal 1: autoint1.e
   Integration File signal 2: autoint1.e
   Quant Time: Oct 07 17:15:35 2022
   Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
   Quant Title  : vph - master
   QLast Update : Wed Sep 28 09:12:49 2022
   Response via : Initial Calibration
   Integrator: ChemStation

   Volume Inj.    :
   Signal #1 Phase :                      Signal #2 Phase:
   Signal #1 Info  :                      Signal #2 Info :


   Min. RRF    :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
   Max. RRF Dev :  20%     Max. Rel. Area : 150%


        Compound                    AvgRF   CCRF      %Dev  Area% Dev(Min)
   -----------------------------------------------------------------------
   1    pentane                     240.796 261.963 E3  -8.8  108  0.00
   2    2-methylpentane             278.771 295.382 E3  -6.0  107  0.00
   3    Methyl Tert Butyl Ether     198.198 202.804 E3  -2.3  103  0.00
   4    2,2,4-trimethylpentane      276.713 295.141 E3  -6.7  105  0.00
   5    benzene                     377.290 383.480 E3  -1.6  101  0.00
   6 s  fluorobenzene               268.517 295.548 E3 -10.1  112  0.00
   7    toluene                     372.226 375.030 E3  -0.8  101  0.00
   8 s  2,3,4-trifluorotoluene      215.589 219.998 E3  -2.0  103  0.00
   9    nonane                      243.346 223.516 E3   8.1  108  0.00
   10   ethylbenzene                370.657 368.278 E3   0.6  100  0.00
   11   m,p-xylene                  373.526 377.075 E3  -1.0  100  0.00
   12   o-xylene                    389.890 388.214 E3   0.4  100  0.00
   13   decane                      212.296 206.517 E3   2.7  111  0.00
   14   1,3,5-trimethylbenzene      374.882 381.160 E3  -1.7  101  0.00
   15   1,2,4-trimethylbenzene      368.560 373.143 E3  -1.2  100  0.00
   16   butylcyclohexane            240.333 233.323 E3   2.9  106  0.00
   17   naphthalene                 207.661 208.422 E3  -0.4   98  0.00
   18 h  C5- C8 Aliphatics (Unadj.) 265.427 284.162 E3  -7.1  107
   19 h  C9- C12 Aliphatics (Unadj.) 226.315 219.920 E3   2.8  109

   Signal #2

   21    Methyl Tert Butyl Ether #2   1.322  1.135 E6  14.1   86  0.00
   22    benzene #2                   3.199  2.725 E6  14.8   85  0.00
   23 s  fluorobenzene #2             1.811  1.678 E6   7.3   94  0.00
   24    toluene #2                   2.902  2.489 E6  14.2   84  0.00
   25 s  2,3,4-trifluorotoluene #2    1.059  0.916 E6  13.5   86  0.00
   26    ethylbenzene #2              2.569  2.235 E6  13.0   84  0.00
   27 t  m,p-xylene #2                3.022  2.663 E6  11.9   85  0.00
   28    o-xylene #2                  2.598  2.272 E6  12.5   85  0.00
```

Continuing Calibration Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: GBH1320-CC1313
Lab FileID: BH34889.D

29	1,3,5-trimethylbenzene #2	3.507	3.147 E6	10.3	87	0.00
30	1,2,4-trimethylbenzene #2	2.636	2.385 E6	9.5	87	0.00
31	naphthalene #2	2.001	1.810 E6	9.5	85	0.00
32 h	C9- C10 Aromatics (Unadj.)	2.636	2.385 E6	9.5	87	

(#) = Out of Range   SPCC's out = 0   CCC's out = 0

MBH1313.M Fri Oct 07 17:18:22 2022

6.6.3

6

Continuing Calibration Summary

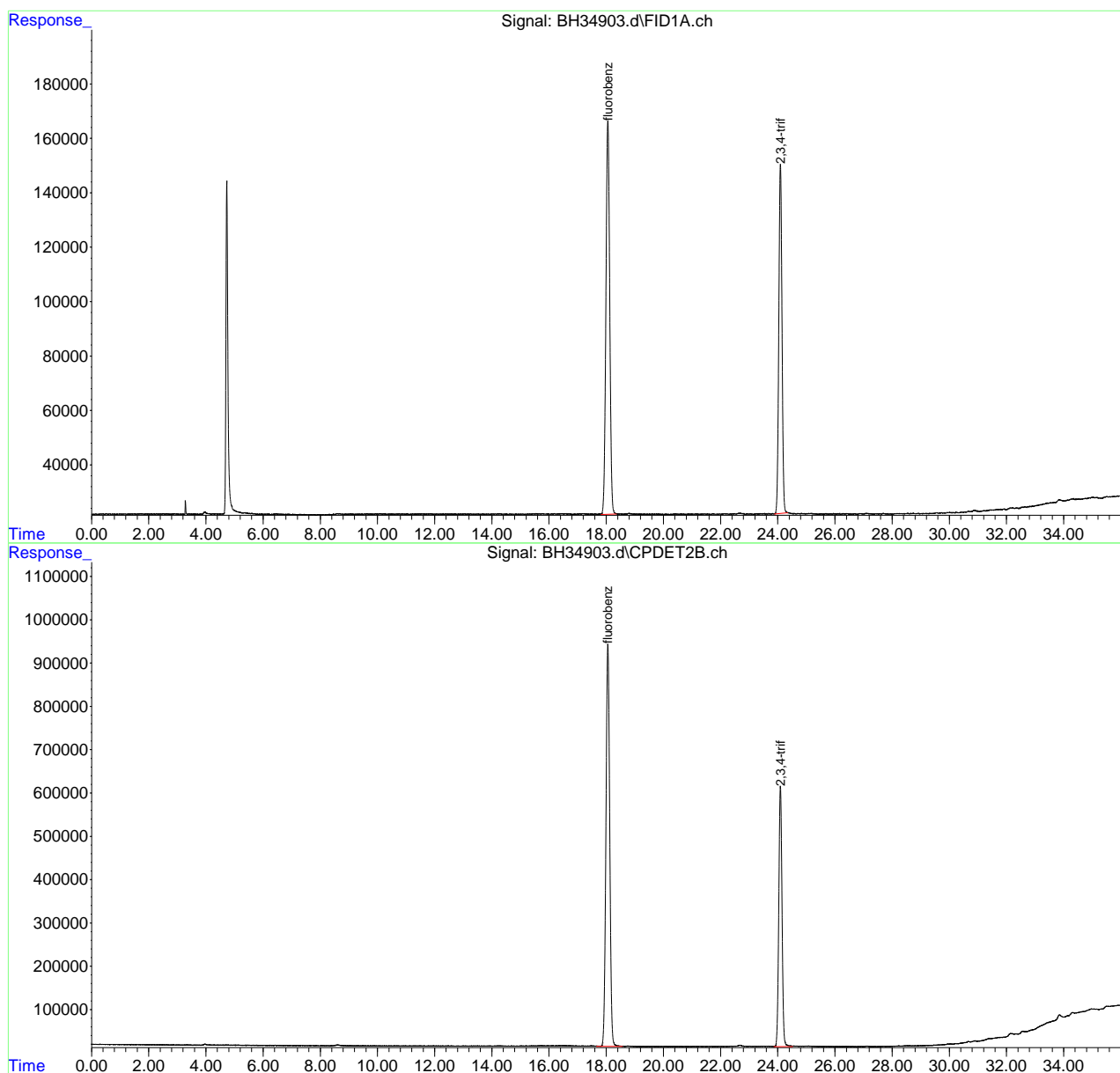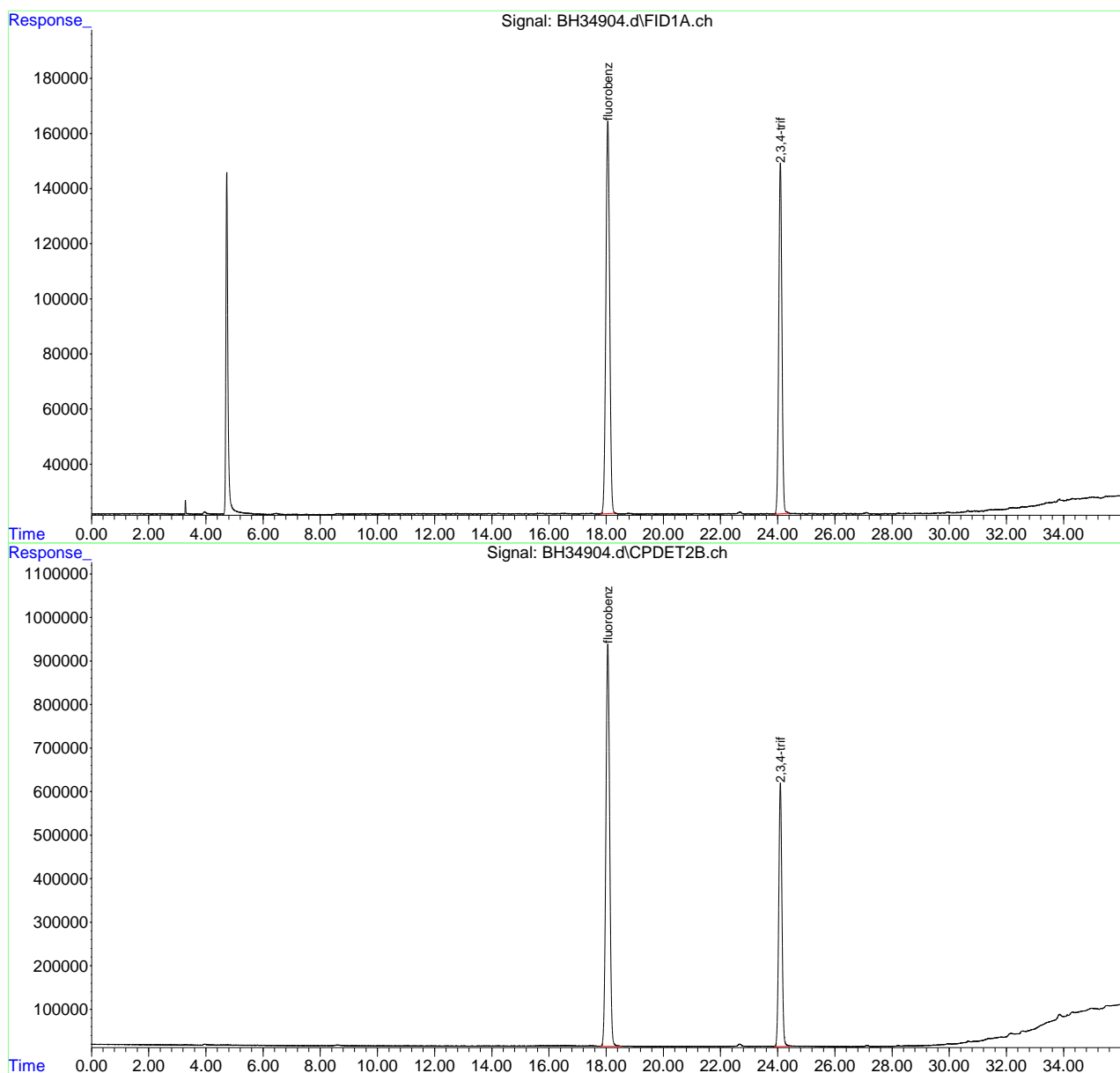|	
Job Number: JD53080	**Sample:** GBH1321-CC1313
Account: TTCOD Tetra Tech	**Lab FileID:** BH34917.D
Project: R8 START: Bridger Train Derailment, Bridger, MT	

```
                    Evaluate Continuing Calibration Report

  Data Path : C:\msdchem\1\DATA\GBH1321\
  Data File : BH34917.d
  Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
  Acq On    :  7 Oct 2022   9:53 am
  Operator  : johnn
  Sample    : cc1313-50
  Misc      : GC60282,GBH1321,5,,,,1
  ALS Vial  : 28   Sample Multiplier: 1

  Integration File signal 1: autoint1.e
  Integration File signal 2: autoint1.e
  Quant Time: Oct 07 17:52:09 2022
  Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
  Quant Title  : vph - master
  QLast Update : Wed Sep 28 09:12:49 2022
  Response via : Initial Calibration
  Integrator: ChemStation

  Volume Inj.    :
  Signal #1 Phase :                      Signal #2 Phase:
  Signal #1 Info  :                      Signal #2 Info :


  Min. RRF    :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  20%     Max. Rel. Area : 150%


        Compound                 AvgRF    CCRF      %Dev  Area% Dev(Min)
  --------------------------------------------------------------------------
  1     pentane                 240.796 252.047 E3  -4.7   103  0.00
  2     2-methylpentane         278.771 286.555 E3  -2.8   104  0.00
  3     Methyl Tert Butyl Ether 198.198 198.905 E3  -0.4   101  0.00
  4     2,2,4-trimethylpentane  276.713 290.246 E3  -4.9   103  0.00
  5     benzene                 377.290 373.626 E3   1.0    99  0.00
  6  s  fluorobenzene           268.517 277.977 E3  -3.5   105  0.00
  7     toluene                 372.226 368.666 E3   1.0    99  0.00
  8  s  2,3,4-trifluorotoluene  215.589 212.933 E3   1.2   100  0.00
  9     nonane                  243.346 220.749 E3   9.3   107  0.00
  10    ethylbenzene            370.657 366.092 E3   1.2   100  0.00
  11    m,p-xylene              373.526 374.712 E3  -0.3   100  0.00
  12    o-xylene                389.890 386.599 E3   0.8   100  0.00
  13    decane                  212.296 204.566 E3   3.6   110  0.00
  14    1,3,5-trimethylbenzene  374.882 378.801 E3  -1.0   100  0.00
  15    1,2,4-trimethylbenzene  368.560 373.887 E3  -1.4   101  0.00
  16    butylcyclohexane        240.333 230.019 E3   4.3   105  0.00
  17    naphthalene             207.661 212.207 E3  -2.2   100  0.00
  18 h  C5- C8 Aliphatics (Unadj.) 265.427 276.283 E3  -4.1   103
  19 h  C9- C12 Aliphatics (Unadj.) 226.315 217.293 E3   4.0   108


   Signal #2

  21    Methyl Tert Butyl Ether #2   1.322   1.315 E6   0.5    99  0.00
  22    benzene #2                   3.199   3.232 E6  -1.0   100  0.00
  23 s  fluorobenzene #2             1.811   1.957 E6  -8.1   109  0.00
  24    toluene #2                   2.902   3.026 E6  -4.3   102  0.00
  25 s  2,3,4-trifluorotoluene #2    1.059   1.096 E6  -3.5   103  0.00
  26    ethylbenzene #2              2.569   2.759 E6  -7.4   104  0.00
  27 t  m,p-xylene #2                3.022   3.322 E6  -9.9   106  0.00
```

Continuing Calibration Summary

Job Number: JD53080

Account: TTCOD Tetra Tech

Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: GBH1321-CC1313

Lab FileID: BH34917.D

```
28     o-xylene #2                    2.598   2.837 E6   -9.2    106    0.00
29     1,3,5-trimethylbenzene #2      3.507   3.902 E6  -11.3    107    0.00
30     1,2,4-trimethylbenzene #2      2.636   2.956 E6  -12.1    108    0.00
31     naphthalene #2                 2.001   2.238 E6  -11.8    105    0.00
32 h   C9- C10 Aromatics (Unadj.)     2.636   2.956 E6  -12.1    108
```

```
   (#) = Out of Range           SPCC's out = 0   CCC's out = 0

MBH1313.M Fri Oct 07 17:52:32 2022
```

6.6.4

6

Run Sequence Report

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Run ID: GBH1313	**Method:** MADEP VPH REV 2.1	**Instrument ID:** GCBH

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBH1313-IC1313	BH34661.D	09/27/22 18:47	n/a	Initial cal 1
GBH1313-IC1313	BH34662.D	09/27/22 19:30	n/a	Initial cal 2
GBH1313-IC1313	BH34663.D	09/27/22 20:13	n/a	Initial cal 5
GBH1313-IC1313	BH34664.D	09/27/22 20:55	n/a	Initial cal 10
GBH1313-IC1313	BH34665.D	09/27/22 21:38	n/a	Initial cal 20
GBH1313-ICC1313	BH34666.D	09/27/22 22:20	n/a	Initial cal 50
GBH1313-IC1313	BH34667.D	09/27/22 23:03	n/a	Initial cal 100
GBH1313-IC1313	BH34668.D	09/27/22 23:45	n/a	Initial cal 500
GBH1313-IC1313	BH34669.D	09/28/22 00:28	n/a	Initial cal 1000
GBH1313-ICV1313	BH34672.D	09/28/22 02:35	n/a	Initial cal verification 50

Run Sequence Report

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Run ID: GBH1320		**Method:** MADEP VPH REV 2.1	**Instrument ID:** GCBH	

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBH1320-MB	BH34860.D	10/05/22 14:41	n/a	Method Blank
GBH1320-BS	BH34861.D	10/05/22 15:23	n/a	Blank Spike
GBH1320-BSD	BH34862.D	10/05/22 16:06	n/a	Blank Spike Duplicate
ZZZZZZ	BH34864.D	10/05/22 17:31	n/a	(unrelated sample)
ZZZZZZ	BH34866.D	10/05/22 18:55	n/a	(unrelated sample)
ZZZZZZ	BH34867.D	10/05/22 19:37	n/a	(unrelated sample)
ZZZZZZ	BH34868.D	10/05/22 20:20	n/a	(unrelated sample)
ZZZZZZ	BH34869.D	10/05/22 21:02	n/a	(unrelated sample)
ZZZZZZ	BH34870.D	10/05/22 21:44	n/a	(unrelated sample)
JD53019-8	BH34871.D	10/05/22 22:27	n/a	(used for QC only; not part of job JD53080)
JD53019-8DUP	BH34872.D	10/05/22 23:09	n/a	Duplicate
ZZZZZZ	BH34875.D	10/06/22 01:15	n/a	(unrelated sample)
ZZZZZZ	BH34877.D	10/06/22 02:39	n/a	(unrelated sample)
ZZZZZZ	BH34879.D	10/06/22 04:03	n/a	(unrelated sample)
ZZZZZZ	BH34880.D	10/06/22 04:45	n/a	(unrelated sample)
ZZZZZZ	BH34881.D	10/06/22 05:26	n/a	(unrelated sample)
ZZZZZZ	BH34883.D	10/06/22 06:50	n/a	(unrelated sample)
ZZZZZZ	BH34884.D	10/06/22 07:32	n/a	(unrelated sample)
ZZZZZZ	BH34885.D	10/06/22 08:14	n/a	(unrelated sample)
GBH1320-CC1313	BH34889.D	10/06/22 11:03	n/a	Continuing cal 50

6.7.2

6

Run Sequence Report

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Run ID: GBH1321   **Method:** MADEP VPH REV 2.1 **Instrument ID:** GCBH

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBH1321-MB	BH34891.D	10/06/22 12:34	n/a	Method Blank
GBH1321-BS	BH34892.D	10/06/22 13:16	n/a	Blank Spike
GBH1321-BSD	BH34893.D	10/06/22 13:59	n/a	Blank Spike Duplicate
ZZZZZZ	BH34895.D	10/06/22 15:23	n/a	(unrelated sample)
ZZZZZZ	BH34896.D	10/06/22 16:06	n/a	(unrelated sample)
JD53080-1	BH34898.D	10/06/22 17:31	n/a	BTD-P01-20221002
JD53080-2	BH34899.D	10/06/22 18:14	n/a	BTD-P02-20221002
JD53080-3	BH34900.D	10/06/22 18:57	n/a	BTD-P03-20221002
JD53080-4	BH34901.D	10/06/22 19:39	n/a	BTD-P04-20221002
JD53080-5	BH34902.D	10/06/22 20:21	n/a	BTD-P05-20221002
JD53080-6	BH34903.D	10/06/22 21:04	n/a	BTD-P06-20221002
JD53080-7	BH34904.D	10/06/22 21:46	n/a	BTD-P07-20221002
JD53080-8	BH34905.D	10/06/22 22:29	n/a	BTD-GW01-20221002
JD53080-8MS	BH34906.D	10/06/22 23:11	n/a	Matrix Spike
JD53080-8MSD	BH34907.D	10/06/22 23:54	n/a	Matrix Spike Duplicate
JD53080-9	BH34910.D	10/07/22 02:00	n/a	BTD-GW02-20221002
JD53080-10	BH34911.D	10/07/22 02:42	n/a	BTD-TP01-20221002
ZZZZZZ	BH34912.D	10/07/22 03:25	n/a	(unrelated sample)
GBH1321-CC1313	BH34917.D	10/07/22 09:53	n/a	Continuing cal 50

GC Volatiles

Raw Data
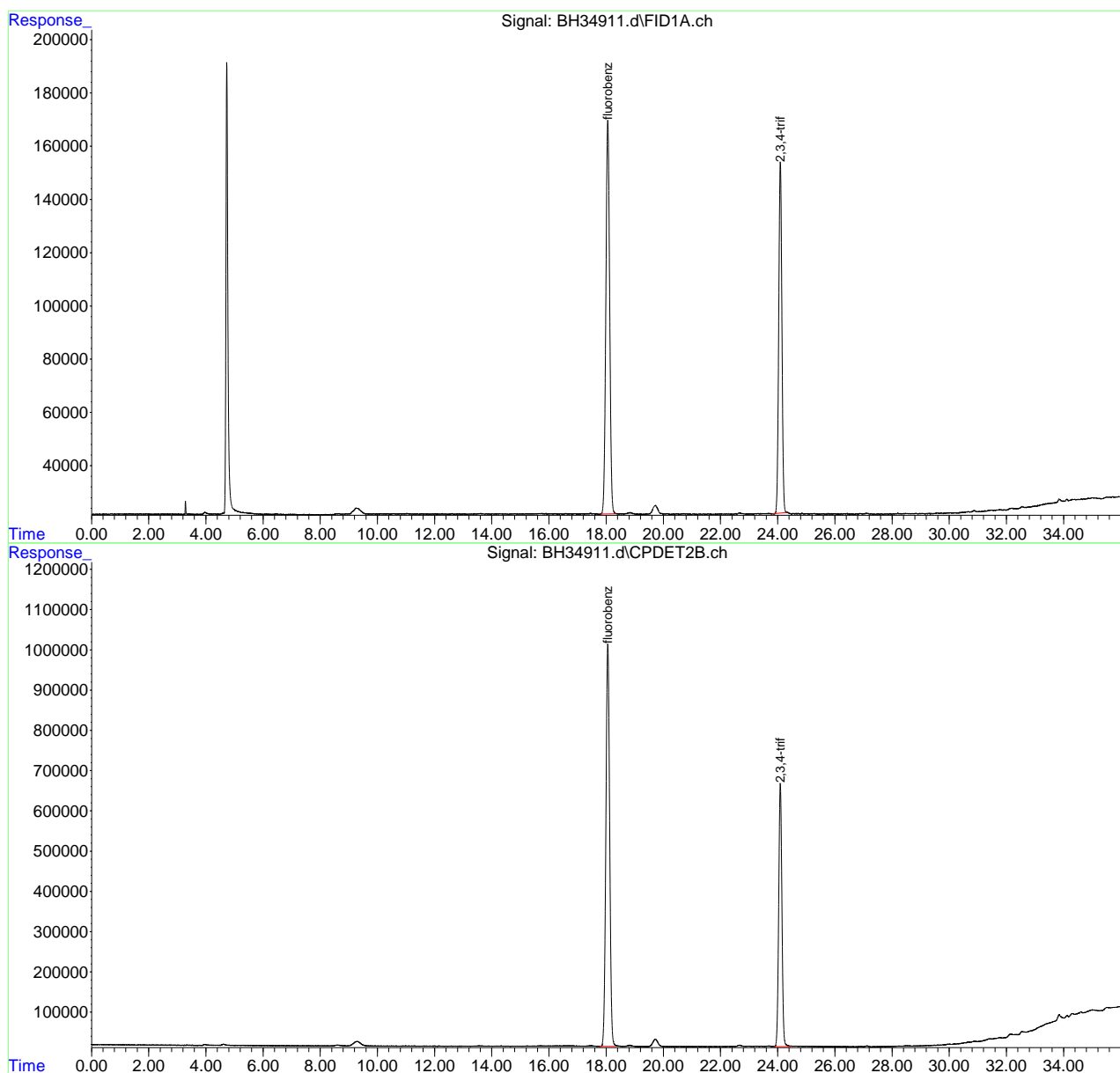
```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34898.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   5:31 pm
Operator  : johnn
Sample    : jd53080-1
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 9   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:16:12 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                 Signal #2 Phase:
Signal #1 Info  :                 Signal #2 Info :

         Compound                R.T.      Response    Conc Units
     -------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.058     13568124   50.530 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  101.06%
 8) s   2,3,4-trifluorotoluene   24.091     10225308   47.430 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   94.86%
23) s   fluorobenzene #2         18.058     88091446   48.639 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   97.28%
25) s   2,3,4-trifluorotoluen... 24.091     48032260   45.352 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   90.70%

 Target Compounds
     -------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

7.1.1

7

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34898.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   5:31 pm
Operator  : johnn
Sample    : jd53080-1
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 9   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:16:12 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :               Signal #2 Phase:
Signal #1 Info  :               Signal #2 Info :
```



```
MBH1313.M Mon Oct 10 16:27:51 2022                    Page: 2
```

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34899.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   6:14 pm
Operator  : johnn
Sample    : jd53080-2
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 10   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:17:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                  Signal #2 Phase:
Signal #1 Info  :                  Signal #2 Info :

        Compound                   R.T.      Response    Conc Units
  ---------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene              18.057     13419571   49.977 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.95%
 8) s   2,3,4-trifluorotoluene     24.092     10269893   47.636 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   95.27%
23) s   fluorobenzene #2           18.057     85294589   47.095 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   94.19%
25) s   2,3,4-trifluorotoluen...   24.091     47170233   44.538 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   89.08%

 Target Compounds
  ---------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                      (m)=manual int.
```
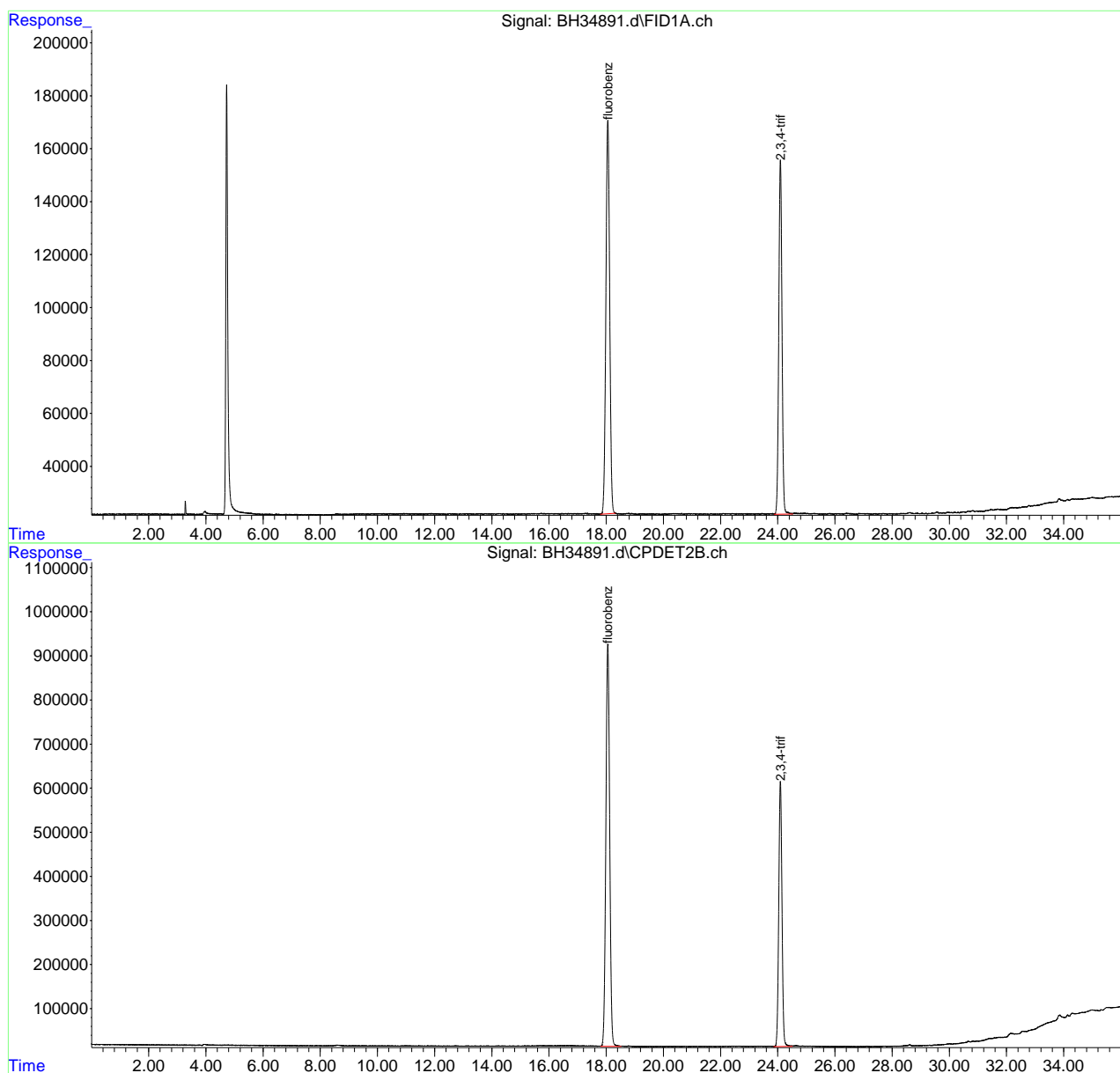
7.1.2

7

```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34899.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   6:14 pm
Operator  : johnn
Sample    : jd53080-2
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 10   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:17:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


Signal: BH34899.d\FID1A.ch

Signal: BH34899.d\CPDET2B.ch

```
MBH1313.M Mon Oct 10 16:27:56 2022                                  Page: 2
```

```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34900.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   6:57 pm
Operator  : johnn
Sample    : jd53080-3
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 11   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:18:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :               Signal #2 Phase:
Signal #1 Info  :               Signal #2 Info :

        Compound                 R.T.      Response    Conc Units
     --------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene           18.057     13450796   50.093 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =  100.19%
 8) s   2,3,4-trifluorotoluene   24.091    10083657   46.773 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =   93.55%
23) s   fluorobenzene #2        18.056     85230969   47.060 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =   94.12%
25) s   2,3,4-trifluorotoluen...  24.090   46690835   44.085 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =   88.17%

 Target Compounds
     --------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                         (m)=manual int.
```
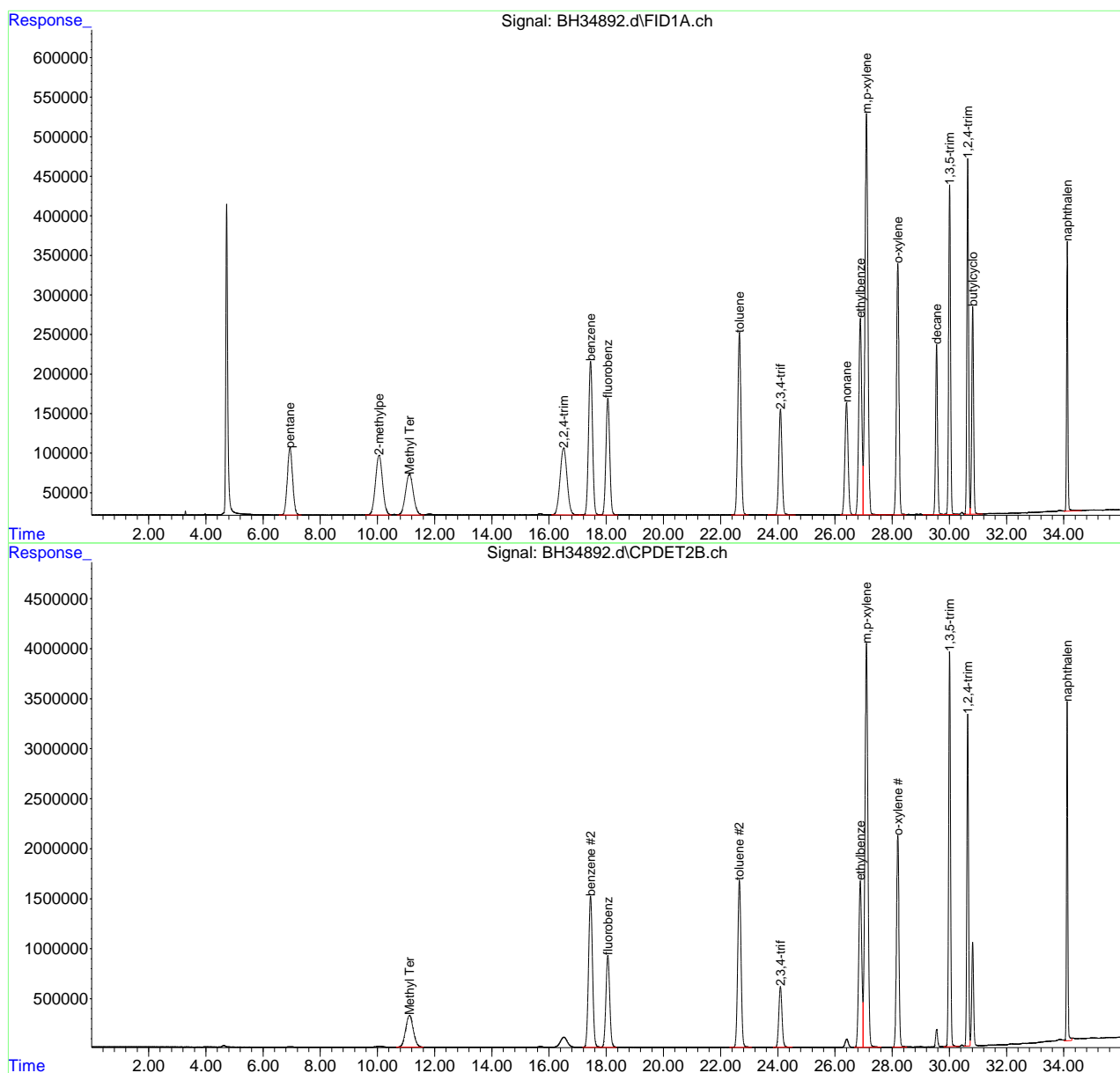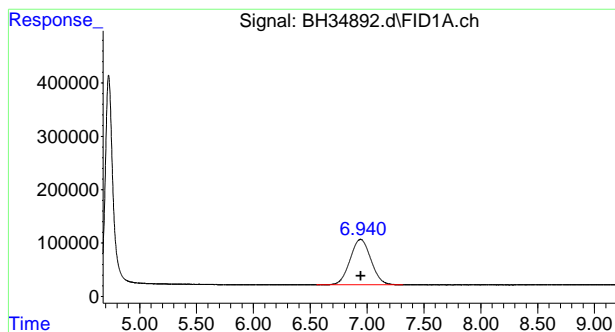
7.1.3

7

```
                         Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34900.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   6:57 pm
Operator  : johnn
Sample    : jd53080-3
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 11   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:18:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


Signal: BH34900.d\FID1A.ch

Signal: BH34900.d\CPDET2B.ch

```
MBH1313.M Mon Oct 10 16:28:00 2022                            Page: 2
```

```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34901.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   7:39 pm
Operator  : johnn
Sample    : jd53080-4
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:19:06 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                 Signal #2 Phase:
Signal #1 Info  :                 Signal #2 Info :

        Compound                R.T.     Response    Conc Units
   -----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.056     13353301   49.730 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   99.46%
 8) s   2,3,4-trifluorotoluene   24.091     10060269   46.664 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   93.33%
23) s   fluorobenzene #2         18.056     84663565   46.746 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   93.49%
25) s   2,3,4-trifluorotoluen... 24.090     46624743   44.023 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   88.05%

 Target Compounds
   -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                    (m)=manual int.
```

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34901.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   7:39 pm
Operator  : johnn
Sample    : jd53080-4
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:19:06 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                Signal #2 Phase:
Signal #1 Info  :                Signal #2 Info :
```

7.1.4

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34902.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   8:21 pm
Operator  : johnn
Sample    : jd53080-5
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:20:25 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :              Signal #2 Phase:
Signal #1 Info  :              Signal #2 Info :
```

```
         Compound                    R.T.      Response    Conc Units
 -----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene              18.058     13469239   50.162 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =  100.32%
 8) s   2,3,4-trifluorotoluene    24.091     10078265   46.748 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =   93.50%
23) s   fluorobenzene #2           18.058     86129666   47.556 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =   95.11%
25) s   2,3,4-trifluorotoluen...   24.091     47178883   44.546 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =   89.09%

 Target Compounds
 -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34902.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   8:21 pm
Operator  : johnn
Sample    : jd53080-5
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:20:25 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :               Signal #2 Phase:
Signal #1 Info  :               Signal #2 Info :
```

7.1.5

7

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34903.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 6 Oct 2022   9:04 pm
Operator : johnn
Sample   : jd53080-6
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:21:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

        Compound   R.T.   Response   Conc Units

 System Monitoring Compounds
 6) s   fluorobenzene   18.058   13321435   49.611 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   99.22%
 8) s   2,3,4-trifluorotoluene   24.092   9932608   46.072 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   92.14%
23) s   fluorobenzene #2   18.057   85577600   47.251 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   94.50%
25) s   2,3,4-trifluorotoluen...   24.091   47244307   44.608 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   89.22%

 Target Compounds

(f)=RT Delta > 1/2 Window   (m)=manual int.

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Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34903.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   9:04 pm
Operator  : johnn
Sample    : jd53080-6
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:21:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.1.6

7

```
                     Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34904.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   9:46 pm
Operator  : johnn
Sample    : jd53080-7
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:22:19 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                  Signal #2 Phase:
Signal #1 Info  :                  Signal #2 Info :

        Compound                 R.T.      Response    Conc Units
   ---------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.057     13128938   48.894 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   97.79%
 8) s   2,3,4-trifluorotoluene   24.091      9892491   45.886 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   91.77%
23) s   fluorobenzene #2         18.056      85322123  47.110 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   94.22%
25) s   2,3,4-trifluorotoluen... 24.091      46957700  44.337 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   88.67%

 Target Compounds
   ---------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
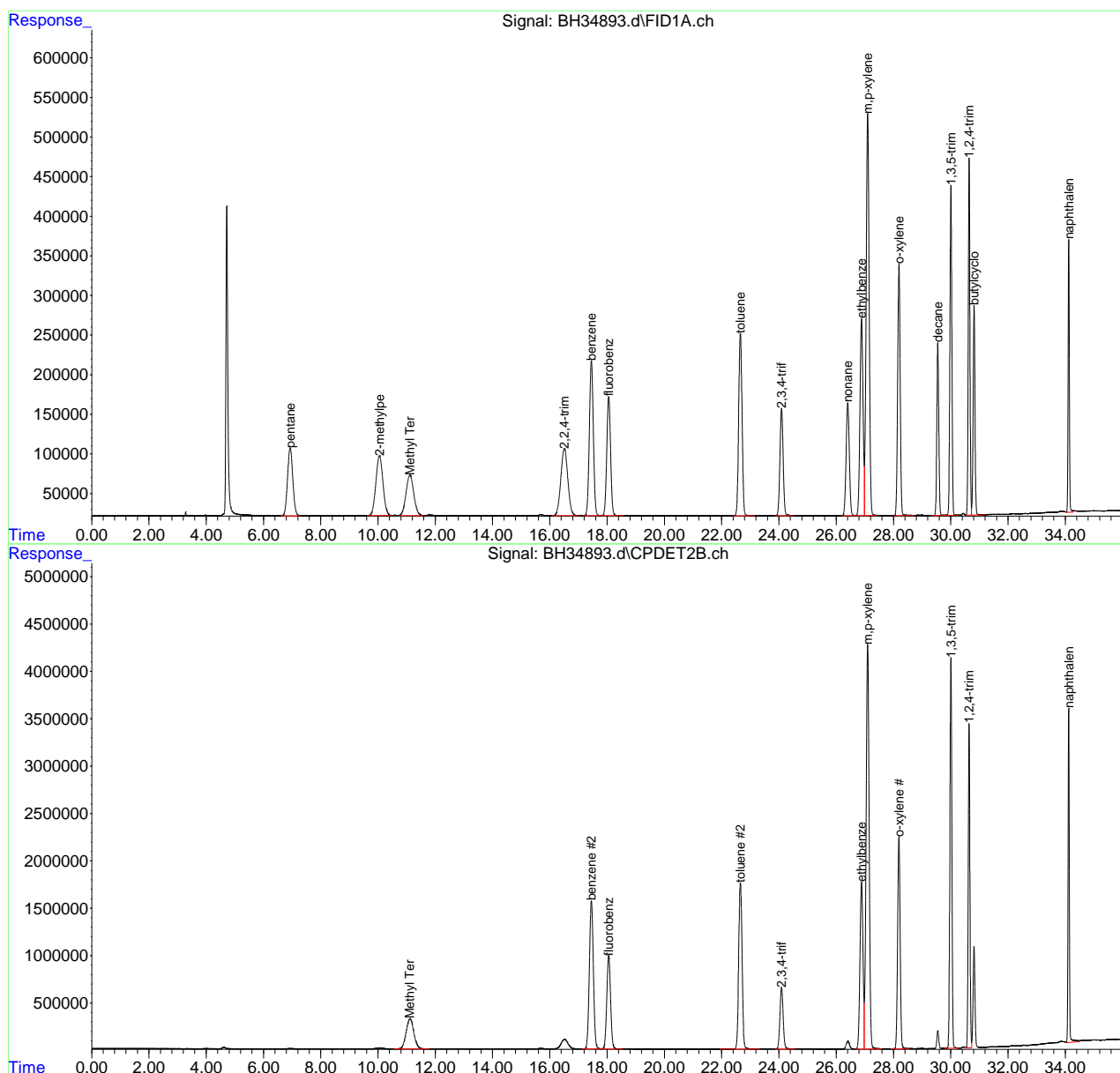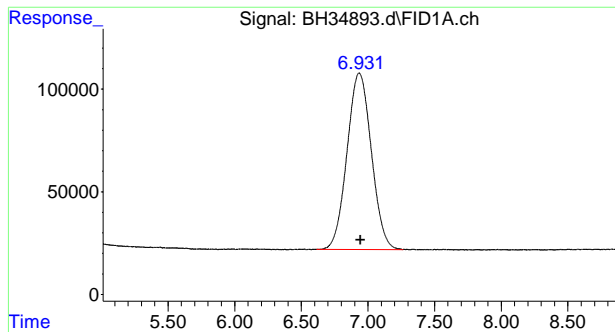
```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34904.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   9:46 pm
Operator  : johnn
Sample    : jd53080-7
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:22:19 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```
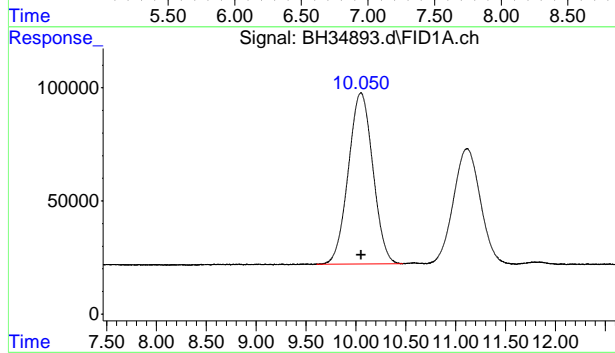

Signal: BH34904.d\FID1A.ch

Signal: BH34904.d\CPDET2B.ch

```
MBH1313.M Mon Oct 10 16:28:17 2022                          Page: 2
```

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34905.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  10:29 pm
Operator  : johnn
Sample    : jd53080-8
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:47:39 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :               Signal #2 Phase:
Signal #1 Info  :               Signal #2 Info :
```

```
        Compound                 R.T.     Response    Conc Units
  -----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene           18.055     13381769   49.836 ppb
Spiked Amount    50.000   Range 70 - 130   Recovery  =   99.67%
 8) s   2,3,4-trifluorotoluene   24.090     10128865   46.982 ppb
Spiked Amount    50.000   Range 70 - 130   Recovery  =   93.96%
23) s   fluorobenzene #2         18.055     87251778   48.175 ppb
Spiked Amount    50.000   Range 70 - 130   Recovery  =   96.35%
25) s   2,3,4-trifluorotoluen...  24.090     48581431   45.871 ppb
Spiked Amount    50.000   Range 70 - 130   Recovery  =   91.74%

 Target Compounds
  -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                       (m)=manual int.
```

7.1.8

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34905.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  10:29 pm
Operator  : johnn
Sample    : jd53080-8
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:47:39 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :            Signal #2 Phase:
Signal #1 Info  :            Signal #2 Info :
```


Signal: BH34905.d\FID1A.ch

Signal: BH34905.d\CPDET2B.ch

```
MBH1313.M Fri Oct 07 17:54:56 2022                                    Page: 2
```

```
                    Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34910.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  7 Oct 2022   2:00 am
Operator  : johnn
Sample    : jd53080-9
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 21   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:23:58 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                 Signal #2 Phase:
Signal #1 Info  :                 Signal #2 Info :

        Compound                 R.T.      Response    Conc Units
      --------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.057     13845918   51.564 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =  103.13%
 8) s  2,3,4-trifluorotoluene    24.091     10486195   48.640 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =   97.28%
23) s   fluorobenzene #2         18.057     93574598   51.666 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =  103.33%
25) s  2,3,4-trifluorotoluen...  24.091     51792120   48.902 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery  =   97.80%

 Target Compounds
      --------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                    (m)=manual int.
```

7.1.9

7

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Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34910.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 7 Oct 2022   2:00 am
Operator : johnn
Sample   : jd53080-9
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 21   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:23:58 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34911.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  7 Oct 2022   2:42 am
Operator  : johnn
Sample    : jd53080-10
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 22   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:25:06 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                     Signal #2 Phase:
Signal #1 Info  :                     Signal #2 Info :

        Compound                    R.T.      Response    Conc Units
    ---------------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene               18.057    13577056   50.563 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =  101.13%
 8) s   2,3,4-trifluorotoluene   24.092    10163986   47.145 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =   94.29%
23) s   fluorobenzene #2            18.057    91751611   50.660 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =  101.32%
25) s   2,3,4-trifluorotoluen...   24.091    50844971   48.008 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery   =   96.02%

 Target Compounds
    ---------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34911.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  7 Oct 2022   2:42 am
Operator  : johnn
Sample    : jd53080-10
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 22   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 10 16:25:06 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34891.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 6 Oct 2022 12:34 pm
Operator : johnn
Sample   : mb
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 2   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:45:35 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

         Compound   R.T.   Response   Conc Units

 System Monitoring Compounds
 6) s   fluorobenzene   18.056   13656532   50.859 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 101.72%
 8) s   2,3,4-trifluorotoluene   24.090   10421795   48.341 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   96.68%
23) s   fluorobenzene #2   18.055   84429716   46.617 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   93.23%
25) s   2,3,4-trifluorotoluen...   24.090   46894664   44.278 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   88.56%

 Target Compounds

(f)=RT Delta > 1/2 Window   (m)=manual int.

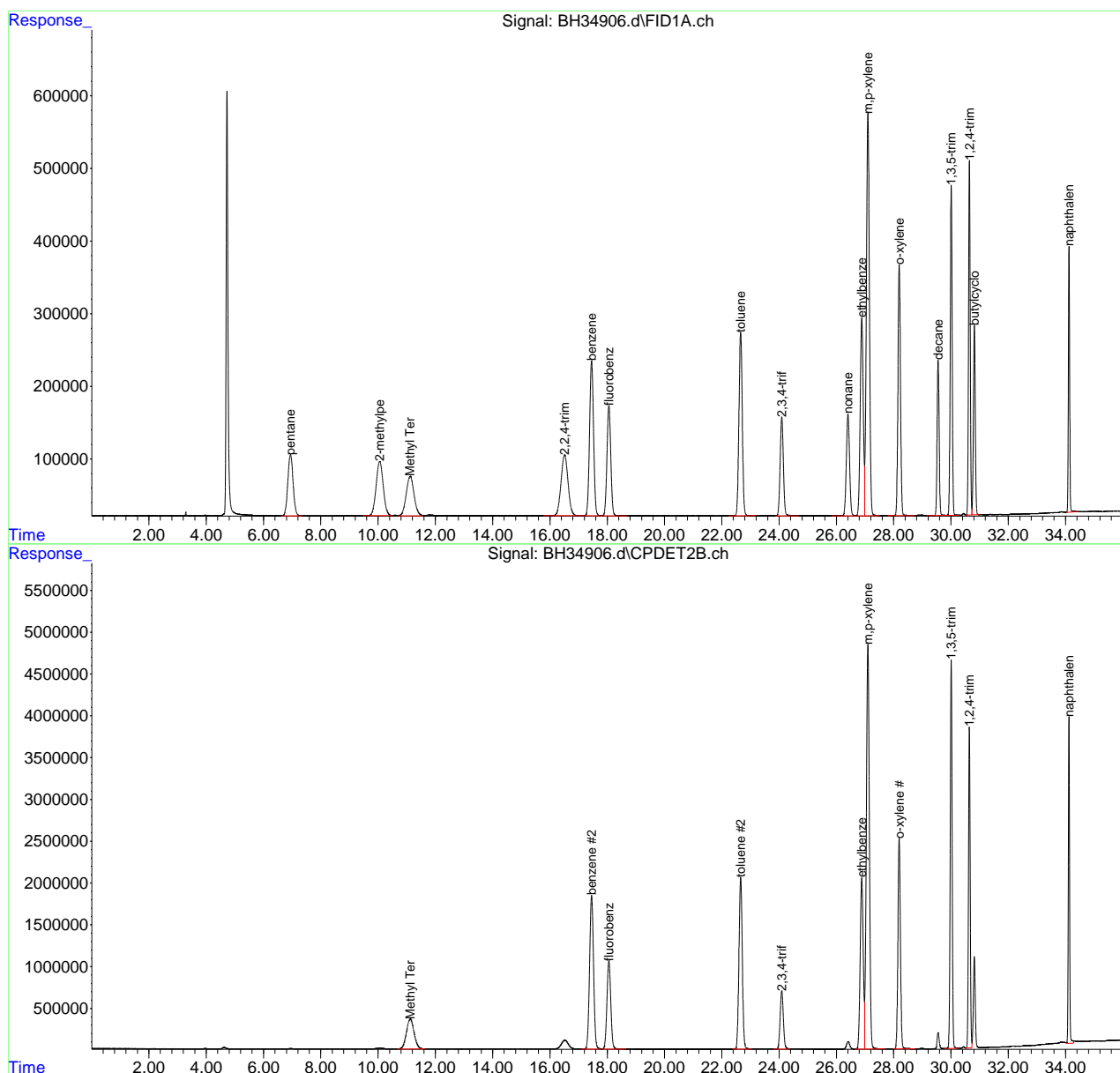MBH1313.M Fri Oct 07 17:54:52 2022   Page: 1

7.2.1

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34891.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  12:34 pm
Operator  : johnn
Sample    : mb
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 2   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:45:35 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                     Signal #2 Phase:
Signal #1 Info  :                     Signal #2 Info :
```
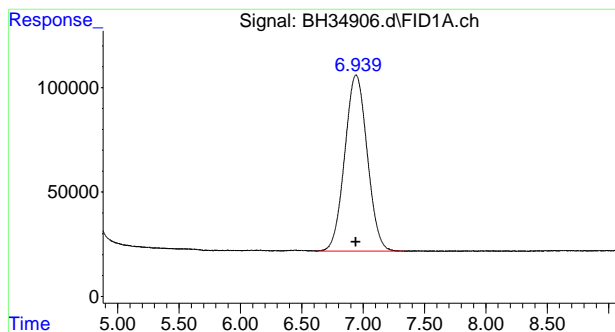
7.2.1

7

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34892.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 6 Oct 2022   1:16 pm
Operator : johnn
Sample   : bs
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 3   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:45:52 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

        Compound   R.T.   Response   Conc Units

 System Monitoring Compounds
 6) s   fluorobenzene   18.057   13664835   50.890 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 101.78%
 8) s   2,3,4-trifluorotoluene   24.091   10392680   48.206 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   96.41%
23) s   fluorobenzene #2   18.055   85089992   46.982 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   93.96%
25) s   2,3,4-trifluorotoluen... 24.090   47365805   44.723 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery =   89.45%

 Target Compounds
 1)   pentane   6.940   10888516   45.219 ppb
 2)   2-methylpentane   10.053   12967969   46.518 ppb
 3)   Methyl Tert Butyl Ether 11.115   9760825   49.248 ppb
 4)   2,2,4-trimethylpentane   16.506   14357217   51.885 ppb
 5)   benzene   17.451   18756285   49.713 ppb
 7)   toluene   22.655   18428547   49.509 ppb
 9)   nonane   26.405   11082459   45.542 ppb
10)   ethylbenzene   26.887   18401896   49.647 ppb
11)   m,p-xylene   27.101   37288168   99.827 ppb
12)   o-xylene   28.195   19377745   49.701 ppb
13)   decane   29.550   10439307   49.173 ppb
14)   1,3,5-trimethylbenzene   30.006   19100816   50.952 ppb
15)   1,2,4-trimethylbenzene   30.641   18406564   49.942 ppb
16)   butylcyclohexane   30.814   11810802   49.143 ppb
17)   naphthalene   34.122   10346809   49.825 ppb
21)   Methyl Tert Butyl Eth... 11.119   58936265   44.586 ppb
22)   benzene #2   17.451   145779062   45.571 ppb
24)   toluene #2   22.653   134762249   46.434 ppb
26)   ethylbenzene #2   26.886   122722210   47.761 ppb
27) t m,p-xylene #2   27.101   297910143   98.593 ppb
28)   o-xylene #2   28.194   128974555   49.644 ppb
29)   1,3,5-trimethylbenzen... 30.005   180744773   51.543 ppb
30)   1,2,4-trimethylbenzen... 30.639   135589282   51.437 ppb
31)   naphthalene #2   34.121   103062992   51.514 ppb

(f)=RT Delta > 1/2 Window   (m)=manual int.

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Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34892.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 6 Oct 2022   1:16 pm
Operator : johnn
Sample   : bs
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 3   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:45:52 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

MBH1313.M Fri Oct 07 17:55:34 2022   Page: 2

7.3.1

7

#1 pentane

```
      R.T.:      6.940 min
Delta R.T.:    -0.002 min
  Response:   10888516
      Conc:   45.22 ppb
```

#2 2-methylpentane

```
      R.T.:     10.053 min
Delta R.T.:     0.000 min
  Response:   12967969
      Conc:   46.52 ppb
```

#3 Methyl Tert Butyl Ether

```
      R.T.:     11.115 min
Delta R.T.:    -0.006 min
  Response:    9760825
      Conc:   49.25 ppb
```

#4 2,2,4-trimethylpentane

```
      R.T.:     16.506 min
Delta R.T.:    -0.002 min
  Response:   14357217
      Conc:   51.88 ppb
```

BH34892.D: GBH1321-BS Blank Spike   page 3 of 9
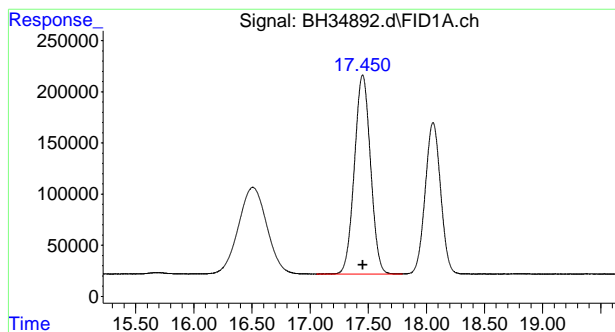
#5   benzene

                 R.T.:   17.451 min
       Delta R.T.:   -0.001 min
         Response: 18756285
             Conc: 49.71 ppb
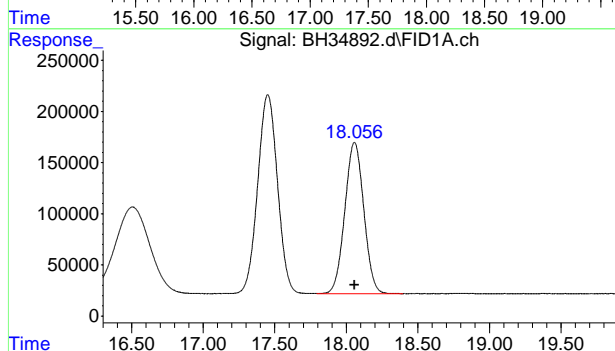
#6   fluorobenzene

                 R.T.:   18.057 min
       Delta R.T.:   0.000 min
         Response: 13664835
             Conc: 50.89 ppb
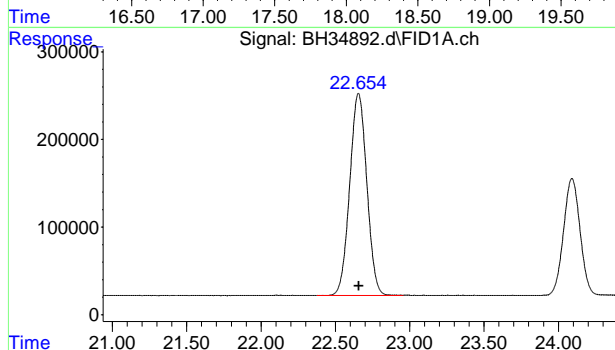
#7   toluene

                 R.T.:   22.655 min
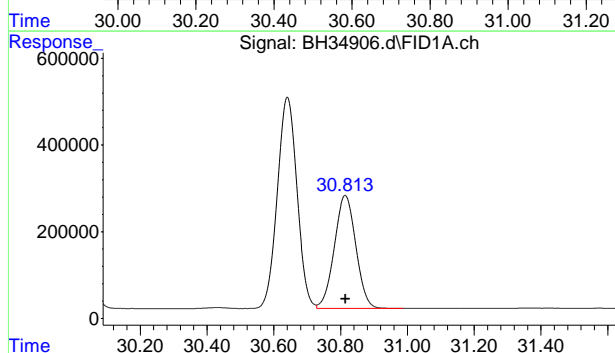   Delta R.T.:   -0.001 min
         Response: 18428547
             Conc: 49.51 ppb
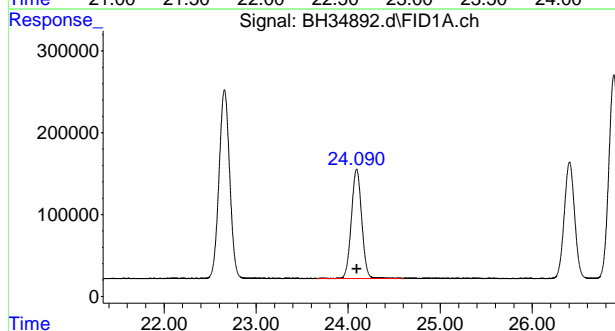
#8   2,3,4-trifluorotoluene

                 R.T.:   24.091 min
       Delta R.T.:   -0.001 min
         Response: 10392680
             Conc: 48.21 ppb

BH34892.d   MBH1313.M   Fri Oct 07 17:55:35 2022

SGS

JD53080
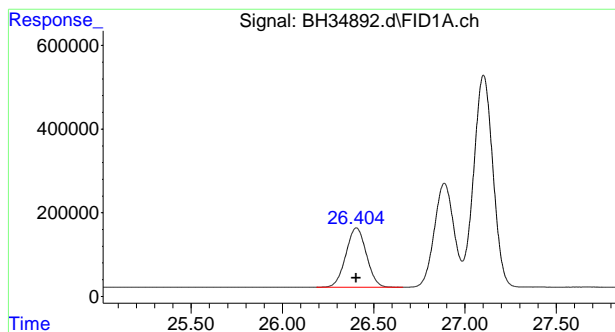
#9 nonane

```
         R.T.:   26.405 min
Delta R.T.:    0.000 min
  Response:  11082459
      Conc:   45.54 ppb
```
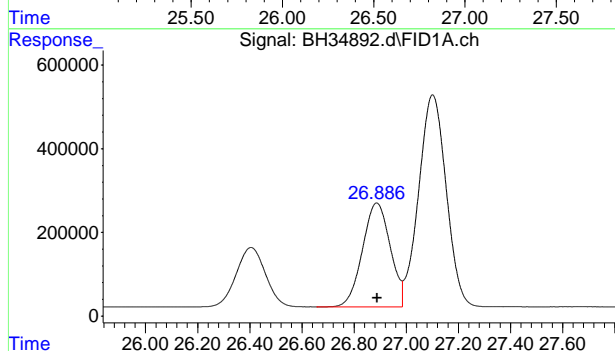
#10 ethylbenzene

```
         R.T.:   26.887 min
Delta R.T.:   -0.001 min
  Response:  18401896
      Conc:   49.65 ppb
```
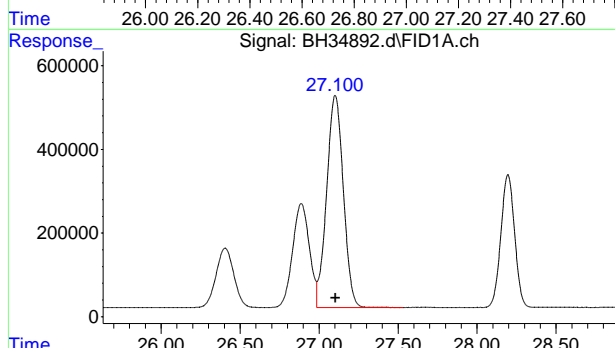
#11 m,p-xylene

```
         R.T.:   27.101 min
Delta R.T.:   -0.001 min
  Response:  37288168
      Conc:   99.83 ppb
```
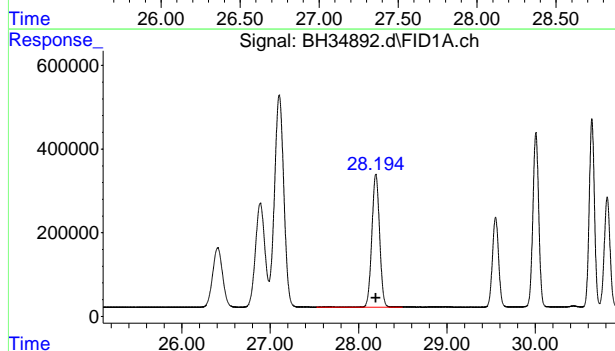
#12 o-xylene

```
         R.T.:   28.195 min
Delta R.T.:    0.000 min
  Response:  19377745
      Conc:   49.70 ppb
```

7.3.1

7
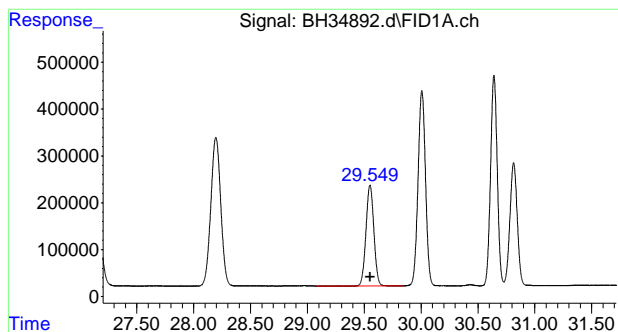
#13 decane

R.T.: 29.550 min
Delta R.T.: 0.000 min
Response: 10439307
Conc: 49.17 ppb
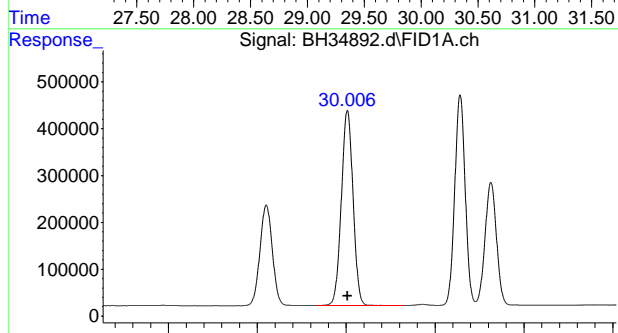
#14 1,3,5-trimethylbenzene

R.T.: 30.006 min
Delta R.T.: 0.000 min
Response: 19100816
Conc: 50.95 ppb
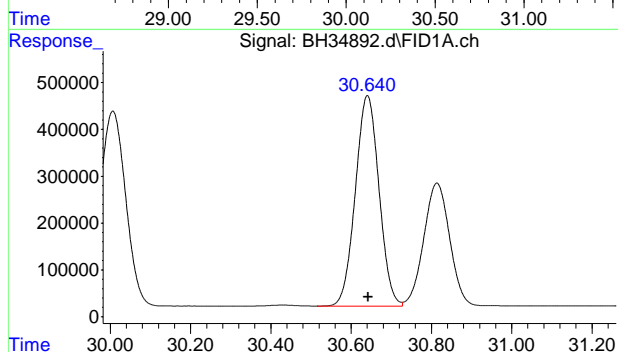
#15 1,2,4-trimethylbenzene

R.T.: 30.641 min
Delta R.T.: 0.000 min
Response: 18406564
Conc: 49.94 ppb
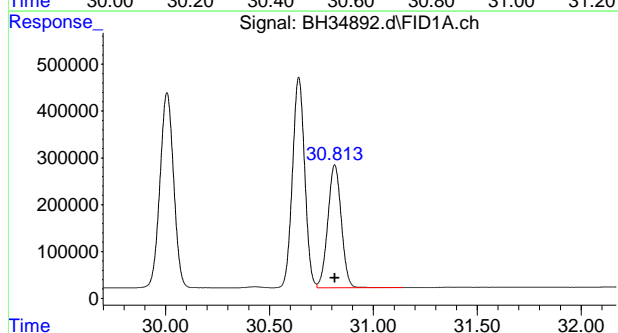
#16 butylcyclohexane

R.T.: 30.814 min
Delta R.T.: -0.001 min
Response: 11810802
Conc: 49.14 ppb

7.3.1

7

Signal: BH34892.d\FID1A.ch
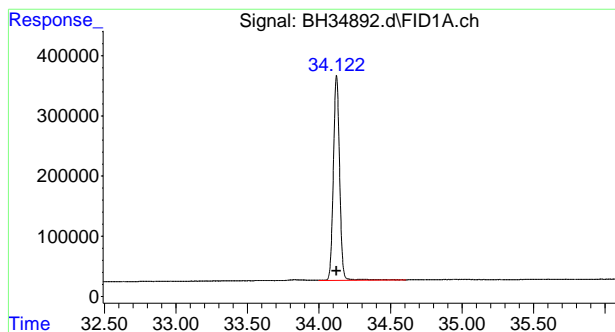
#17 naphthalene

          R.T.:   34.122 min
Delta R.T.:   0.000 min
  Response: 10346809
        Conc: 49.83 ppb

Signal: BH34892.d\CPDET2B.ch
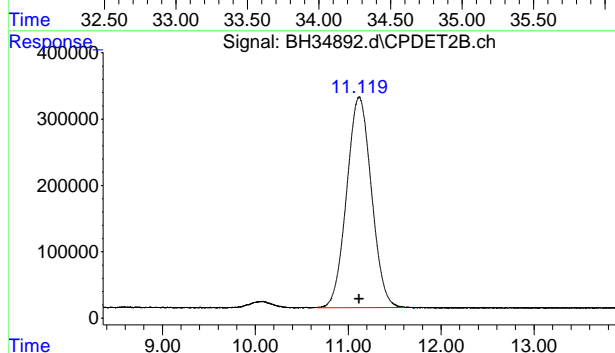
#21 Methyl Tert Butyl Ether #2

          R.T.:   11.119 min
Delta R.T.:   0.003 min
  Response: 58936265
        Conc: 44.59 ppb

Signal: BH34892.d\CPDET2B.ch
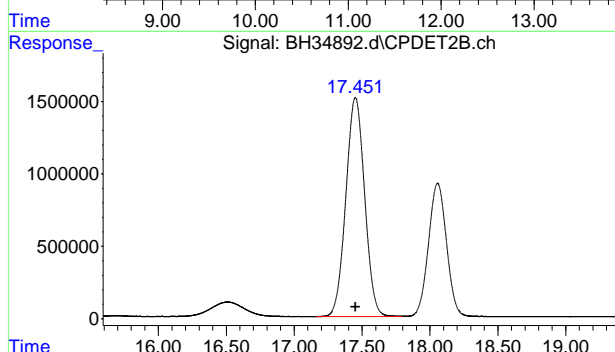
#22 benzene #2

          R.T.:   17.451 min
Delta R.T.:   0.000 min
  Response: 145779062
        Conc: 45.57 ppb

Signal: BH34892.d\CPDET2B.ch
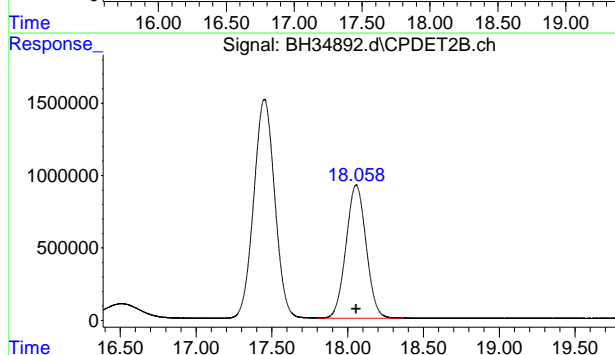
#23 fluorobenzene #2

          R.T.:   18.055 min
Delta R.T.:   0.000 min
  Response: 85089992
        Conc: 46.98 ppb

7.3.1

7
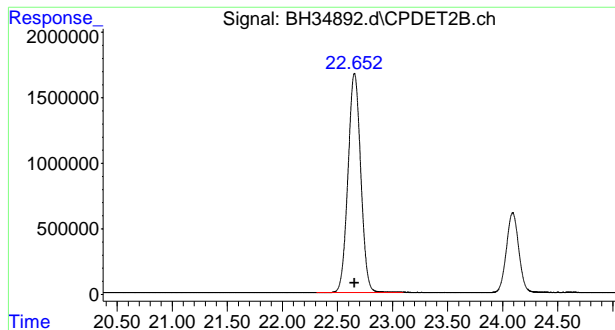
#24 toluene #2

```
        R.T.:    22.653 min
Delta R.T.:    0.000 min
   Response: 134762249
        Conc:  46.43 ppb
```
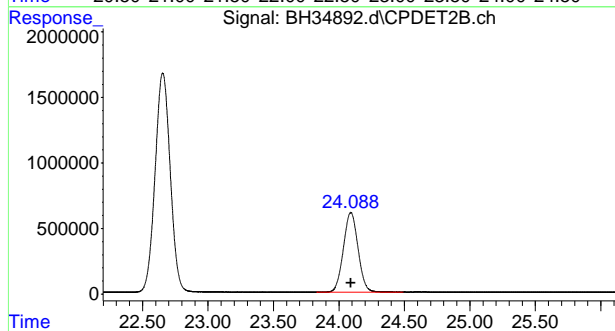
#25 2,3,4-trifluorotoluene #2

```
        R.T.:    24.090 min
Delta R.T.:    0.000 min
   Response: 47365805
        Conc:  44.72 ppb
```
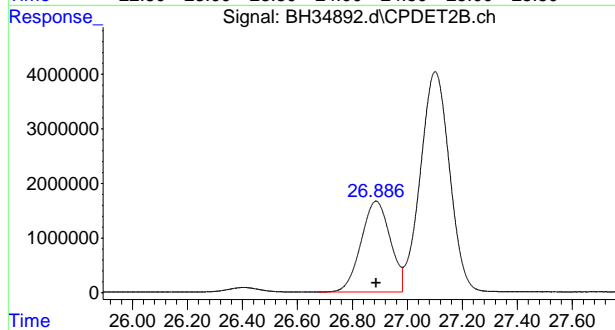
#26 ethylbenzene #2

```
        R.T.:    26.886 min
Delta R.T.:    0.000 min
   Response: 122722210
        Conc:  47.76 ppb
```
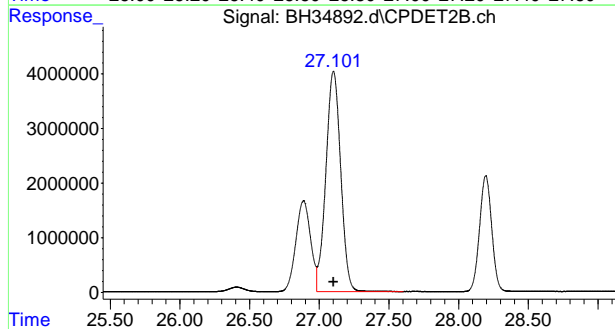
#27 m,p-xylene #2

```
        R.T.:    27.101 min
Delta R.T.:    0.000 min
   Response: 297910143
        Conc:  98.59 ppb
```

7.3.1

7

BH34892.d   MBH1313.M   Fri Oct 07 17:55:36 2022
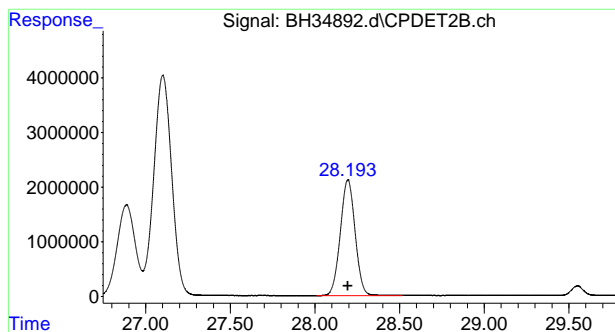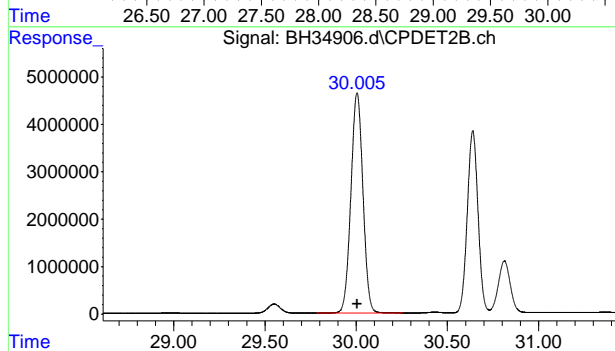
#28 o-xylene #2

        R.T.:   28.194 min
Delta R.T.:   0.000 min
  Response: 128974555
   Conc: 49.64 ppb
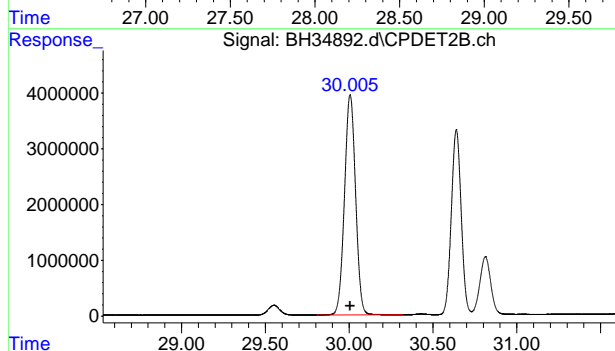
#29 1,3,5-trimethylbenzene #2

        R.T.:   30.005 min
Delta R.T.:   0.000 min
  Response: 180744773
        Conc: 51.54 ppb
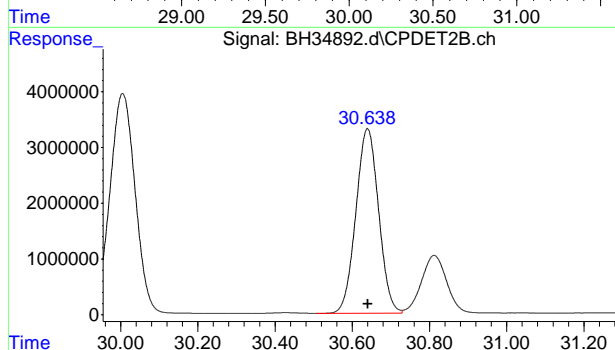
#30 1,2,4-trimethylbenzene #2

        R.T.:   30.639 min
Delta R.T.:   0.000 min
  Response: 135589282
        Conc: 51.44 ppb
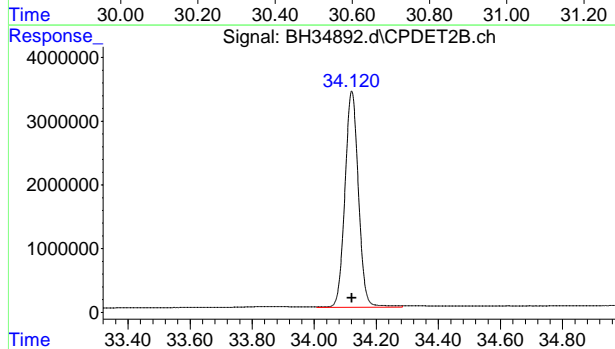
#31 naphthalene #2

        R.T.:   34.121 min
Delta R.T.:   0.000 min
  Response: 103062992
        Conc: 51.51 ppb

7.3.1

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34893.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   1:59 pm
Operator  : johnn
Sample    : bsd
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 4   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:46:13 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :
```

	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
6) s	fluorobenzene	18.055	13898534	51.760	ppb
Spiked Amount	50.000	Range 70 - 130	Recovery =	103.52%	
8) s	2,3,4-trifluorotoluene	24.091	10540056	48.890	ppb
Spiked Amount	50.000	Range 70 - 130	Recovery =	97.78%	
23) s	fluorobenzene #2	18.055	90824296	50.148	ppb
Spiked Amount	50.000	Range 70 - 130	Recovery =	100.30%	
25) s	2,3,4-trifluorotoluen...	24.090	50684426	47.856	ppb
Spiked Amount	50.000	Range 70 - 130	Recovery =	95.71%	
	Target Compounds				
1)	pentane	6.933	10923649	45.365	ppb
2)	2-methylpentane	10.048	12936848	46.407	ppb
3)	Methyl Tert Butyl Ether	11.112	9555731	48.213	ppb
4)	2,2,4-trimethylpentane	16.505	14404664	52.056	ppb
5)	benzene	17.449	18829843	49.908	ppb
7)	toluene	22.654	18537471	49.802	ppb
9)	nonane	26.404	11140906	45.782	ppb
10)	ethylbenzene	26.887	18392236	49.621	ppb
11)	m,p-xylene	27.101	37221319	99.648	ppb
12)	o-xylene	28.195	19349539	49.628	ppb
13)	decane	29.550	10576382	49.819	ppb
14)	1,3,5-trimethylbenzene	30.006	19070687	50.871	ppb
15)	1,2,4-trimethylbenzene	30.641	18412745	49.959	ppb
16)	butylcyclohexane	30.814	11883755	49.447	ppb
17)	naphthalene	34.123	10402697	50.095	ppb
21)	Methyl Tert Butyl Eth...	11.112	59693379	45.159	ppb
22)	benzene #2	17.450	150871083	47.163	ppb
24)	toluene #2	22.654	141128694	48.628	ppb
26)	ethylbenzene #2	26.886	129545128	50.417	ppb
27) t	m,p-xylene #2	27.100	315762104	104.501	ppb
28)	o-xylene #2	28.193	136157325	52.408	ppb
29)	1,3,5-trimethylbenzen...	30.005	188167617	53.660	ppb
30)	1,2,4-trimethylbenzen...	30.639	140114861	53.154	ppb
31)	naphthalene #2	34.121	109017275	54.490	ppb

(f)=RT Delta > 1/2 Window   (m)=manual int.

7.3.2
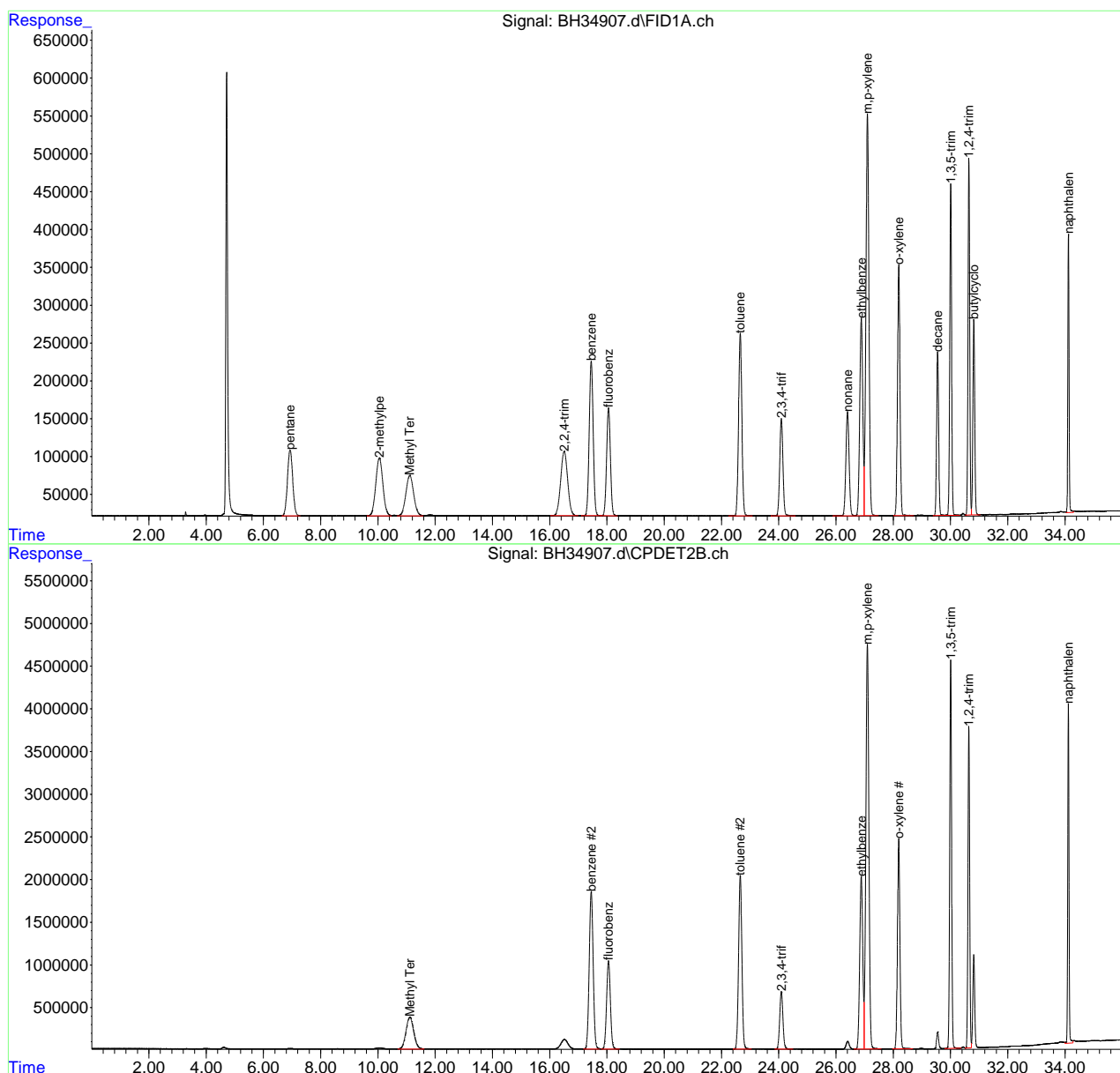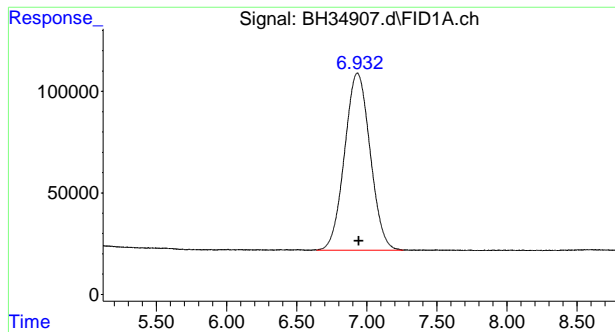
7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34893.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022   1:59 pm
Operator  : johnn
Sample    : bsd
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 4    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:46:13 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```
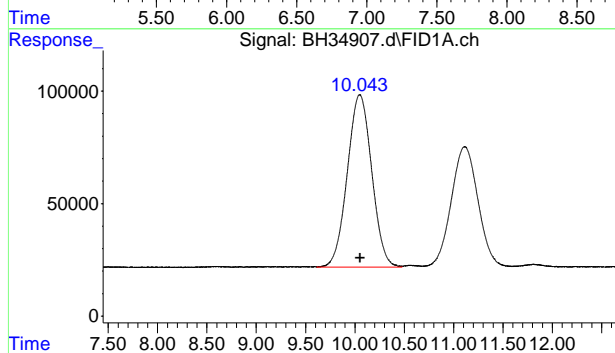
7.3.2

7

MBH1313.M Fri Oct 07 17:55:43 2022   Page: 2

Signal: BH34893.d\FID1A.ch

#1 pentane

        R.T.:   6.933 min
Delta R.T.:   -0.009 min
  Response: 10923649
     Conc: 45.36 ppb

Signal: BH34893.d\FID1A.ch

#2 2-methylpentane

        R.T.:   10.048 min
Delta R.T.:   -0.004 min
  Response: 12936848
     Conc: 46.41 ppb

Signal: BH34893.d\FID1A.ch
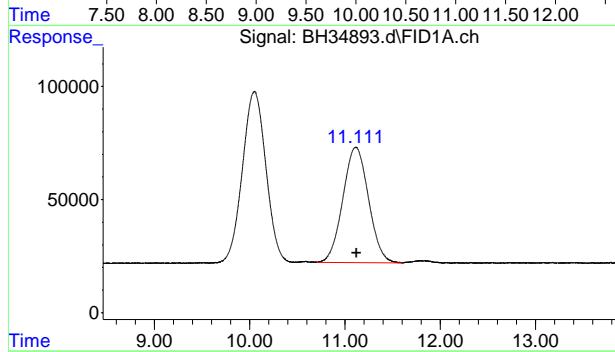
#3 Methyl Tert Butyl Ether

        R.T.:   11.112 min
Delta R.T.:   -0.009 min
  Response: 9555731
     Conc: 48.21 ppb

Signal: BH34893.d\FID1A.ch
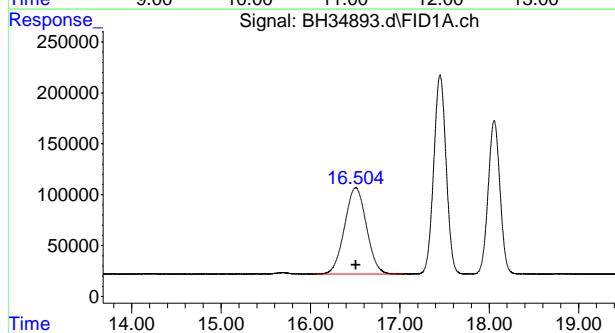
#4 2,2,4-trimethylpentane

        R.T.:   16.505 min
Delta R.T.:   -0.003 min
  Response: 14404664
     Conc: 52.06 ppb

7.3.2

7

Signal: BH34893.d\FID1A.ch
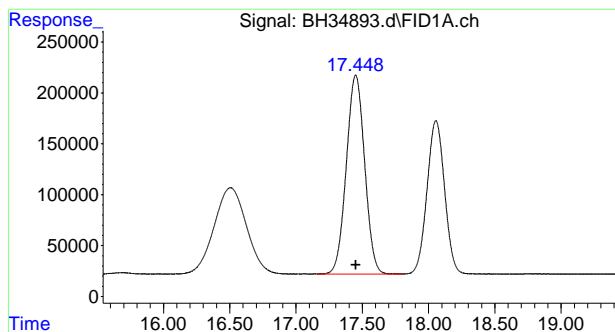
#5   benzene

```
      R.T.:    17.449 min
Delta R.T.:    -0.003 min
  Response:    18829843
      Conc:    49.91 ppb
```

Signal: BH34893.d\FID1A.ch
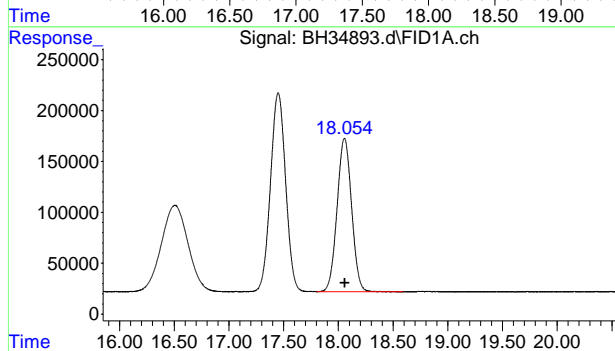
#6   fluorobenzene

```
      R.T.:    18.055 min
Delta R.T.:    -0.002 min
  Response:    13898534
      Conc:    51.76 ppb
```

Signal: BH34893.d\FID1A.ch
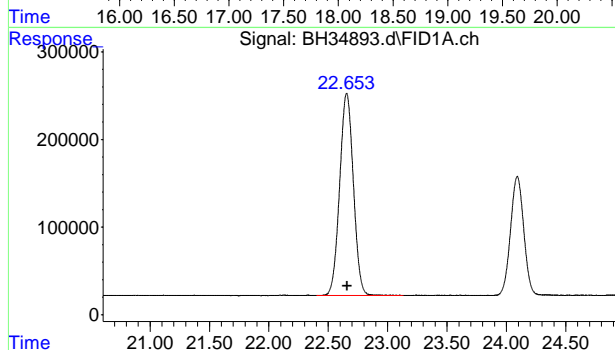
#7   toluene

```
      R.T.:    22.654 min
Delta R.T.:    -0.002 min
  Response:    18537471
      Conc:    49.80 ppb
```

Signal: BH34893.d\FID1A.ch
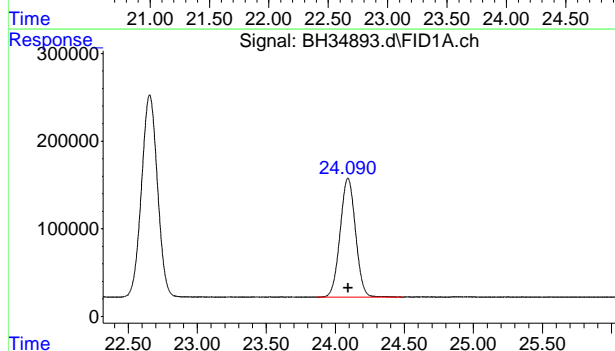
#8   2,3,4-trifluorotoluene

```
      R.T.:    24.091 min
Delta R.T.:    -0.001 min
  Response:    10540056
      Conc:    48.89 ppb
```

7.3.2

7

BH34893.D: GBH1321-BSD Blank Spike Duplicate   page 4 of 9
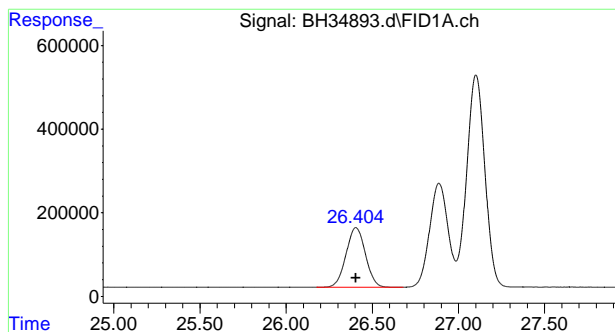
#9 nonane

```
       R.T.:    26.404 min
Delta R.T.:     0.000 min
  Response:  11140906
      Conc:    45.78 ppb
```
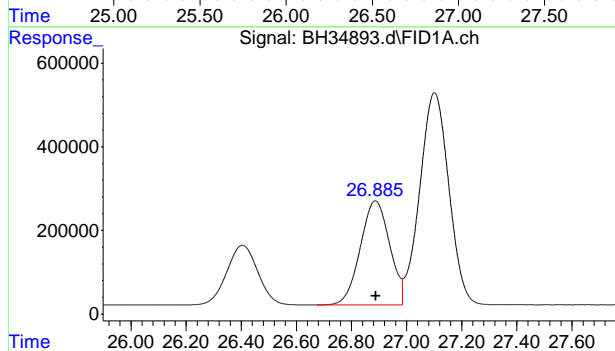
#10 ethylbenzene

```
       R.T.:    26.887 min
Delta R.T.:    -0.001 min
  Response:  18392236
      Conc:    49.62 ppb
```
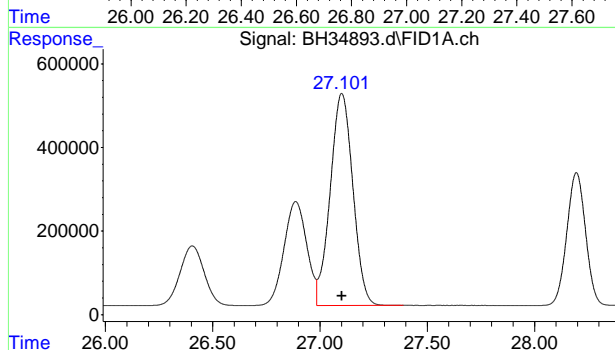
#11 m,p-xylene

```
       R.T.:    27.101 min
Delta R.T.:    -0.001 min
  Response:  37221319
      Conc:    99.65 ppb
```
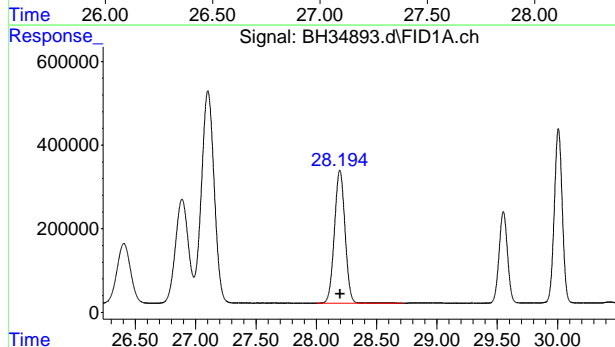
#12 o-xylene

```
       R.T.:    28.195 min
Delta R.T.:     0.000 min
  Response:  19349539
      Conc:    49.63 ppb
```

7.3.2

7
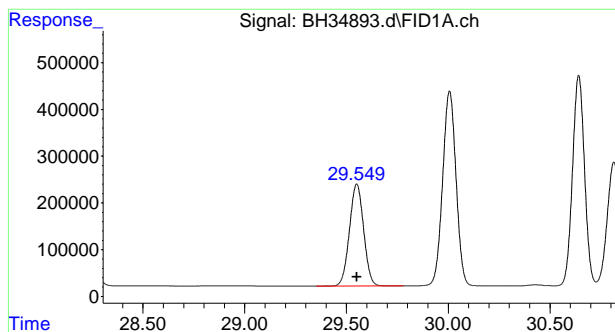
#13 decane
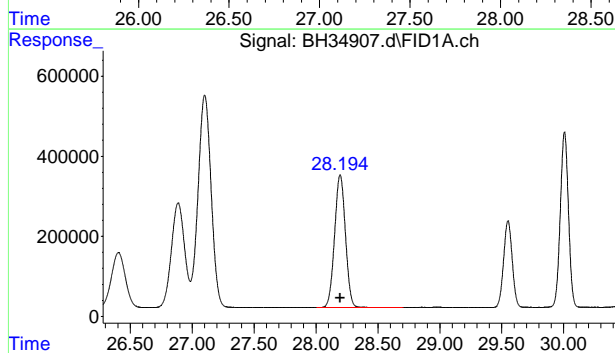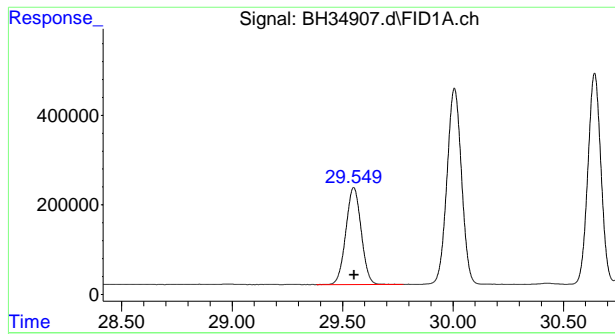
          R.T.:   29.550 min
Delta R.T.:   0.000 min
   Response: 10576382
          Conc: 49.82 ppb
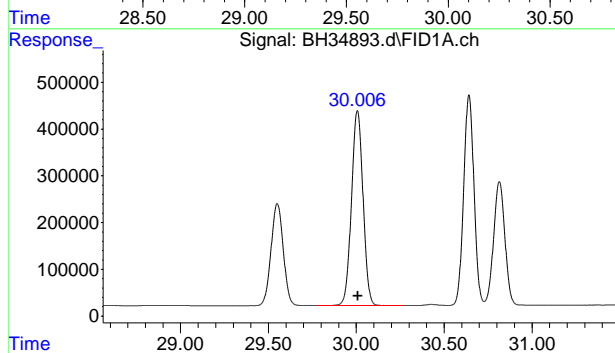
#14 1,3,5-trimethylbenzene

          R.T.:   30.006 min
Delta R.T.:   -0.001 min
   Response: 19070687
          Conc: 50.87 ppb
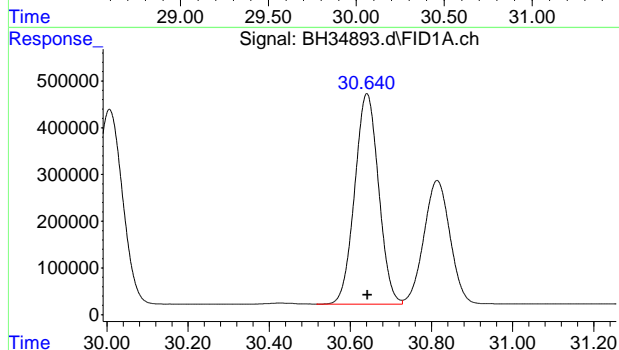
#15 1,2,4-trimethylbenzene

          R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 18412745
          Conc: 49.96 ppb
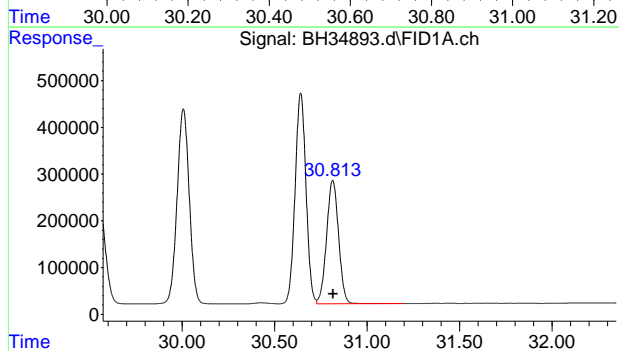
#16 butylcyclohexane

          R.T.:   30.814 min
Delta R.T.:   0.000 min
   Response: 11883755
          Conc: 49.45 ppb

7.3.2

7
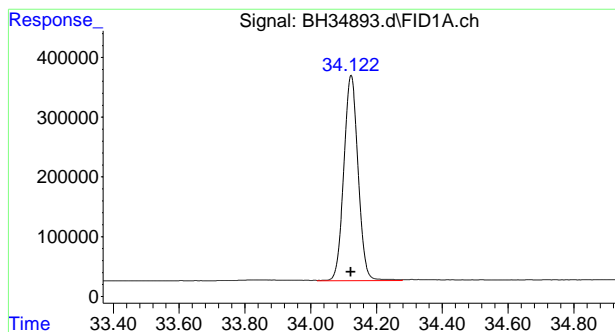
#17 naphthalene

        R.T.:   34.123 min
Delta R.T.:   0.000 min
  Response: 10402697
     Conc: 50.09 ppb
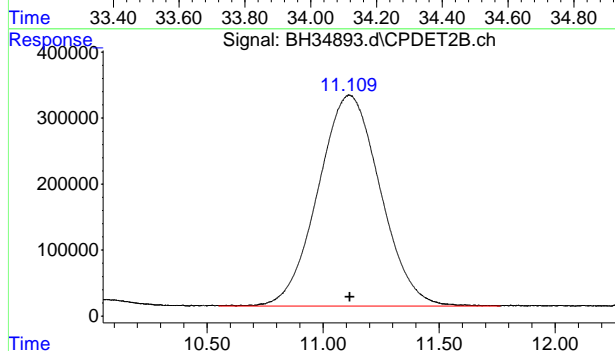
#21 Methyl Tert Butyl Ether #2

        R.T.:   11.112 min
Delta R.T.:   -0.003 min
  Response: 59693379
     Conc: 45.16 ppb
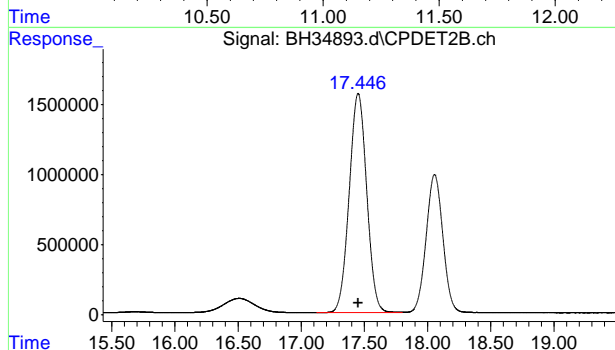
#22 benzene #2

        R.T.:   17.450 min
Delta R.T.:   -0.001 min
  Response: 150871083
     Conc: 47.16 ppb
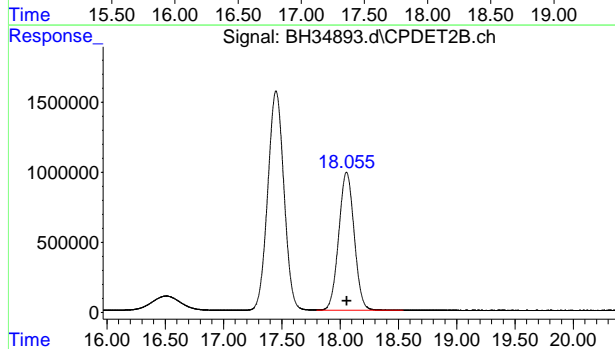
#23 fluorobenzene #2

        R.T.:   18.055 min
Delta R.T.:   0.000 min
  Response: 90824296
     Conc: 50.15 ppb

7.3.2

7
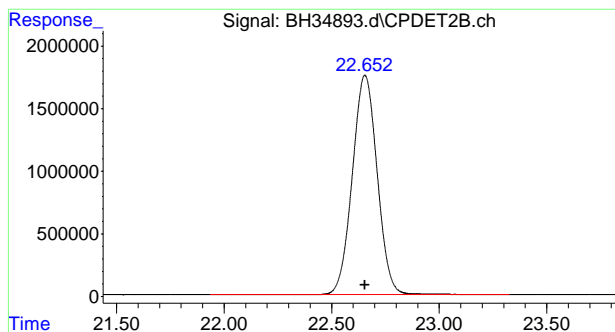
#24 toluene #2

         R.T.:   22.654 min
Delta R.T.:   0.000 min
   Response: 141128694
         Conc: 48.63 ppb
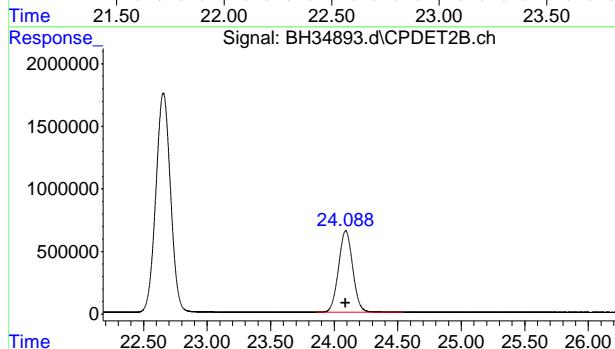
#25 2,3,4-trifluorotoluene #2

         R.T.:   24.090 min
Delta R.T.:   0.000 min
   Response: 50684426
         Conc: 47.86 ppb
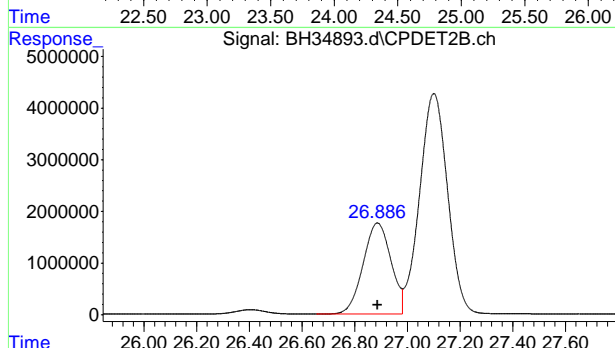
#26 ethylbenzene #2

         R.T.:   26.886 min
Delta R.T.:   0.000 min
   Response: 129545128
         Conc: 50.42 ppb
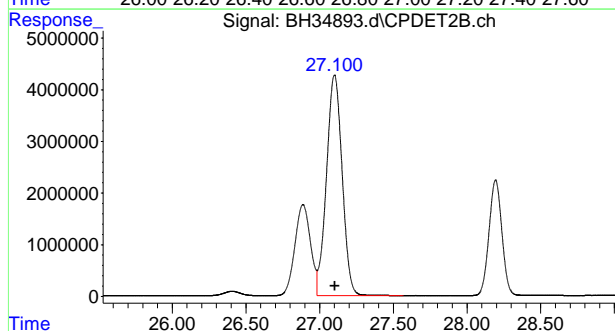
#27 m,p-xylene #2

         R.T.:   27.100 min
Delta R.T.:   0.000 min
   Response: 315762104
         Conc: 104.50 ppb

BH34893.d MBH1313.M   Fri Oct 07 17:55:46 2022

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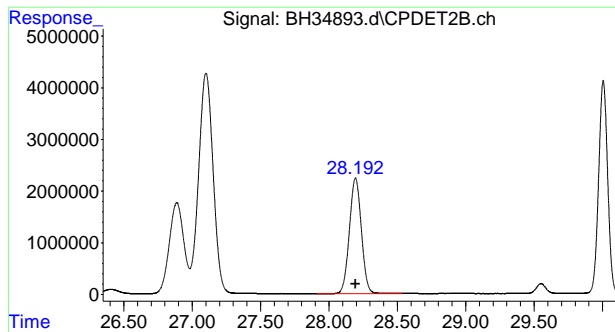
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
   Response: 136157325
          Conc: 52.41 ppb
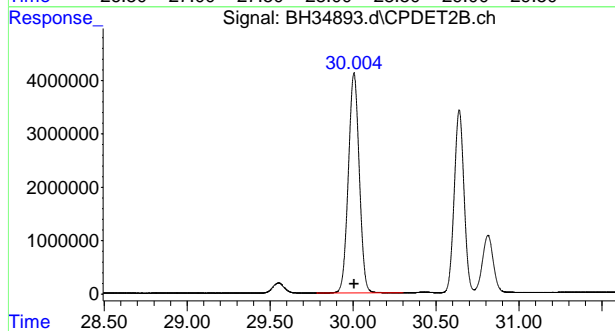
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.005 min
Delta R.T.:   0.000 min
   Response: 188167617
          Conc: 53.66 ppb
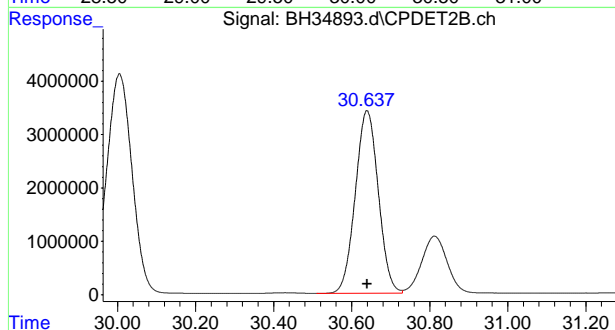
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.639 min
Delta R.T.:   0.000 min
   Response: 140114861
          Conc: 53.15 ppb
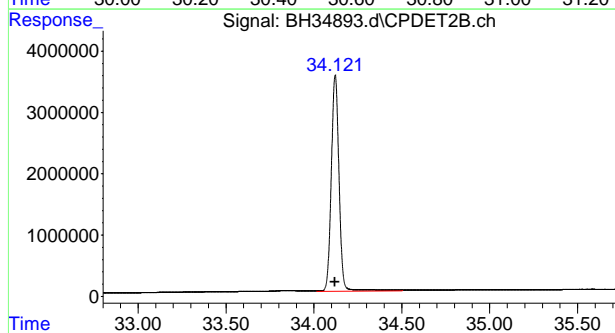
#31 naphthalene #2

          R.T.:   34.121 min
Delta R.T.:   0.000 min
   Response: 109017275
          Conc: 54.49 ppb

7.3.2

7

BH34893.d MBH1313.M   Fri Oct 07 17:55:46 2022

JD53080

SGS

```
                         Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34906.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  11:11 pm
Operator  : johnn
Sample    : jd53080-8ms
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 17   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:47:54 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

        Compound                   R.T.      Response    Conc Units
    -------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene              18.057     13999990   52.138 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  104.28%
 8) s   2,3,4-trifluorotoluene     24.091     10627411   49.295 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   98.59%
23) s   fluorobenzene #2           18.056     97550311   53.862 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  107.72%
25) s   2,3,4-trifluorotoluen...   24.089     54481255   51.441 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  102.88%

 Target Compounds
 1)     pentane                     6.941     10748604   44.638 ppb
 2)     2-methylpentane            10.052     12872878   46.177 ppb
 3)     Methyl Tert Butyl Ether    11.117     10243750   51.684 ppb
 4)     2,2,4-trimethylpentane     16.507     14259822   51.533 ppb
 5)     benzene                    17.452     20559329   54.492 ppb
 7)     toluene                    22.655     20278811   54.480 ppb
 9)     nonane                     26.405     10981188   45.126 ppb
10)     ethylbenzene               26.887     20171717   54.422 ppb
11)     m,p-xylene                 27.102     40717422  109.008 ppb
12)     o-xylene                   28.195     21056403   54.006 ppb
13)     decane                     29.550     10401584   48.996 ppb
14)     1,3,5-trimethylbenzene     30.006     20780383   55.432 ppb
15)     1,2,4-trimethylbenzene     30.641     19931787   54.080 ppb
16)     butylcyclohexane           30.814     11687240   48.629 ppb
17)     naphthalene                34.122     10941787   52.691 ppb
21)     Methyl Tert Butyl Eth...   11.119     66212699   50.091 ppb
22)     benzene #2                 17.451    176171462   55.072 ppb
24)     toluene #2                 22.654    165189079   56.918 ppb
26)     ethylbenzene #2            26.886    151253421   58.865 ppb
27) t   m,p-xylene #2              27.100    358017509  118.485 ppb
28)     o-xylene #2                28.193    153540607   59.099 ppb
29)     1,3,5-trimethylbenzen...   30.004    212726342   60.663 ppb
30)     1,2,4-trimethylbenzen...   30.639    157162084   59.621 ppb
31)     naphthalene #2             34.120    117906817   58.934 ppb
    -------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

BH34906.D: JD53080-8MS Matrix Spike   page 1 of 9

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34906.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  11:11 pm
Operator  : johnn
Sample    : jd53080-8ms
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 17   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:47:54 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.4.1

7

Signal: BH34906.d\FID1A.ch

Signal: BH34906.d\CPDET2B.ch

MBH1313.M Tue Oct 11 16:28:30 2022   Page: 2

#1 pentane

```
        R.T.:     6.941 min
Delta R.T.:    -0.001 min
  Response:  10748604
      Conc:  44.64 ppb
```
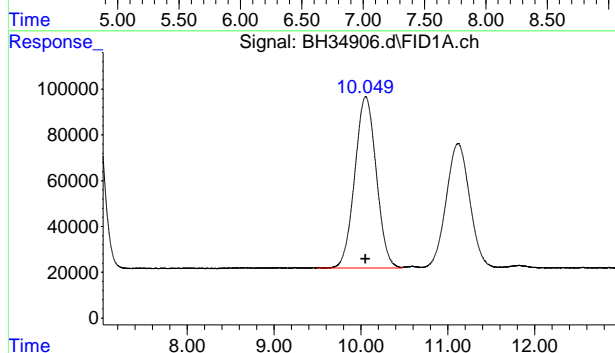

#2 2-methylpentane

```
        R.T.:    10.052 min
Delta R.T.:     0.000 min
  Response:  12872878
      Conc:  46.18 ppb
```
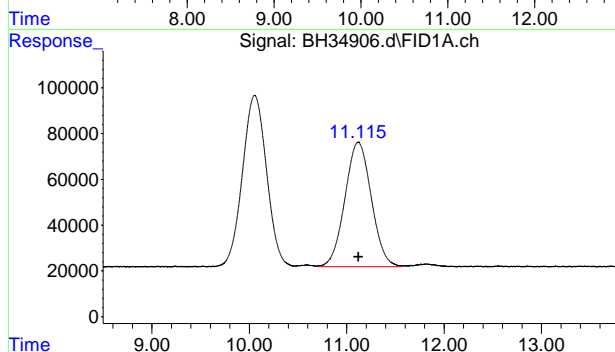

#3 Methyl Tert Butyl Ether

```
        R.T.:    11.117 min
Delta R.T.:    -0.003 min
  Response:  10243750
      Conc:  51.68 ppb
```
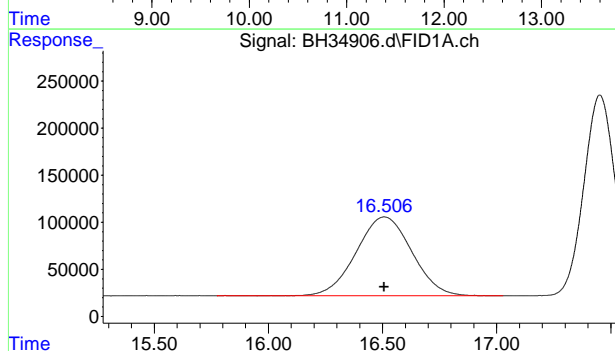

#4 2,2,4-trimethylpentane

```
        R.T.:    16.507 min
Delta R.T.:     0.000 min
  Response:  14259822
      Conc:  51.53 ppb
```

BH34906.D: JD53080-8MS Matrix Spike   page 3 of 9
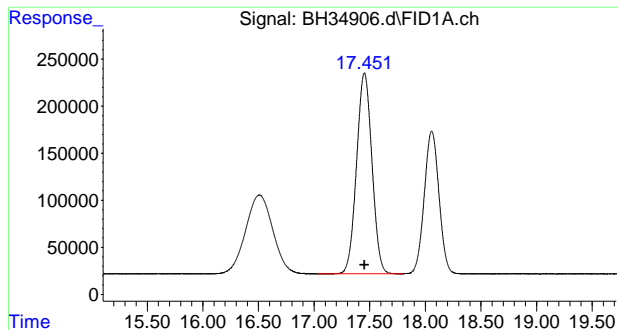
#5   benzene

```
        R.T.:     17.452 min
Delta R.T.:      0.000 min
  Response:    20559329
      Conc:    54.49 ppb
```
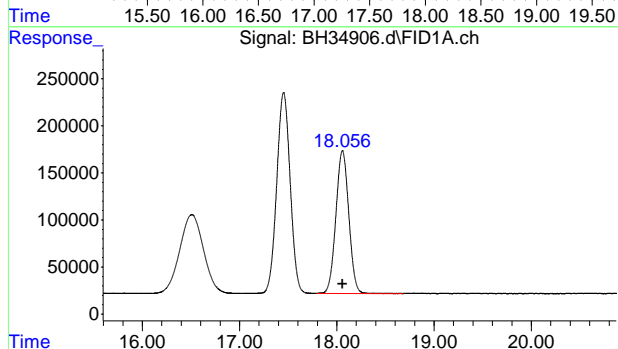
#6   fluorobenzene

```
        R.T.:     18.057 min
Delta R.T.:      0.000 min
  Response:    13999990
      Conc:    52.14 ppb
```
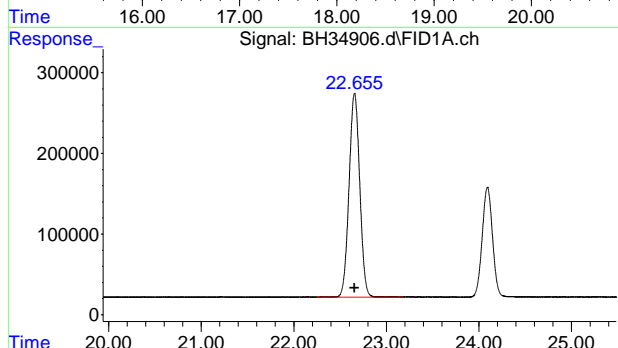
#7   toluene

```
        R.T.:     22.655 min
Delta R.T.:      0.000 min
  Response:    20278811
      Conc:    54.48 ppb
```
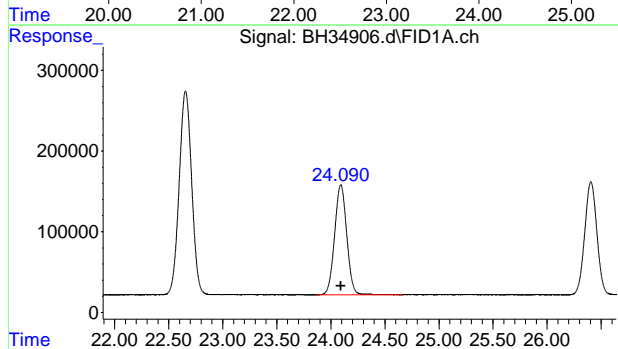
#8   2,3,4-trifluorotoluene

```
        R.T.:     24.091 min
Delta R.T.:      0.000 min
  Response:    10627411
      Conc:    49.29 ppb
```

7.4.1

7

```
BH34906.d   MBH1313.M     Tue Oct 11 16:28:31 2022
```
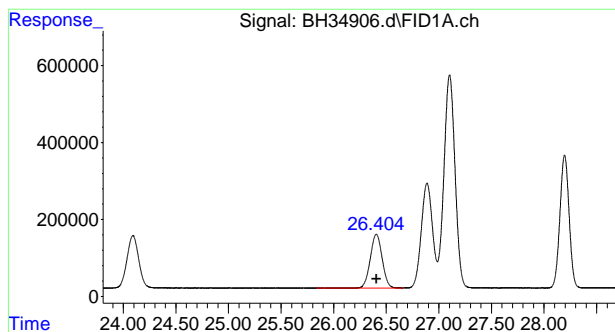
#9   nonane

```
       R.T.:     26.405 min
Delta R.T.:      0.000 min
  Response:   10981188
      Conc:   45.13 ppb
```
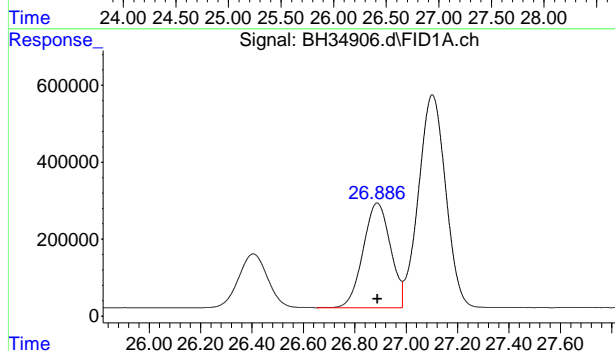
#10 ethylbenzene

```
       R.T.:     26.887 min
Delta R.T.:      0.000 min
  Response:   20171717
      Conc:   54.42 ppb
```
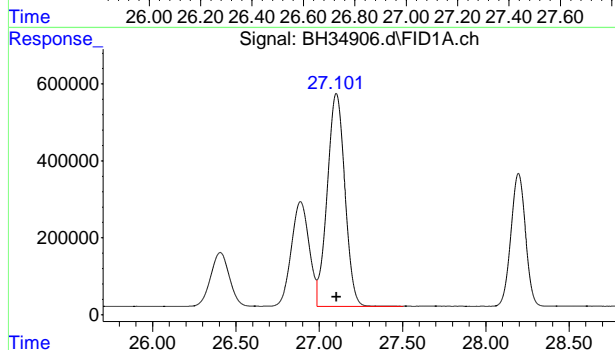
#11 m,p-xylene

```
       R.T.:     27.102 min
Delta R.T.:     -0.001 min
  Response:   40717422
      Conc:  109.01 ppb
```
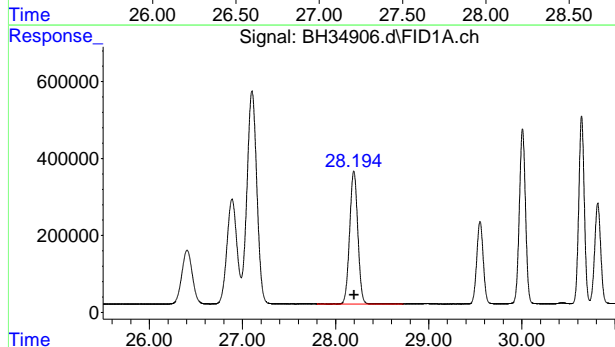
#12 o-xylene

```
       R.T.:     28.195 min
Delta R.T.:      0.000 min
  Response:   21056403
      Conc:   54.01 ppb
```

7.4.1

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BH34906.d   MBH1313.M   Tue Oct 11 16:28:32 2022
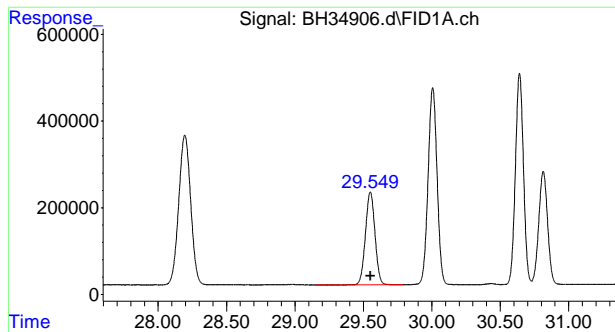
#13 decane

        R.T.:   29.550 min
Delta R.T.:   0.000 min
   Response: 10401584
        Conc: 49.00 ppb
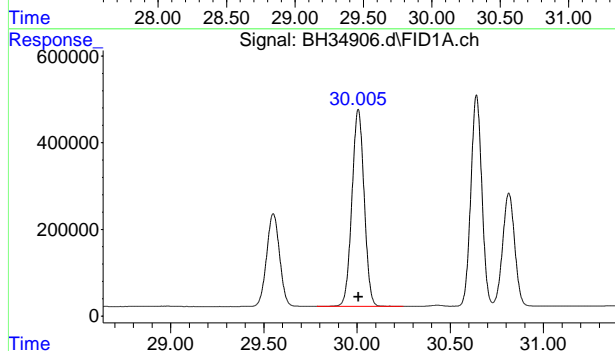
#14 1,3,5-trimethylbenzene

        R.T.:   30.006 min
Delta R.T.:   -0.001 min
   Response: 20780383
        Conc: 55.43 ppb
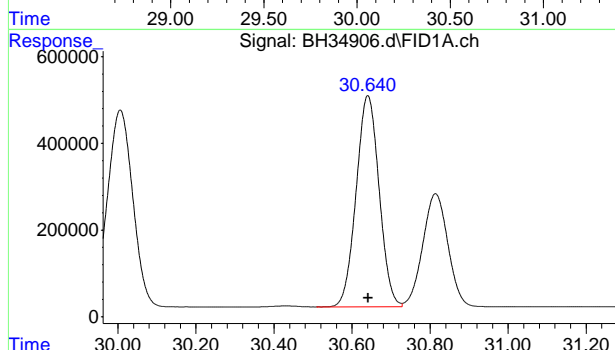
#15 1,2,4-trimethylbenzene

        R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 19931787
        Conc: 54.08 ppb

#16 butylcyclohexane

        R.T.:   30.814 min
Delta R.T.:   0.000 min
   Response: 11687240
        Conc: 48.63 ppb

7.4.1

7

BH34906.d   MBH1313.M   Tue Oct 11 16:28:32 2022
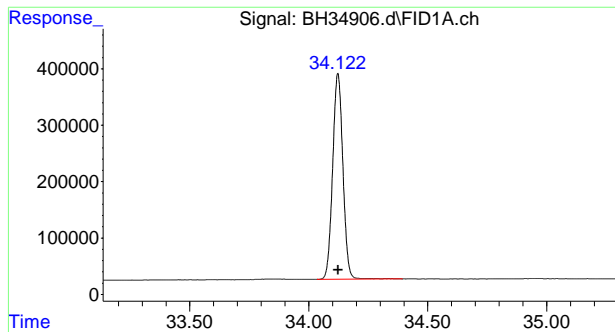
#17 naphthalene

R.T.:   34.122 min
Delta R.T.:   0.000 min
Response: 10941787
Conc: 52.69 ppb
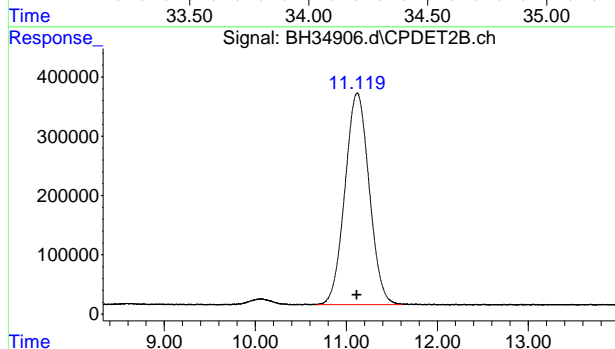
#21 Methyl Tert Butyl Ether #2

R.T.:   11.119 min
Delta R.T.:   0.004 min
Response: 66212699
Conc: 50.09 ppb
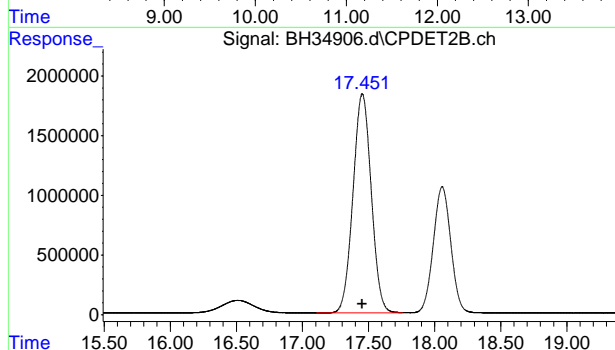
#22 benzene #2

R.T.:   17.451 min
Delta R.T.:   0.000 min
Response: 176171462
Conc: 55.07 ppb
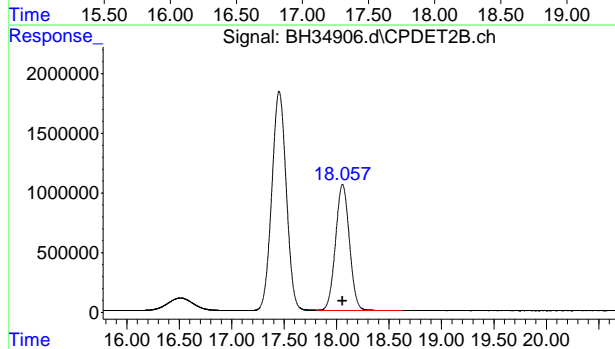
#23 fluorobenzene #2

R.T.:   18.056 min
Delta R.T.:   0.000 min
Response: 97550311
Conc: 53.86 ppb

7.4.1

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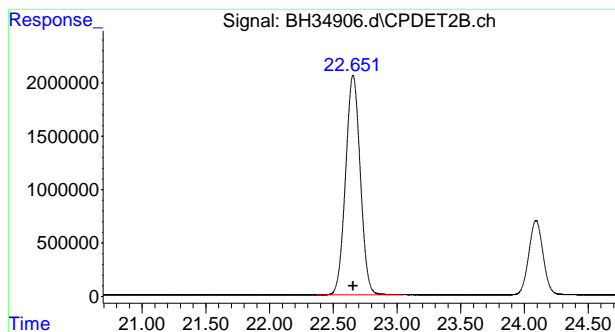
#24 toluene #2

```
        R.T.:    22.654 min
Delta R.T.:     0.000 min
  Response: 165189079
       Conc:   56.92 ppb
```
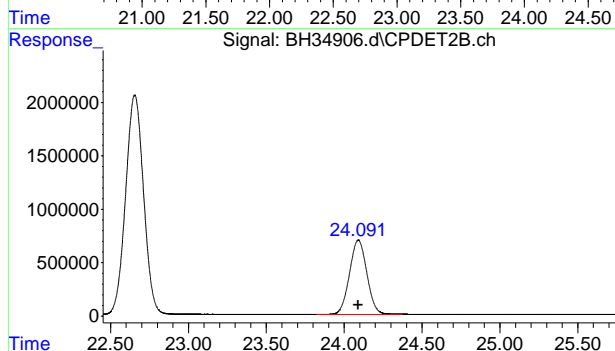
#25 2,3,4-trifluorotoluene #2

```
        R.T.:    24.089 min
Delta R.T.:     0.000 min
  Response: 54481255
       Conc:   51.44 ppb
```
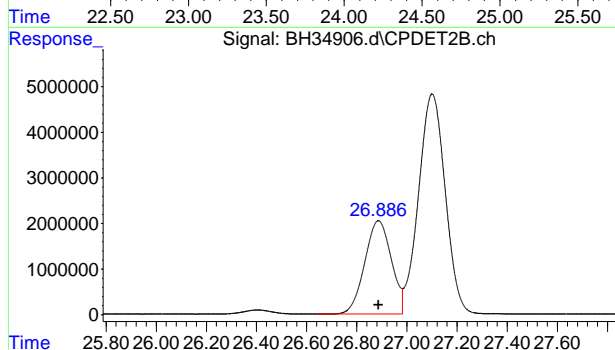
#26 ethylbenzene #2

```
        R.T.:    26.886 min
Delta R.T.:     0.000 min
  Response: 151253421
       Conc:   58.87 ppb
```
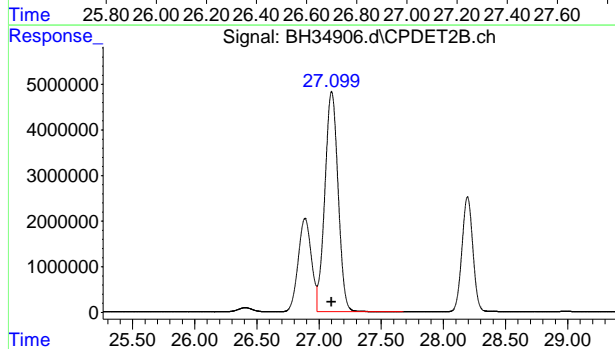
#27 m,p-xylene #2

```
        R.T.:    27.100 min
Delta R.T.:     0.000 min
  Response: 358017509
       Conc:  118.48 ppb
```

7.4.1

7

BH34906.d MBH1313.M   Tue Oct 11 16:28:33 2022

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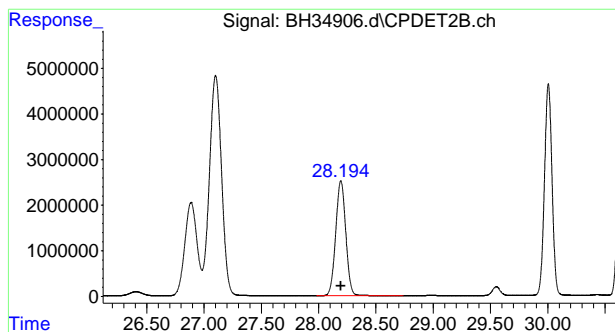
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
  Response: 153540607
      Conc: 59.10 ppb

#29 1,3,5-trimethylbenzene #2

          R.T.:   30.004 min
Delta R.T.:   0.000 min
  Response: 212726342
      Conc: 60.66 ppb
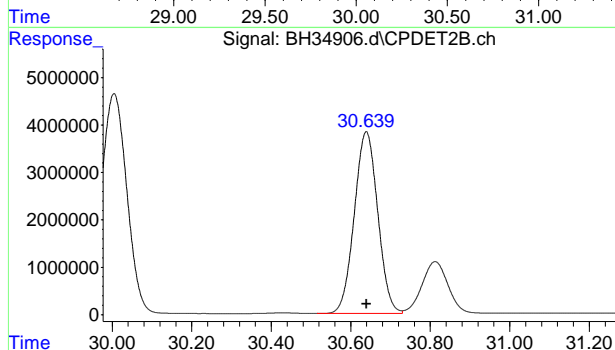
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.639 min
Delta R.T.:   0.000 min
  Response: 157162084
      Conc: 59.62 ppb
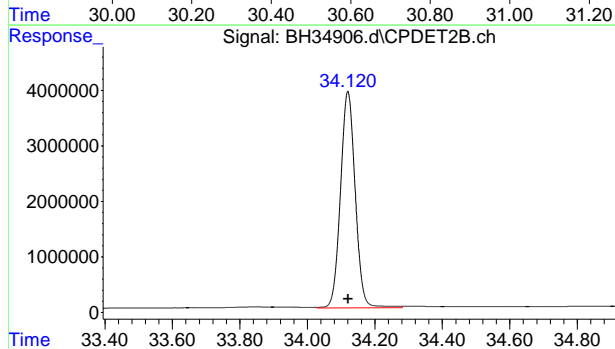
#31 naphthalene #2

          R.T.:   34.120 min
Delta R.T.:   0.000 min
  Response: 117906817
      Conc: 58.93 ppb

7.4.1

7

BH34906.D: JD53080-8MS Matrix Spike   page 9 of 9

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34907.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 6 Oct 2022 11:54 pm
Operator : johnn
Sample   : jd53080-8msd
Misc   : GC60364,GBH1321,5,,,,1
ALS Vial : 18   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:48:22 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

```
        Compound                 R.T.      Response    Conc Units
--------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.055    13163264   49.022 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   98.04%
 8) s   2,3,4-trifluorotoluene   24.091    10070779   46.713 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   93.43%
23) s   fluorobenzene #2         18.054    95490648   52.724 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  105.45%
25) s   2,3,4-trifluorotoluen... 24.090    52757902   49.814 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   99.63%

 Target Compounds
 1)     pentane                   6.932    11046358   45.874 ppb
 2)     2-methylpentane          10.046    13185009   47.297 ppb
 3)     Methyl Tert Butyl Ether  11.111    10102856   50.974 ppb
 4)     2,2,4-trimethylpentane   16.505    14462483   52.265 ppb
 5)     benzene                  17.450    19675814   52.150 ppb
 7)     toluene                  22.655    19417653   52.166 ppb
 9)     nonane                   26.405    10776093   44.283 ppb
10)     ethylbenzene             26.887    19340228   52.178 ppb
11)     m,p-xylene               27.101    39020831  104.466 ppb
12)     o-xylene                 28.195    20217104   51.853 ppb
13)     decane                   29.550    10473986   49.337 ppb
14)     1,3,5-trimethylbenzene   30.006    20088945   53.587 ppb
15)     1,2,4-trimethylbenzene   30.641    19288323   52.334 ppb
16)     butylcyclohexane         30.814    11604440   48.285 ppb
17)     naphthalene              34.123    11079732   53.355 ppb
21)     Methyl Tert Butyl Eth... 11.114    69532338   52.602 ppb
22)     benzene #2               17.451   176816453   55.273 ppb
24)     toluene #2               22.654   162834713   56.107 ppb
26)     ethylbenzene #2          26.886   149000021   57.988 ppb
27) t   m,p-xylene #2            27.100   350588629  116.026 ppb
28)     o-xylene #2              28.193   150194065   57.811 ppb
29)     1,3,5-trimethylbenzen... 30.005   208928356   59.580 ppb
30)     1,2,4-trimethylbenzen... 30.639   154015811   58.427 ppb
31)     naphthalene #2           34.121   120141924   60.051 ppb
--------------------------------------------------------------------
```

(f)=RT Delta > 1/2 Window   (m)=manual int.

7.4.2

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34907.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  11:54 pm
Operator  : johnn
Sample    : jd53080-8msd
Misc      : GC60364,GBH1321,5,,,,1
ALS Vial  : 18   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:48:22 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

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Signal: BH34907.d\FID1A.ch

#1 pentane

        R.T.:   6.932 min
Delta R.T.:   -0.010 min
  Response: 11046358
      Conc: 45.87 ppb

Signal: BH34907.d\FID1A.ch

#2 2-methylpentane

        R.T.:   10.046 min
Delta R.T.:   -0.007 min
  Response: 13185009
      Conc: 47.30 ppb

Signal: BH34907.d\FID1A.ch
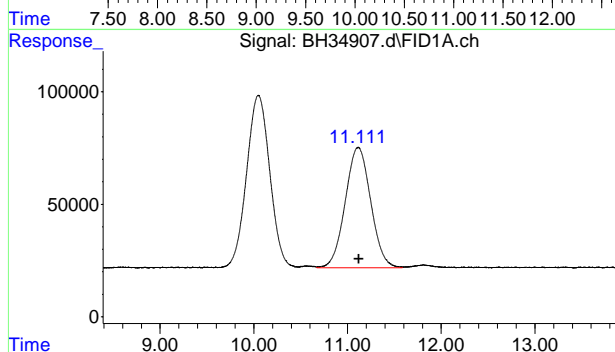
#3 Methyl Tert Butyl Ether

        R.T.:   11.111 min
Delta R.T.:   -0.010 min
  Response: 10102856
      Conc: 50.97 ppb

Signal: BH34907.d\FID1A.ch
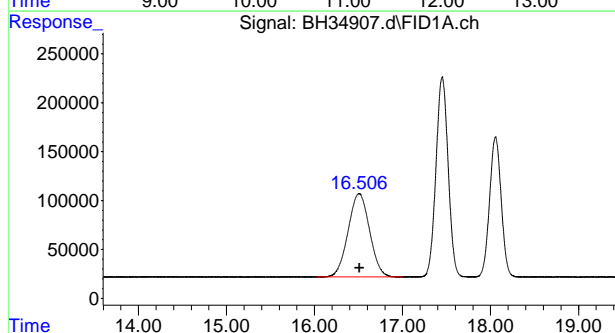
#4 2,2,4-trimethylpentane

        R.T.:   16.505 min
Delta R.T.:   -0.003 min
  Response: 14462483
      Conc: 52.27 ppb

7.4.2

7
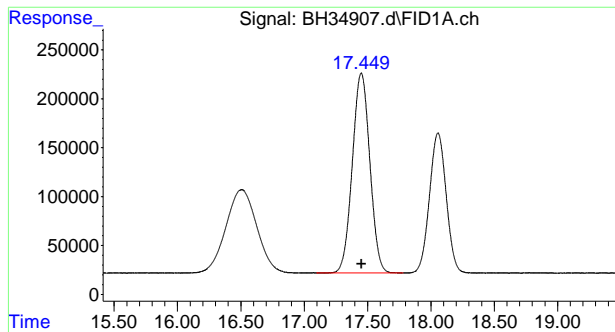
#5   benzene

R.T.:   17.450 min
Delta R.T.:   -0.002 min
Response: 19675814
Conc: 52.15 ppb
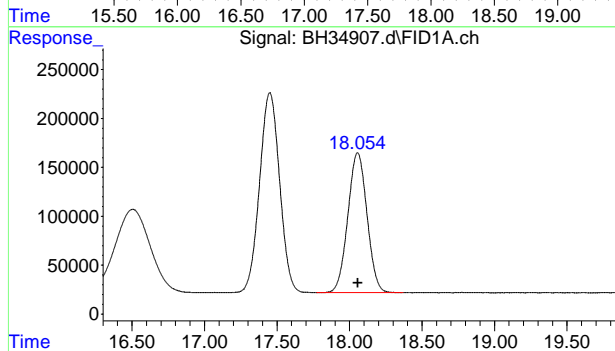
#6   fluorobenzene

R.T.:   18.055 min
Delta R.T.:   -0.002 min
Response: 13163264
Conc: 49.02 ppb
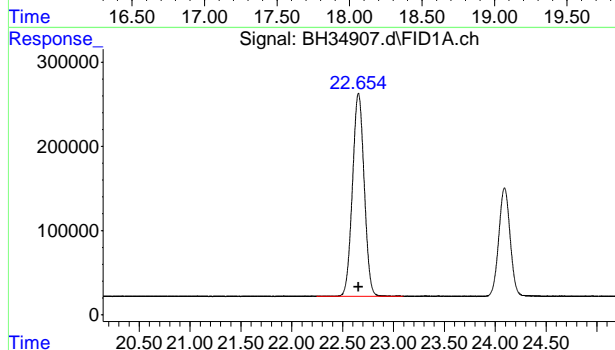
#7   toluene

R.T.:   22.655 min
Delta R.T.:   -0.002 min
Response: 19417653
Conc: 52.17 ppb
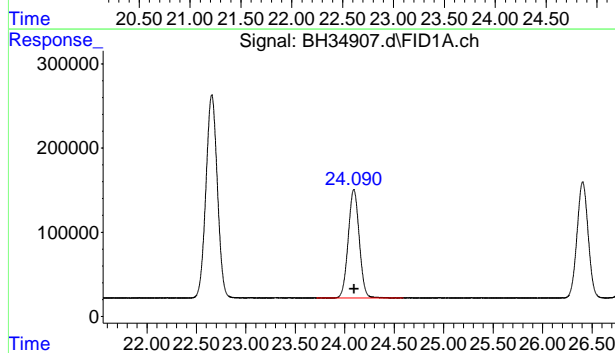
#8   2,3,4-trifluorotoluene

R.T.:   24.091 min
Delta R.T.:   -0.001 min
Response: 10070779
Conc: 46.71 ppb

7.4.2

7

BH34907.d   MBH1313.M   Tue Oct 11 16:28:41 2022   Page 5
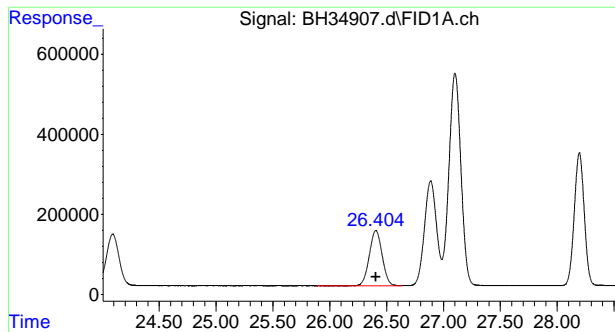
#9   nonane

```
        R.T.:   26.405 min
Delta R.T.:    0.000 min
  Response:  10776093
      Conc:  44.28 ppb
```
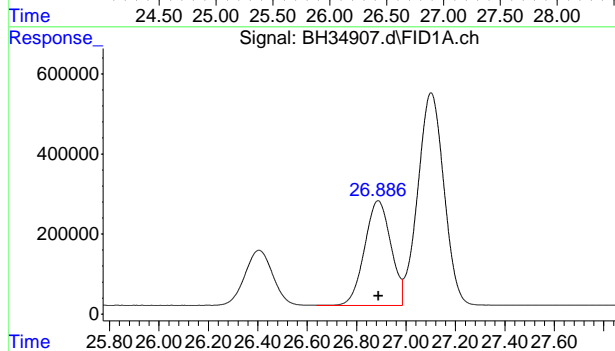

#10   ethylbenzene

```
        R.T.:   26.887 min
Delta R.T.:   -0.001 min
  Response:  19340228
      Conc:  52.18 ppb
```
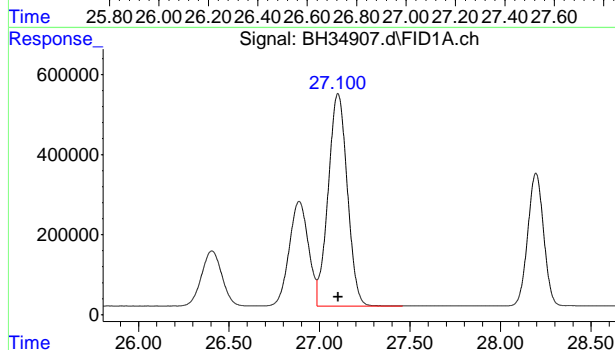

#11   m,p-xylene

```
        R.T.:   27.101 min
Delta R.T.:   -0.001 min
  Response:  39020831
      Conc: 104.47 ppb
```


#12   o-xylene

```
        R.T.:   28.195 min
Delta R.T.:    0.000 min
  Response:  20217104
      Conc:  51.85 ppb
```

7.4.2

7

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#13   decane

          R.T.:   29.550 min
Delta R.T.:   0.000 min
   Response: 10473986
         Conc: 49.34 ppb
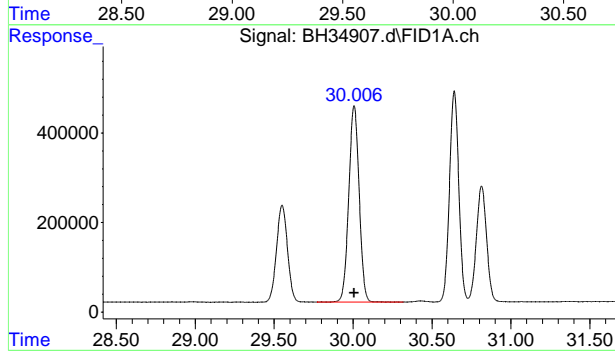
#14   1,3,5-trimethylbenzene

          R.T.:   30.006 min
Delta R.T.:   -0.001 min
   Response: 20088945
         Conc: 53.59 ppb
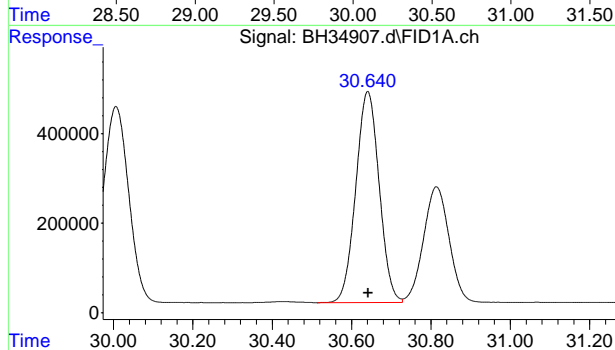
#15   1,2,4-trimethylbenzene

          R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 19288323
         Conc: 52.33 ppb
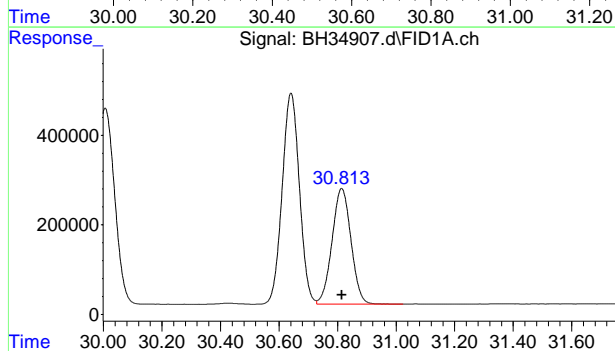
#16   butylcyclohexane

          R.T.:   30.814 min
Delta R.T.:   0.000 min
   Response: 11604440
         Conc: 48.28 ppb

BH34907.d   MBH1313.M   Tue Oct 11 16:28:42 2022
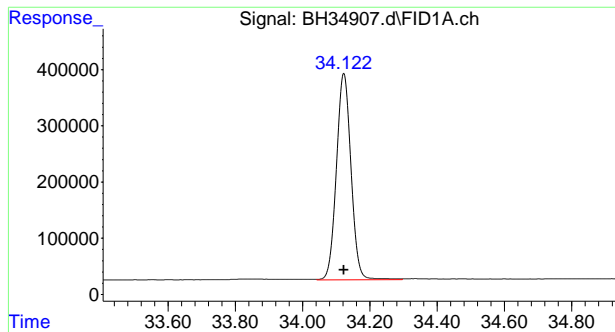
#17 naphthalene

```
      R.T.:    34.123 min
Delta R.T.:    0.000 min
  Response: 11079732
     Conc:  53.35 ppb
```
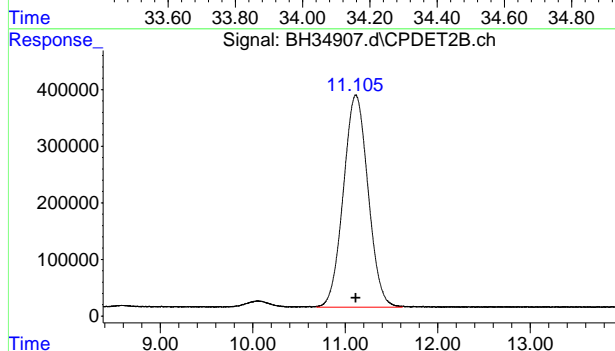
#21 Methyl Tert Butyl Ether #2

```
      R.T.:    11.114 min
Delta R.T.:   -0.001 min
  Response: 69532338
     Conc:  52.60 ppb
```
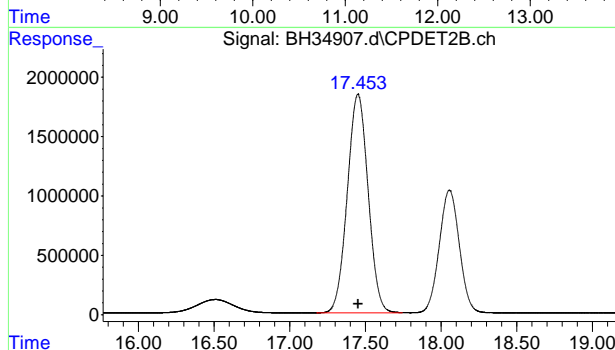
#22 benzene #2

```
      R.T.:    17.451 min
Delta R.T.:    0.000 min
  Response: 176816453
     Conc:  55.27 ppb
```
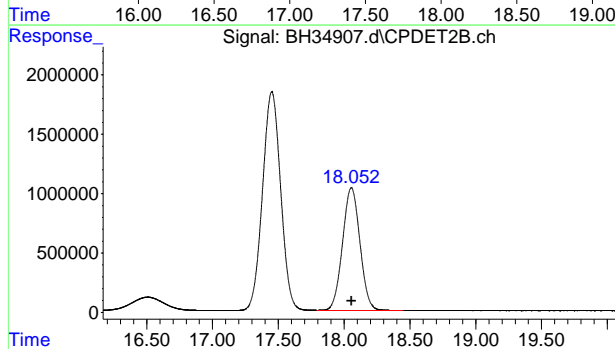
#23 fluorobenzene #2

```
      R.T.:    18.054 min
Delta R.T.:   -0.001 min
  Response: 95490648
     Conc:  52.72 ppb
```

7.4.2

7
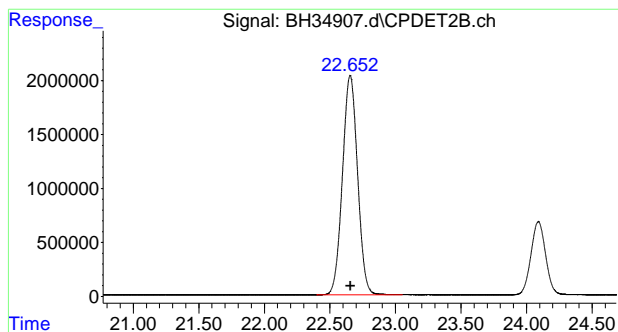
#24 toluene #2

```
        R.T.:    22.654 min
Delta R.T.:     0.000 min
  Response: 162834713
       Conc:  56.11 ppb
```
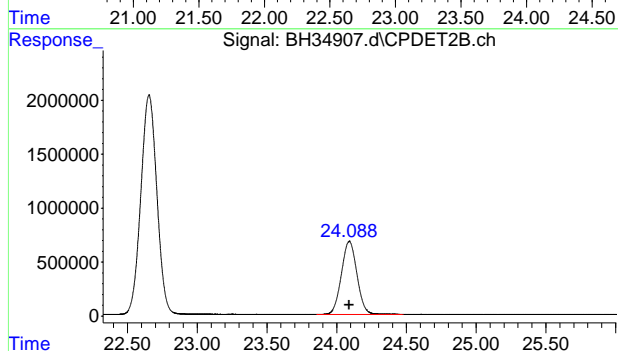
#25 2,3,4-trifluorotoluene #2

```
        R.T.:    24.090 min
Delta R.T.:     0.000 min
  Response: 52757902
       Conc:  49.81 ppb
```
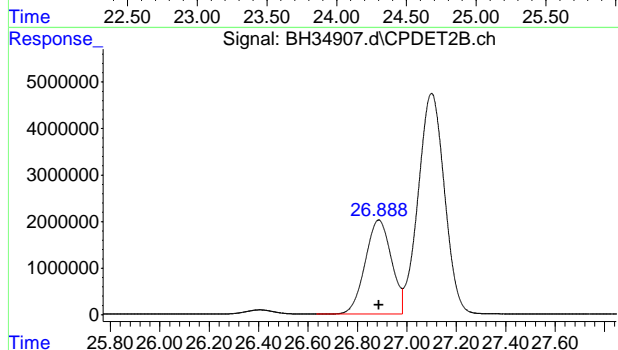
#26 ethylbenzene #2

```
        R.T.:    26.886 min
Delta R.T.:     0.000 min
  Response: 149000021
       Conc:  57.99 ppb
```
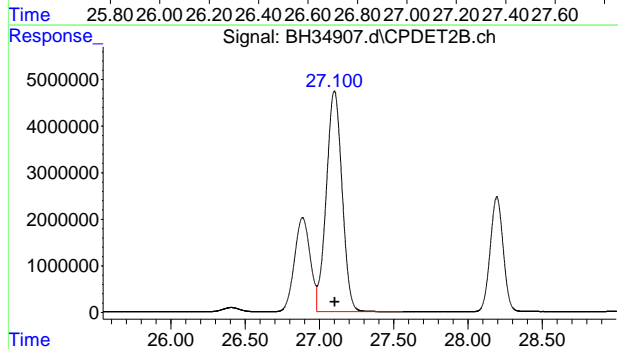
#27 m,p-xylene #2

```
        R.T.:    27.100 min
Delta R.T.:    -0.001 min
  Response: 350588629
       Conc: 116.03 ppb
```

BH34907.d MBH1313.M   Tue Oct 11 16:28:42 2022
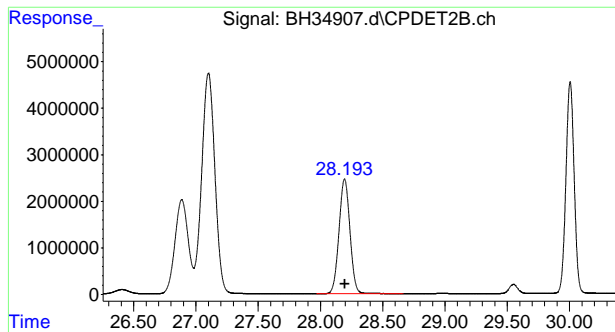
#28　o-xylene #2

　　　　R.T.:　　28.193 min
Delta R.T.:　　0.000 min
　Response: 150194065
　　　Conc:　57.81 ppb
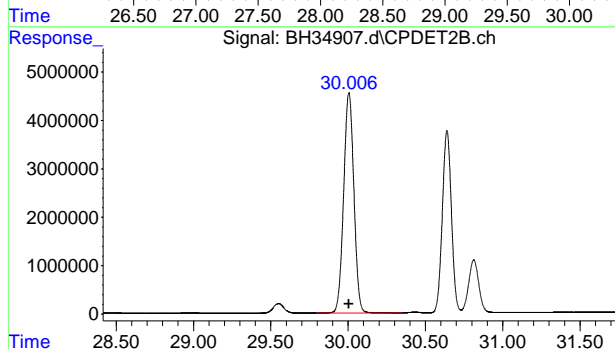
#29　1,3,5-trimethylbenzene #2

　　　　R.T.:　　30.005 min
Delta R.T.:　　0.000 min
　Response: 208928356
　　　Conc:　59.58 ppb
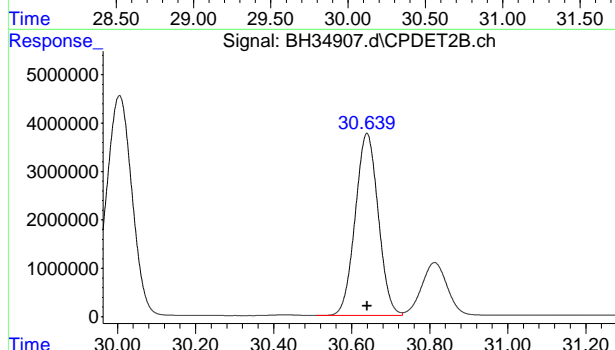
#30　1,2,4-trimethylbenzene #2

　　　　R.T.:　　30.639 min
Delta R.T.:　　0.000 min
　Response: 154015811
　　　Conc:　58.43 ppb
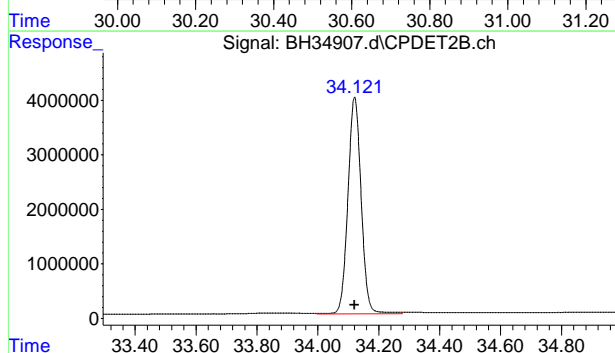
#31　naphthalene #2

　　　　R.T.:　　34.121 min
Delta R.T.:　　0.000 min
　Response: 120141924
　　　Conc:　60.05 ppb

7.4.2

7

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JD53080

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```
                      Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:34:39 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :

        Compound                  R.T.      Response    Conc Units
     ----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.057     13111356   49.582 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.16%
 8) s   2,3,4-trifluorotoluene   24.091     10586474   49.589 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.18%
23) s   fluorobenzene #2         18.056     87346775   48.677 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   97.35%
25) s   2,3,4-trifluorotoluen... 24.090     51348582   48.352 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   96.70%

 Target Compounds
 1)     pentane                   6.935       248615    1.020 ppb
 2)     2-methylpentane          10.065       322969    1.169 ppb   m
 3)     Methyl Tert Butyl Ether  11.131       222077    1.123 ppb   m
 4)     2,2,4-trimethylpentane   16.535f      332991    1.184 ppb   m
 5)     benzene                  17.459       395943    1.045 ppb
 7)     toluene                  22.655       381308    1.026 ppb
 9)     nonane                   26.412       257907    1.248 ppb
10)     ethylbenzene             26.894       414951    1.128 ppb
11)     m,p-xylene               27.106       777030    2.070 ppb
12)     o-xylene                 28.198       420145    1.086 ppb
13)     decane                   29.552       199193    1.068 ppb
14)     1,3,5-trimethylbenzene   30.011       375196    0.993 ppb
15)     1,2,4-trimethylbenzene   30.645       373832    1.006 ppb
16)     butylcyclohexane         30.818       242083    1.104 ppb
17)     naphthalene              34.126       189849    0.895 ppb
21)     Methyl Tert Butyl Eth... 11.129      1438204    1.086 ppb   m
22)     benzene #2               17.448      3419138    1.063 ppb
24)     toluene #2               22.658      2963752    1.003 ppb
26)     ethylbenzene #2          26.887      2539612    0.957 ppb
27) t   m,p-xylene #2            27.102      6075444    1.942 ppb
28)     o-xylene #2              28.198      2613243    0.981 ppb
29)     1,3,5-trimethylbenzen... 30.007      3470501    0.954 ppb
30)     1,2,4-trimethylbenzen... 30.643      2586281    0.943 ppb   m
31)     naphthalene #2           34.123      1737263    0.816 ppb   m
     ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
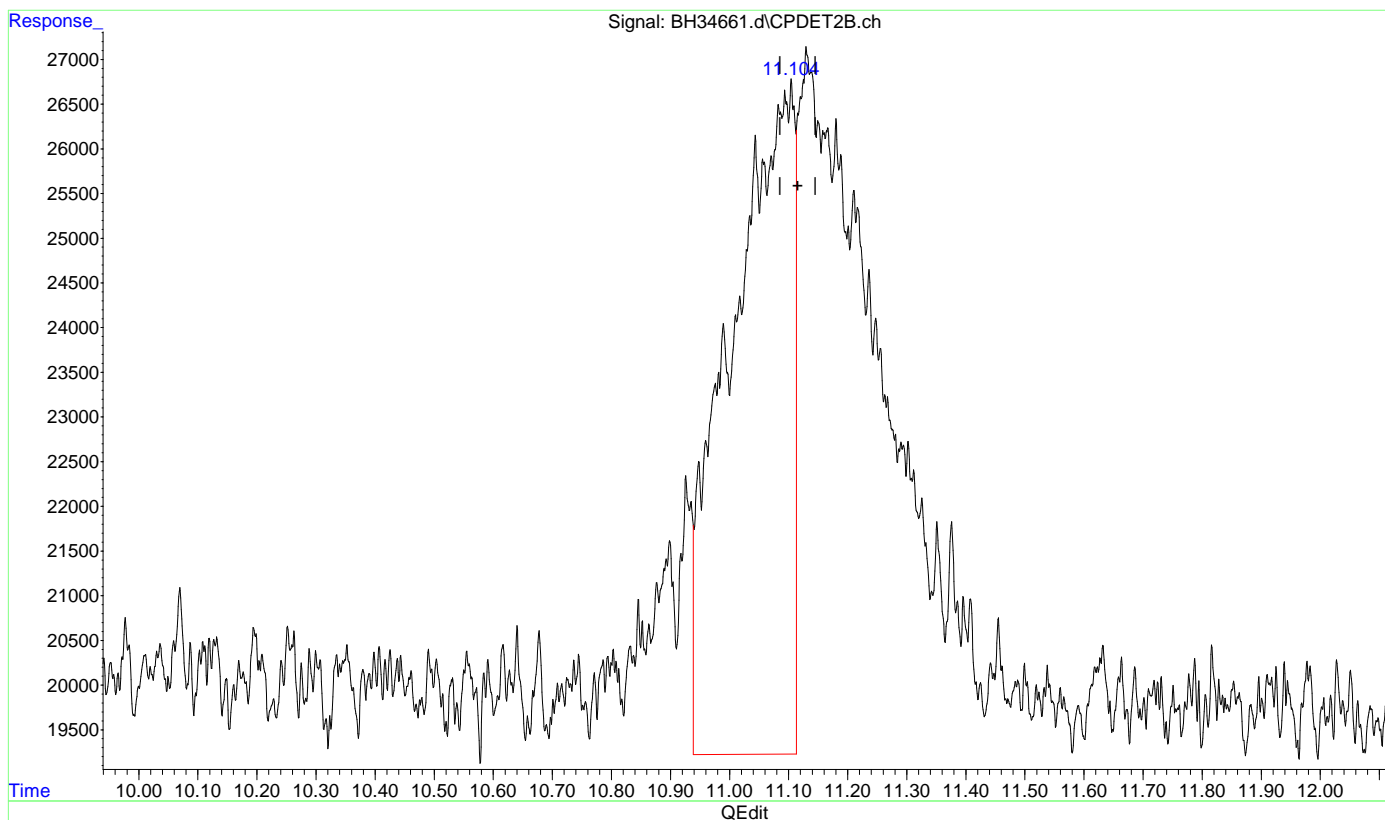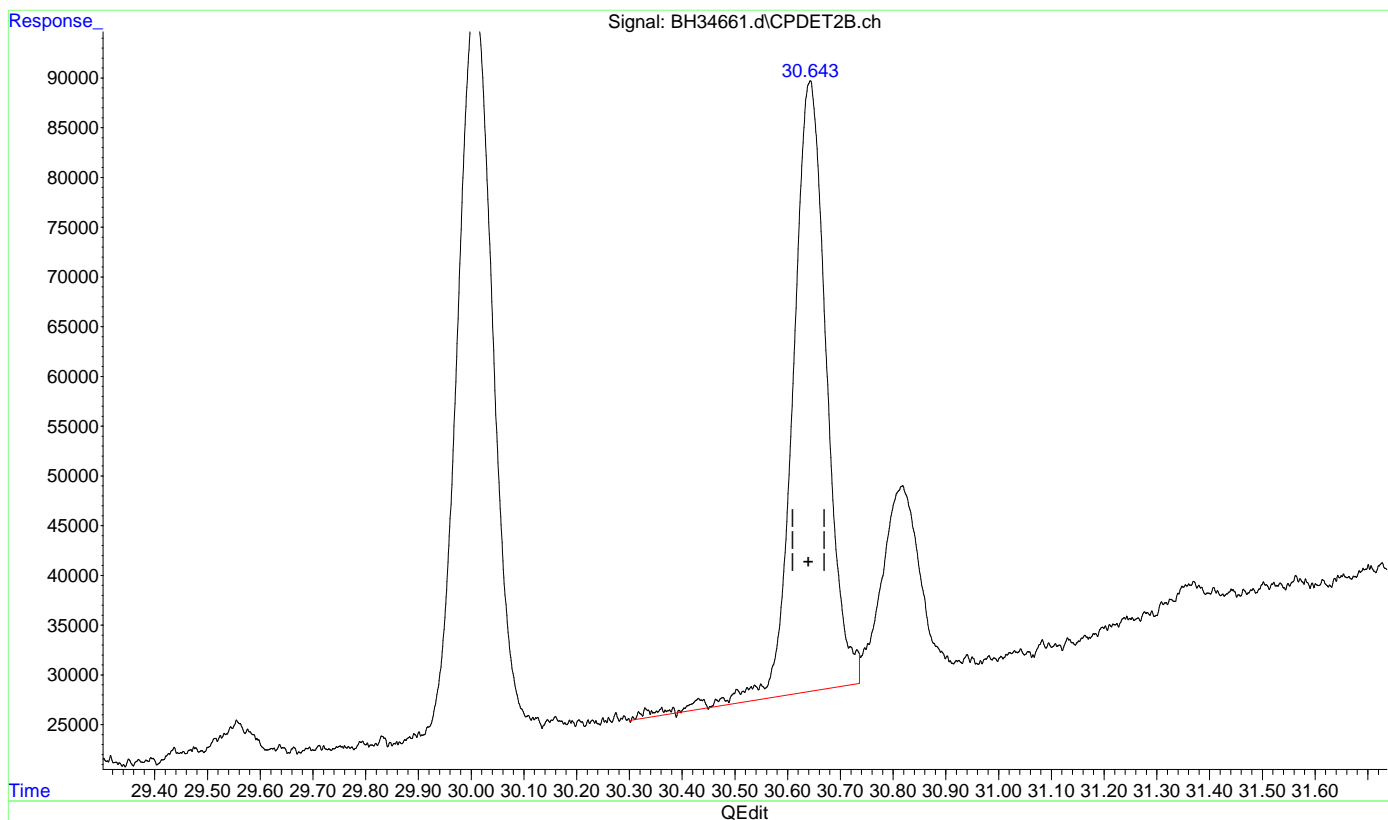
7.5.1

7

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:34:39 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```
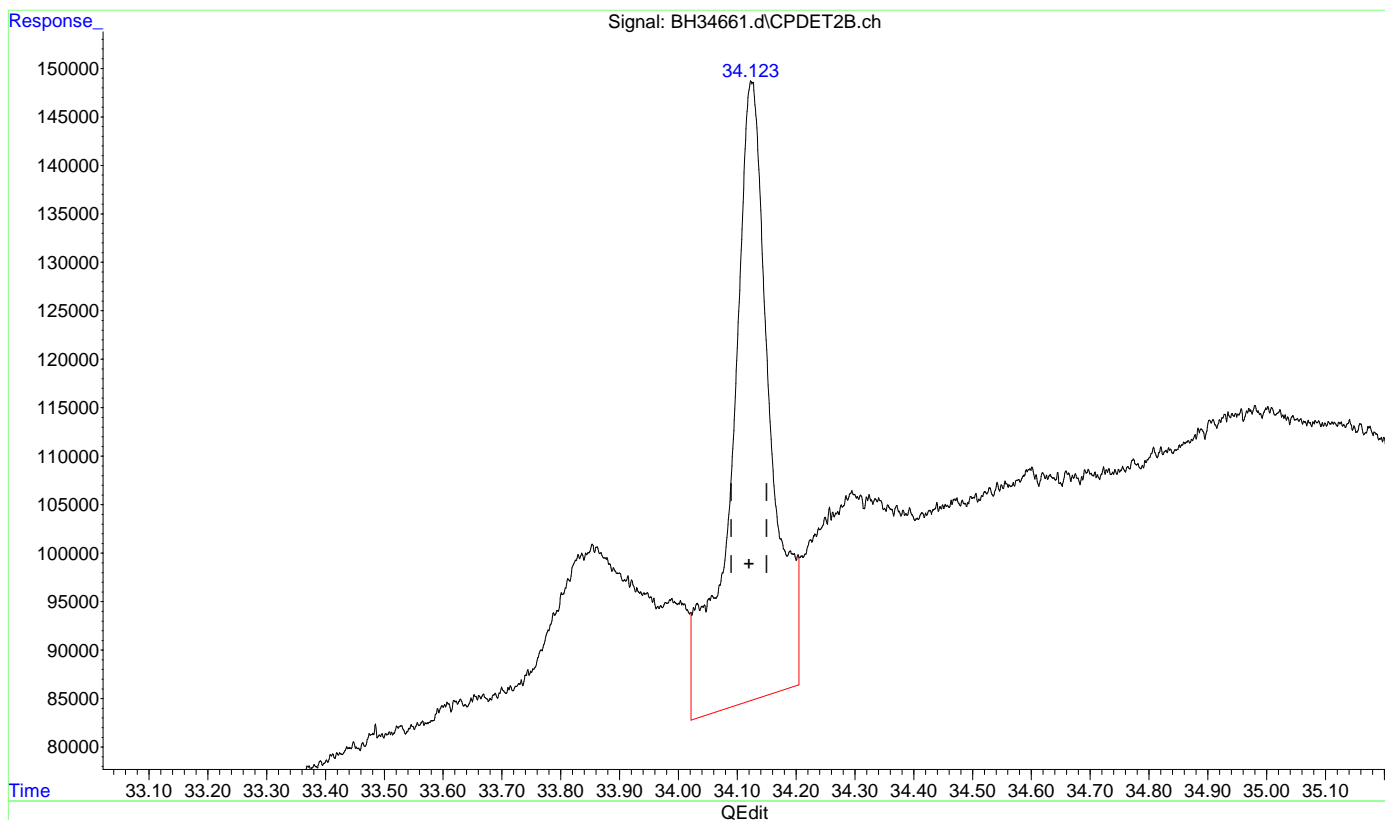


```
MBH1313.M Wed Sep 28 09:46:56 2022                          Page: 2
```

#1 pentane

R.T.:	6.935 min
Delta R.T.:	-0.007 min
Response:	248615
Conc:	1.02 ppb

#2 2-methylpentane

R.T.:	10.065 min
Delta R.T.:	0.013 min
Response:	322969
Conc:	1.17 ppb m

#3 Methyl Tert Butyl Ether

R.T.:	11.131 min
Delta R.T.:	0.011 min
Response:	222077
Conc:	1.12 ppb m

#4 2,2,4-trimethylpentane

R.T.:	16.535 min
Delta R.T.:	0.027 min
Response:	332991
Conc:	1.18 ppb m

7.5.1

7

BH34661.d MBH1313.M   Wed Sep 28 09:46:56 2022
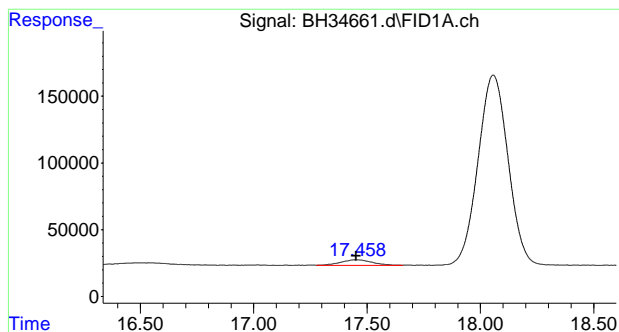
#5   benzene

```
          R.T.:    17.459 min
Delta R.T.:     0.007 min
   Response:     395943
       Conc:   1.05 ppb
```
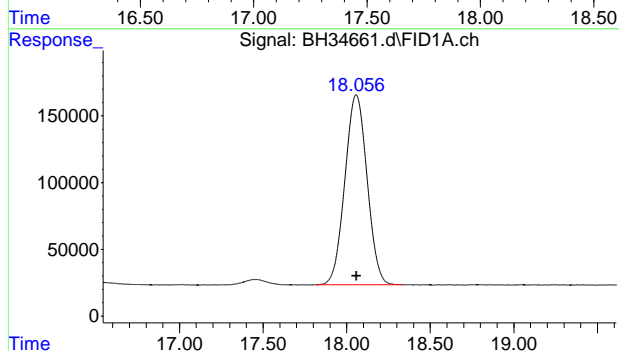
#6   fluorobenzene

```
          R.T.:    18.057 min
Delta R.T.:     0.000 min
   Response:   13111356
       Conc:  49.58 ppb
```
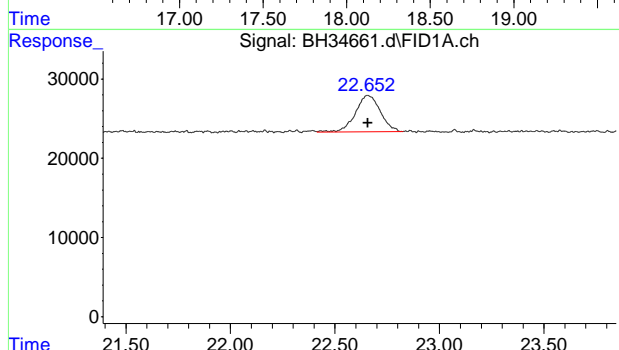
#7   toluene

```
          R.T.:    22.655 min
Delta R.T.:     0.000 min
   Response:     381308
       Conc:   1.03 ppb
```
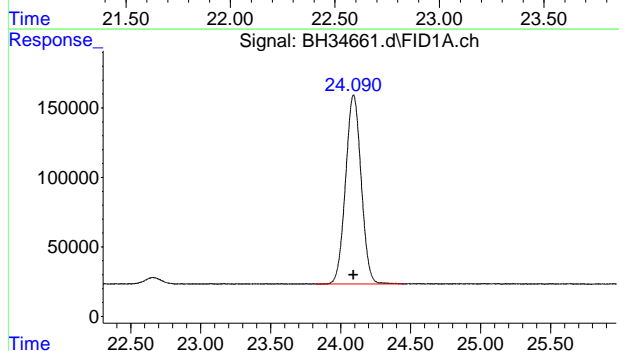
#8   2,3,4-trifluorotoluene

```
          R.T.:    24.091 min
Delta R.T.:     0.000 min
   Response:   10586474
       Conc:  49.59 ppb
```

7.5.1

7
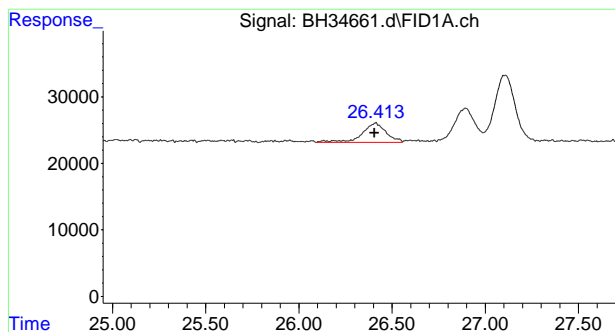
#9   nonane

R.T.:   26.412 min
Delta R.T.:   0.007 min
Response: 257907
Conc: 1.25 ppb
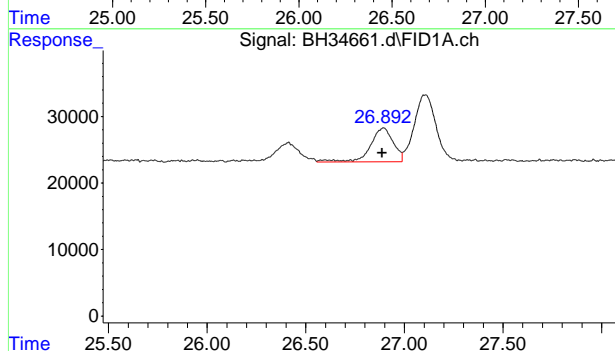
#10   ethylbenzene

R.T.:   26.894 min
Delta R.T.:   0.006 min
Response: 414951
Conc: 1.13 ppb
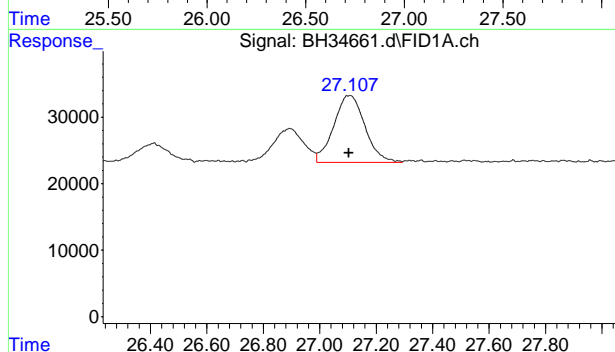
#11   m,p-xylene

R.T.:   27.106 min
Delta R.T.:   0.004 min
Response: 777030
Conc: 2.07 ppb
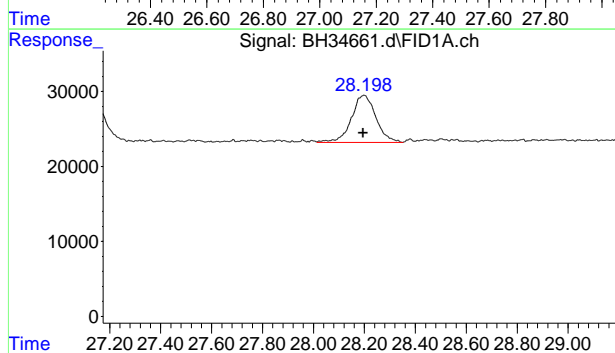
#12   o-xylene

R.T.:   28.198 min
Delta R.T.:   0.003 min
Response: 420145
Conc: 1.09 ppb

7.5.1

7
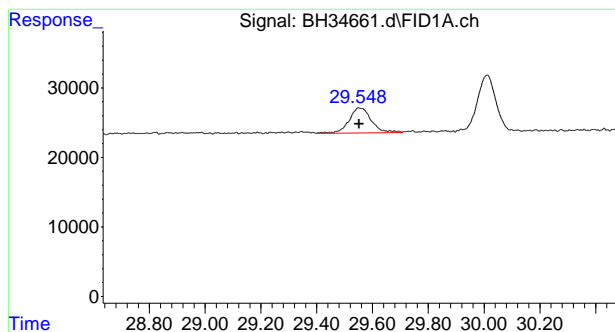
#13   decane

```
    R.T.:    29.552 min
Delta R.T.:   0.001 min
  Response:     199193
    Conc:    1.07 ppb
```
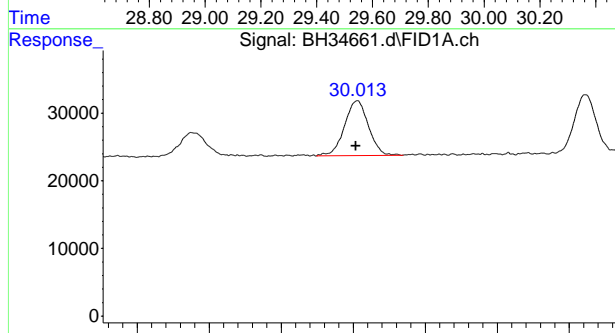
#14   1,3,5-trimethylbenzene

```
    R.T.:    30.011 min
Delta R.T.:   0.003 min
  Response:     375196
    Conc:    0.99 ppb
```
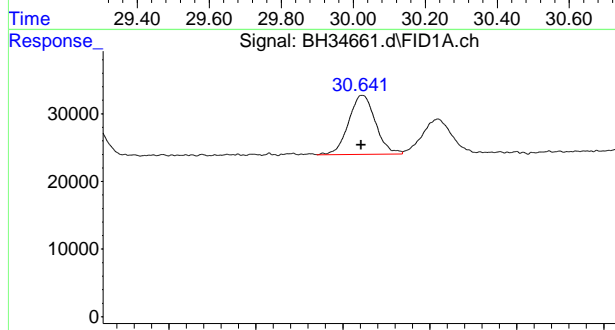
#15   1,2,4-trimethylbenzene

```
    R.T.:    30.645 min
Delta R.T.:   0.003 min
  Response:     373832
    Conc:    1.01 ppb
```
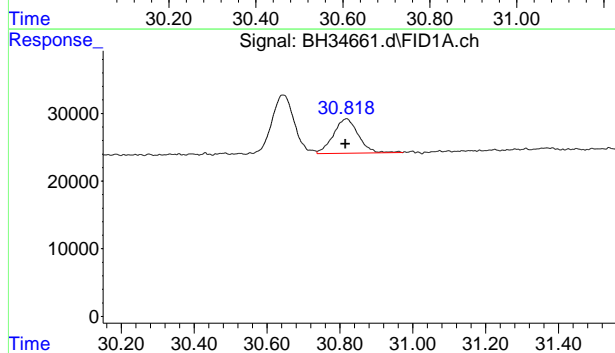
#16   butylcyclohexane

```
    R.T.:    30.818 min
Delta R.T.:   0.003 min
  Response:     242083
    Conc:    1.10 ppb
```

7.5.1

7
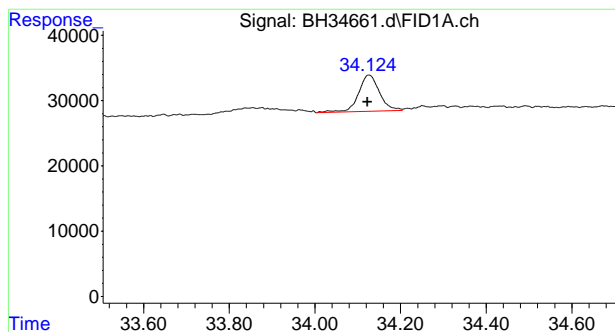
#17 naphthalene

```
        R.T.:    34.126 min
Delta R.T.:     0.004 min
   Response:      189849
        Conc:    0.89 ppb
```
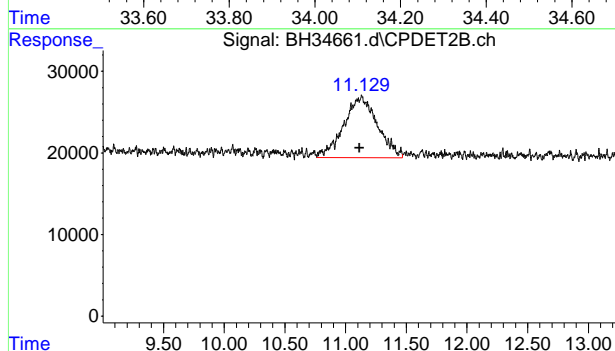
#21 Methyl Tert Butyl Ether #2

```
        R.T.:    11.129 min
Delta R.T.:     0.014 min
   Response:     1438204
        Conc:    1.09 ppb m
```
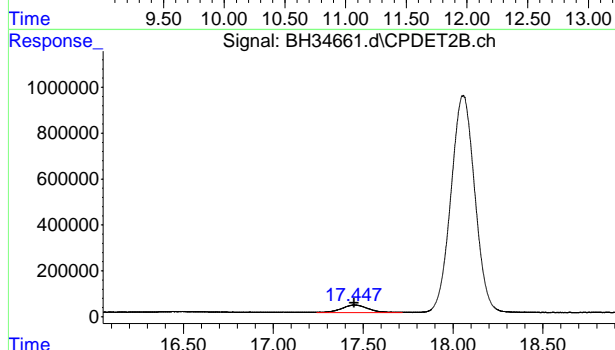
#22 benzene #2

```
        R.T.:    17.448 min
Delta R.T.:    -0.002 min
   Response:     3419138
        Conc:    1.06 ppb
```
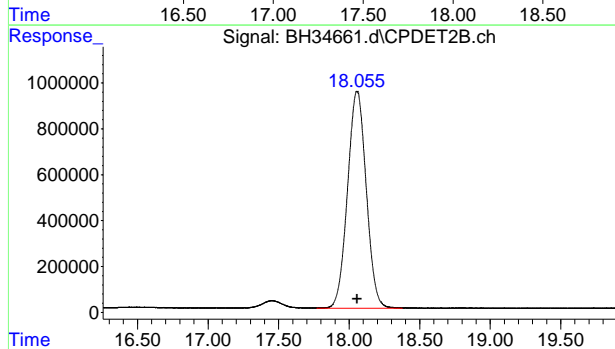
#23 fluorobenzene #2

```
        R.T.:    18.056 min
Delta R.T.:     0.000 min
   Response:    87346775
        Conc:   48.68 ppb
```

BH34661.d MBH1313.M   Wed Sep 28 09:46:57 2022
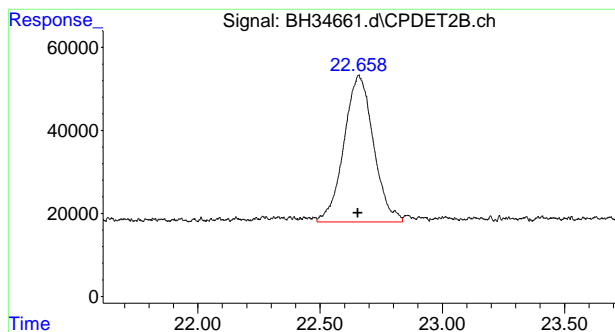
#24 toluene #2

R.T.:	22.658 min
Delta R.T.:	0.004 min
Response:	2963752
Conc:	1.00 ppb
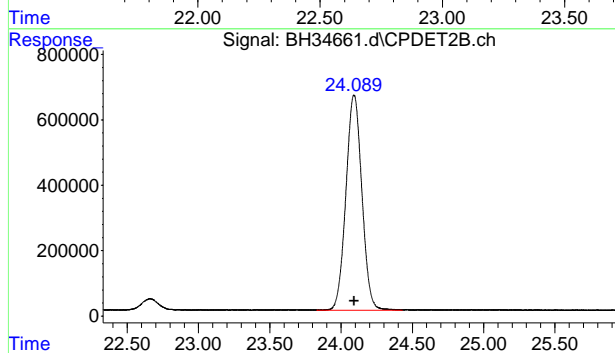
#25 2,3,4-trifluorotoluene #2

R.T.:	24.090 min
Delta R.T.:	0.000 min
Response:	51348582
Conc:	48.35 ppb
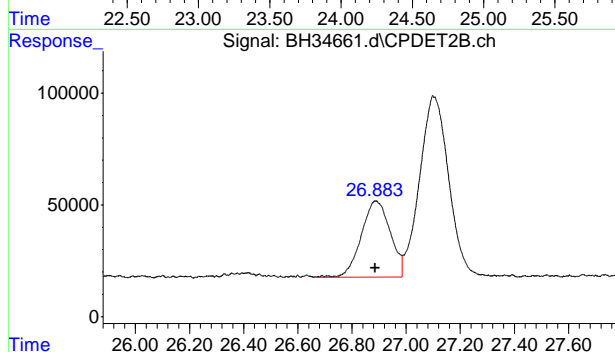
#26 ethylbenzene #2

R.T.:	26.887 min
Delta R.T.:	0.000 min
Response:	2539612
Conc:	0.96 ppb
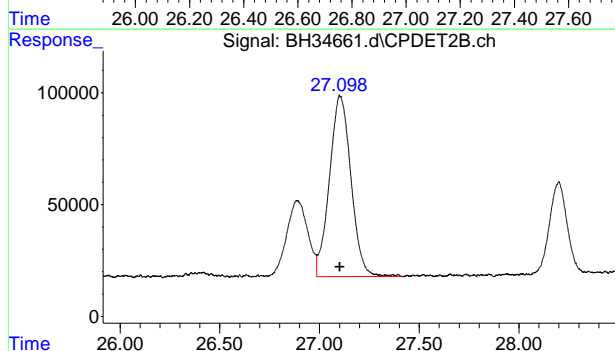
#27 m,p-xylene #2

R.T.:	27.102 min
Delta R.T.:	0.001 min
Response:	6075444
Conc:	1.94 ppb

7.5.1

7

BH34661.d MBH1313.M   Wed Sep 28 09:46:58 2022

SGS
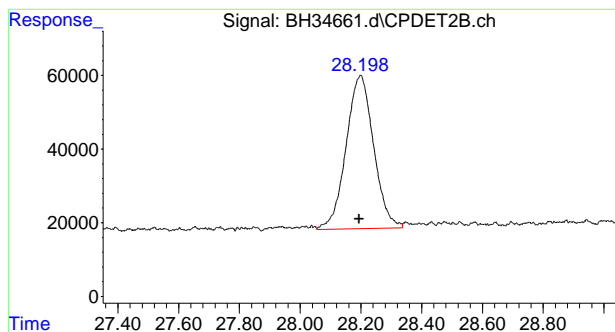
#28 o-xylene #2

         R.T.:   28.198 min
Delta R.T.:   0.004 min
  Response: 2613243
      Conc: 0.98 ppb
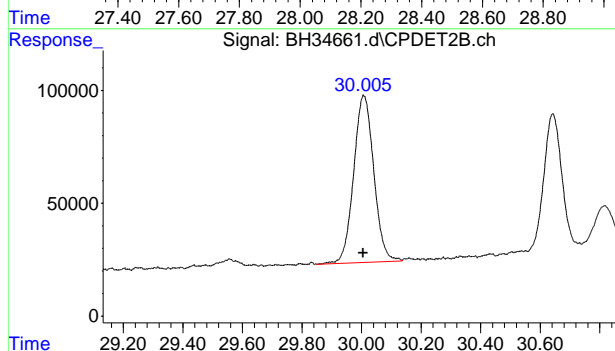
#29 1,3,5-trimethylbenzene #2

         R.T.:   30.007 min
Delta R.T.:   0.002 min
  Response: 3470501
      Conc: 0.95 ppb
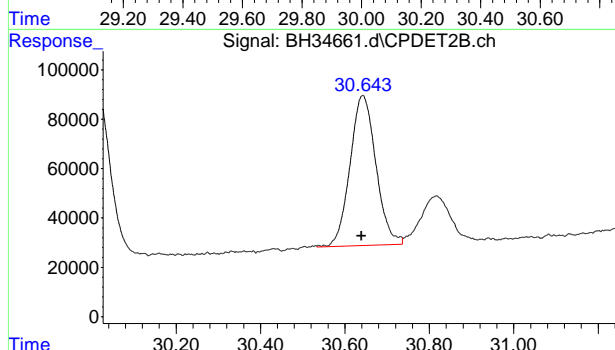
#30 1,2,4-trimethylbenzene #2

         R.T.:   30.643 min
Delta R.T.:   0.004 min
  Response: 2586281
      Conc: 0.94 ppb m
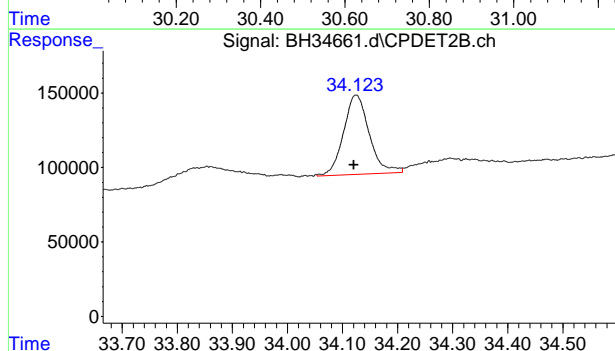
#31 naphthalene #2

         R.T.:   34.123 min
Delta R.T.:   0.003 min
  Response: 1737263
      Conc: 0.82 ppb m

7.5.1

7

Manual Integration Approval Summary

Sample Number: GBH1313-IC1313   **Method:** MADEP VPH REV 2.1
Lab FileID: BH34661.D   **Analyst approved:** 09/28/22 09:54 John Nieradka
Injection Time: 09/27/22 18:47   **Supervisor approved:** 09/28/22 10:49 Kanya Veerawat

Parameter	CAS	Sig#	R.T. (min.)	Reason
2-Methylpentane	107-83-5	1	10.07	Split peak
Methyl Tert Butyl Ether	1634-04-4	1	11.13	Missed peak
Methyl Tert Butyl Ether	1634-04-4	2	11.13	Split peak
2,2,4-Trimethylpentane	540-84-1	1	16.53	Split peak
1,2,4-Trimethylbenzene	95-63-6	2	30.64	Poorly defined baseline
Naphthalene	91-20-3	2	34.12	Poorly defined baseline

7.5.1.1

7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```
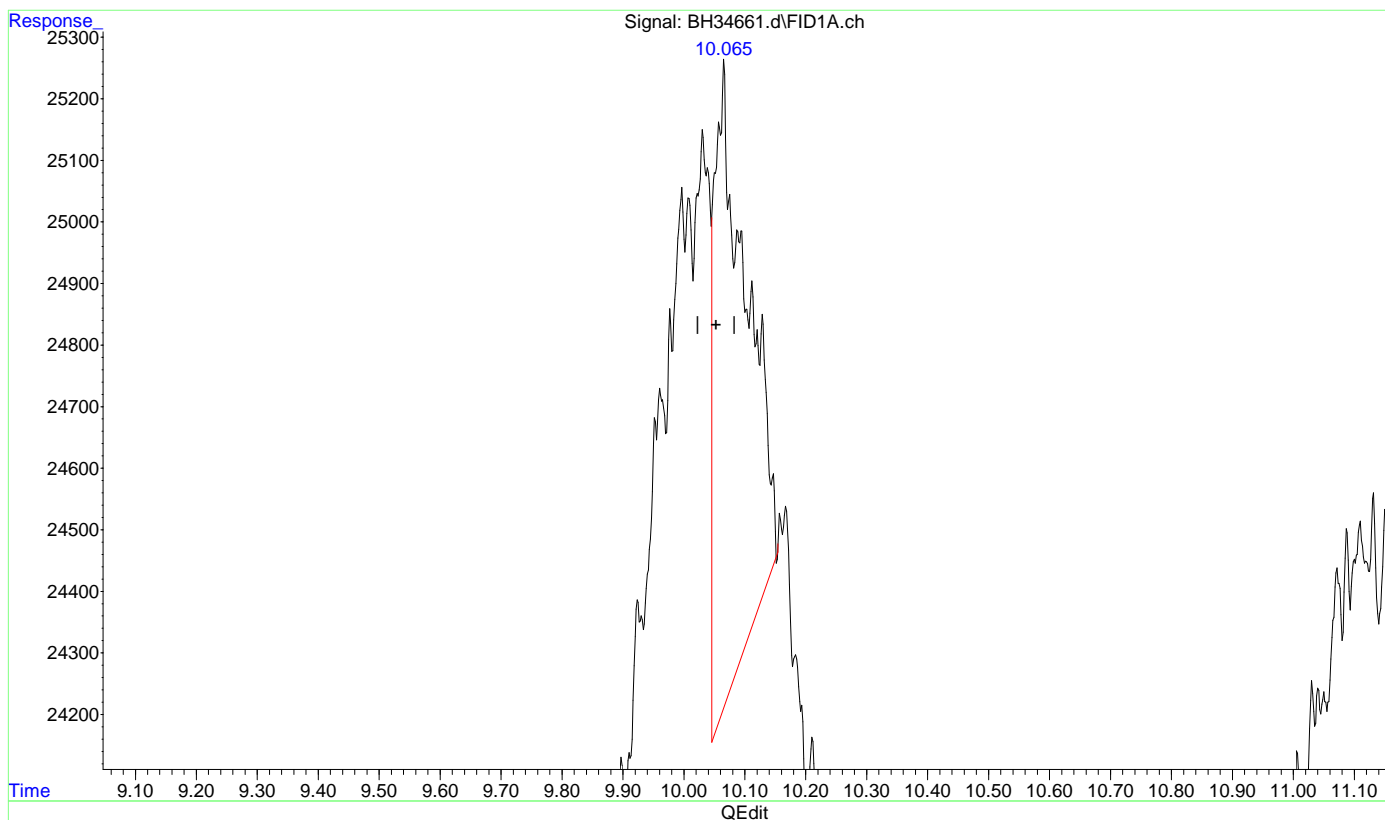

(2) 2-methylpentane

10.065min   0.137 ppb

response   37924

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:32:14 2022
```

Page: 1

JD53080

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :
```


Signal: BH34661.d\FID1A.ch

QEdit

(3) Methyl Tert Butyl Ether

11.121min   0.000 ppb

response 0

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:32:36 2022

Page: 1

SGS

JD53080

BH34661.D edits: **Methyl Tert Butyl Ether**

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.1.4

7

(4) 2,2,4-trimethylpentane

16.493min   0.337 ppb

response 94885

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:33:07 2022

Page: 1

BH34661.D edits: 2,2,4-trimethylpentane

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


(21) Methyl Tert Butyl Ether #2

11.105min   0.424 ppb

response   561667

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:33:46 2022
```

Page: 1

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


Signal: BH34661.d\CPDET2B.ch

(30) 1,2,4-trimethylbenzene #2

30.642min   0.996 ppb

response   2732832

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:34:17 2022

Page: 1
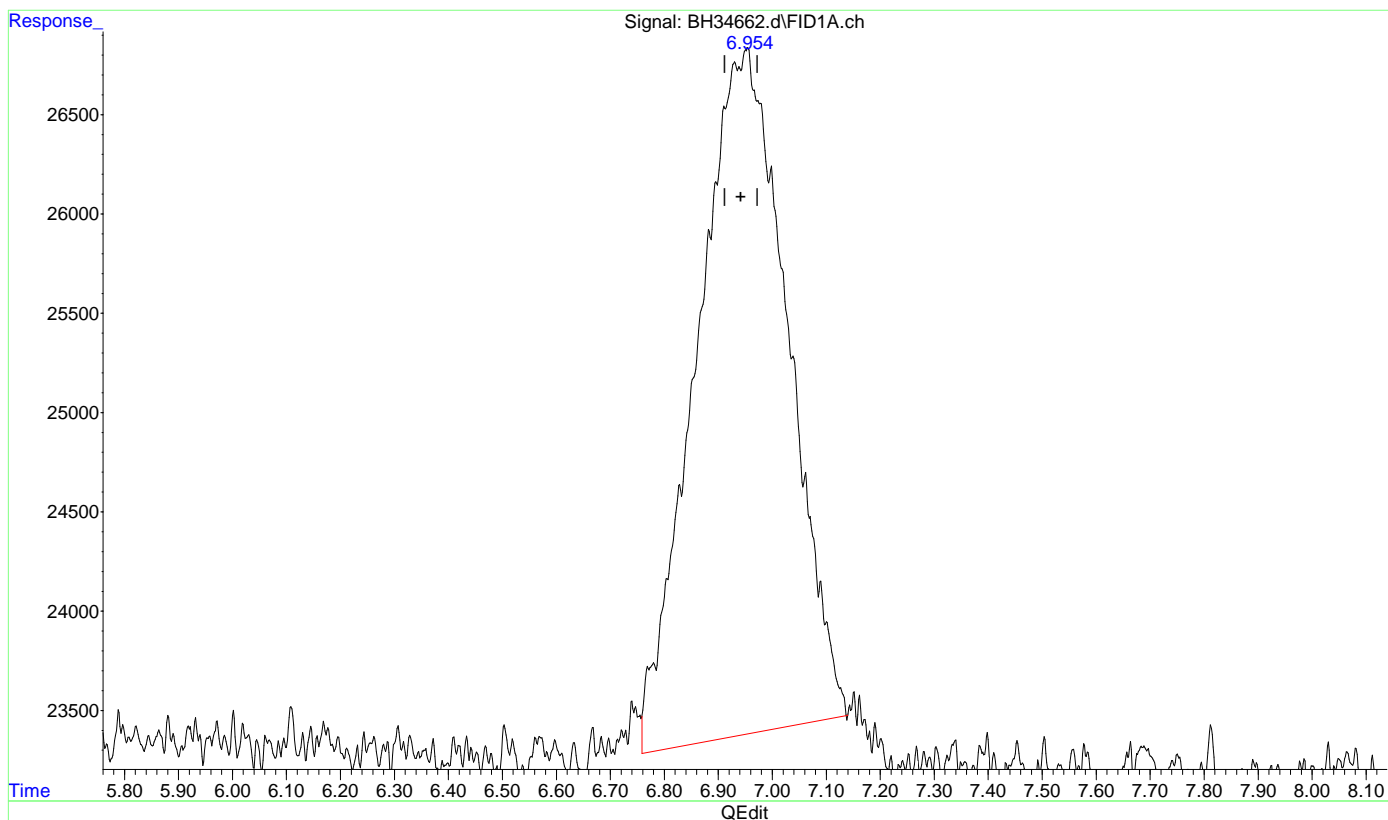
BH34661.D edits: 1,2,4-trimethylbenzene #2

SGS

JD53080

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34661.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   6:47 pm
Operator  : johnn
Sample    : ic1313-1
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:18 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.1.7

7

(31) naphthalene #2

34.125min   1.361 ppb

response   2897595

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:34:30 2022                    Page: 1
```

BH34661.D edits: naphthalene #2

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:45:23 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :

        Compound                R.T.      Response    Conc Units
    ----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene           18.058    13086927   49.490 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   98.98%
 8) s   2,3,4-trifluorotoluene  24.092    10543250   49.387 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   98.77%
23) s   fluorobenzene #2        18.057    87347922   48.678 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   97.36%
25) s   2,3,4-trifluorotoluen...  24.091  51047378   48.069 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =   96.14%

 Target Compounds
 1)     pentane                 6.954      457528    1.878 ppb   m
 2)     2-methylpentane         10.042     548794    1.986 ppb   m
 3)     Methyl Tert Butyl Ether 11.115     401002    2.028 ppb   m
 4)     2,2,4-trimethylpentane  16.513     567304    2.018 ppb   m
 5)     benzene                 17.447     732072    1.933 ppb
 7)     toluene                 22.658     736365    1.982 ppb
 9)     nonane                  26.414     437034    2.114 ppb
10)     ethylbenzene            26.889     738845    2.009 ppb
11)     m,p-xylene              27.104    1462125    3.894 ppb
12)     o-xylene                28.199     776428    2.007 ppb
13)     decane                  29.552     358928    1.924 ppb   m
14)     1,3,5-trimethylbenzene  30.009     732119    1.938 ppb
15)     1,2,4-trimethylbenzene  30.643     713543    1.921 ppb
16)     butylcyclohexane        30.817     441355    2.013 ppb
17)     naphthalene             34.126     350492    1.652 ppb
21)     Methyl Tert Butyl Eth...  11.142f 2726929    2.059 ppb
22)     benzene #2              17.453    6250264    1.943 ppb
24)     toluene #2              22.657    5671845    1.919 ppb
26)     ethylbenzene #2         26.889    4882060    1.839 ppb
27) t   m,p-xylene #2           27.103   11768425    3.761 ppb
28)     o-xylene #2             28.195    4996291    1.875 ppb
29)     1,3,5-trimethylbenzen...  30.007  6657653    1.830 ppb
30)     1,2,4-trimethylbenzen...  30.640  4951963    1.806 ppb   m
31)     naphthalene #2          34.123    3311307    1.555 ppb   m
    ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                      (m)=manual int.
```
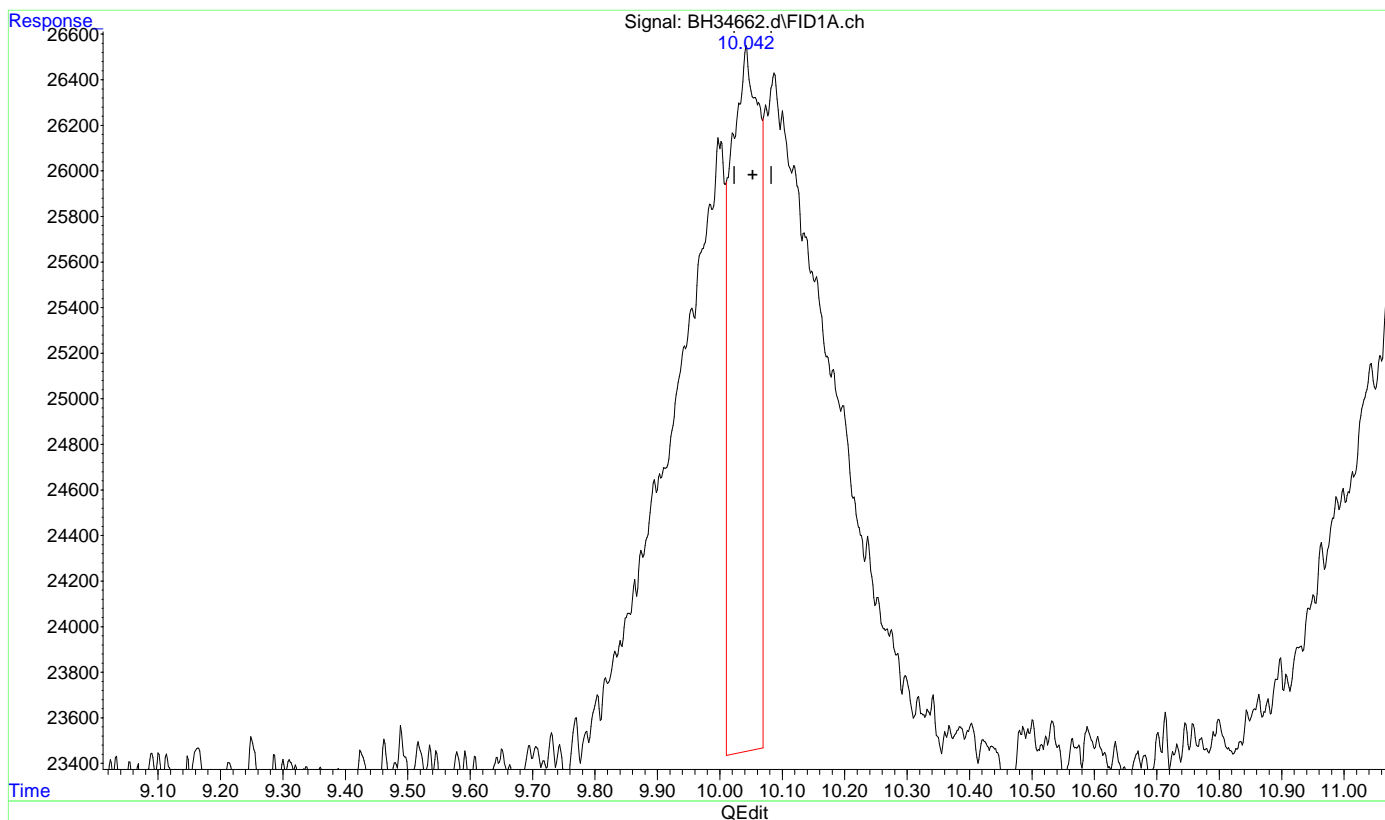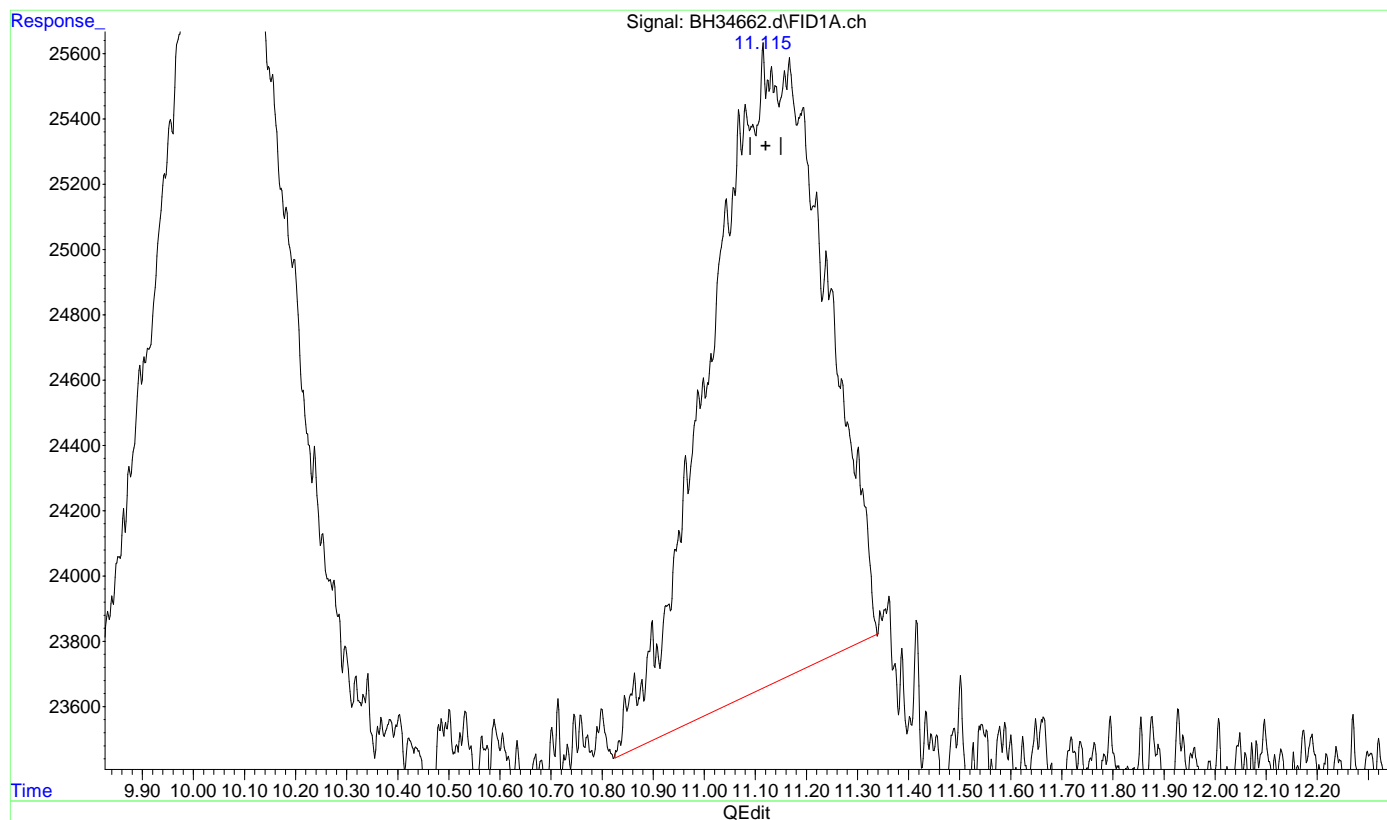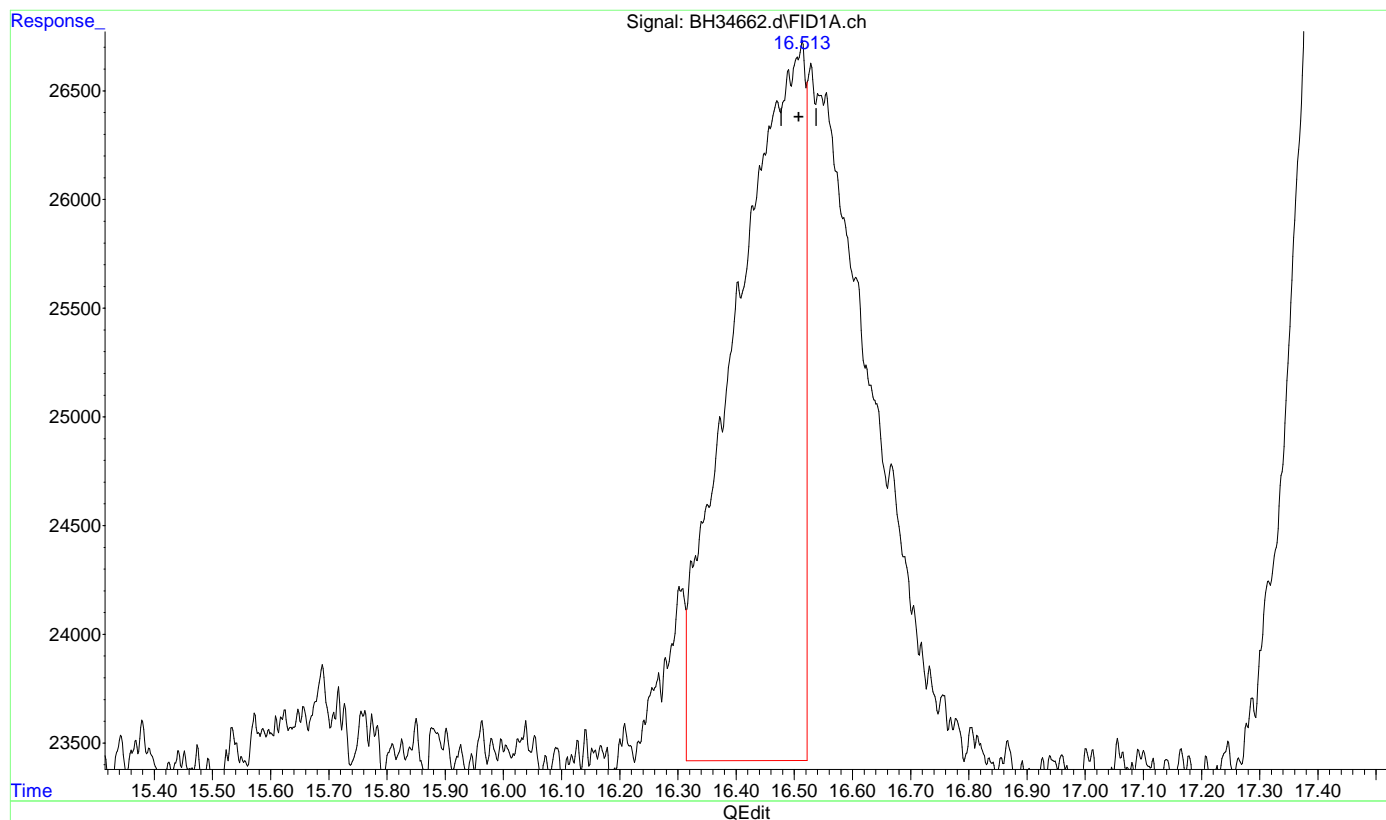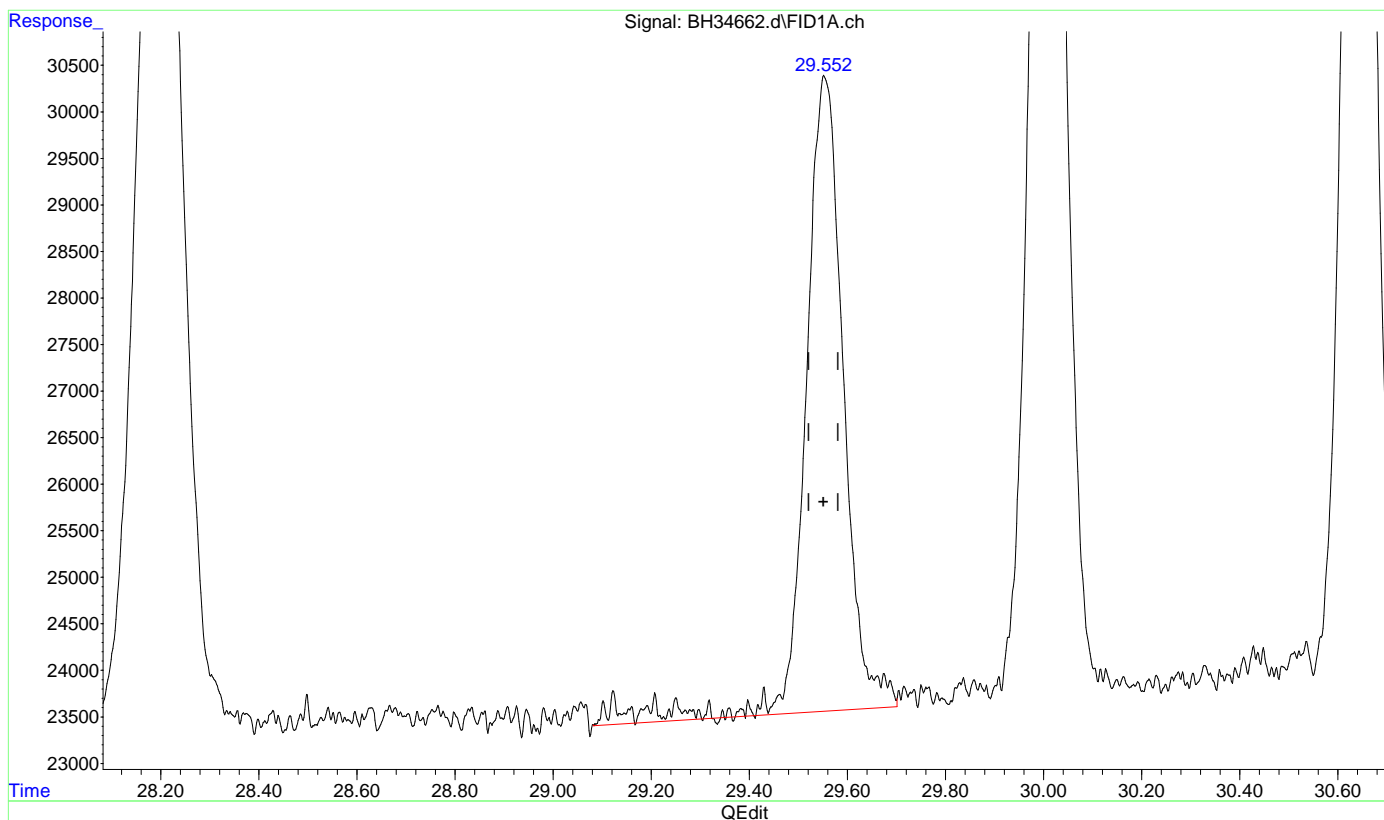
7.5.2

7
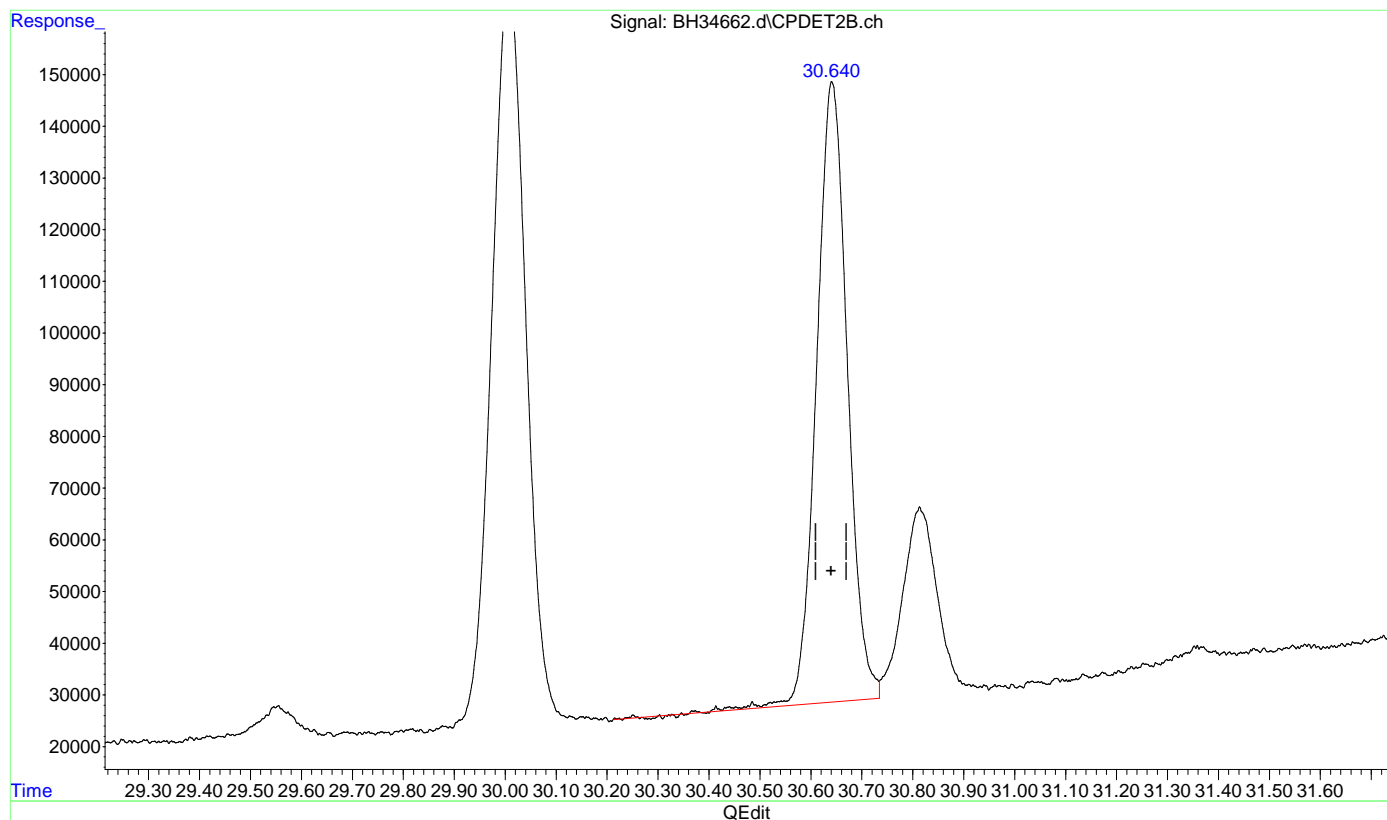
Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022   7:30 pm
Operator : johnn
Sample   : ic1313-2
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:45:23 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

7.5.2

7

MBH1313.M Wed Sep 28 09:47:04 2022   Page: 2

#1　pentane

　　　　　　R.T.:　　6.954 min
Delta R.T.:　　0.012 min
　Response:　　457528
　　　　　　Conc:　1.88 ppb m

#2　2-methylpentane

　　　　　　R.T.:　10.042 min
Delta R.T.:　-0.011 min
　Response:　　548794
　　　　　　Conc:　1.99 ppb m

#3　Methyl Tert Butyl Ether

　　　　　　R.T.:　11.115 min
Delta R.T.:　-0.006 min
　Response:　　401002
　　　　　　Conc:　2.03 ppb m

#4　2,2,4-trimethylpentane

　　　　　　R.T.:　16.513 min
Delta R.T.:　0.006 min
　Response:　　567304
　　　　　　Conc:　2.02 ppb m

7.5.2

7
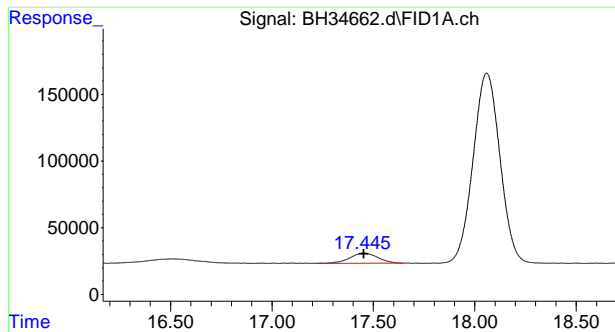
#5   benzene

```
         R.T.:    17.447 min
Delta R.T.:    -0.005 min
    Response:     732072
         Conc:   1.93 ppb
```
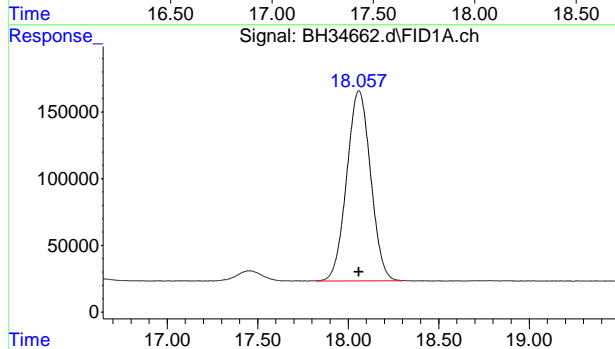
#6   fluorobenzene

```
         R.T.:    18.058 min
Delta R.T.:     0.000 min
    Response:   13086927
         Conc:  49.49 ppb
```
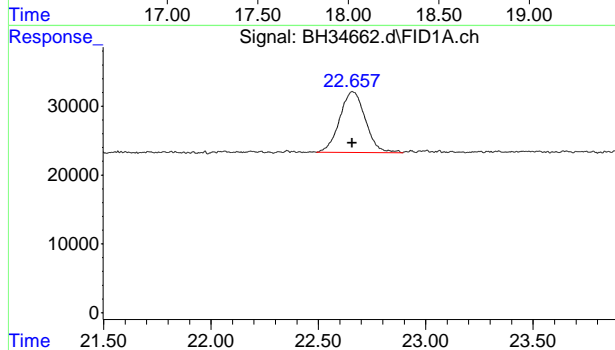
#7   toluene

```
         R.T.:    22.658 min
Delta R.T.:     0.002 min
    Response:     736365
         Conc:   1.98 ppb
```
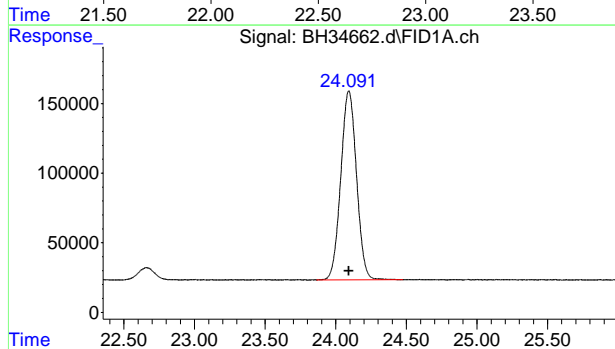
#8   2,3,4-trifluorotoluene

```
         R.T.:    24.092 min
Delta R.T.:     0.000 min
    Response:   10543250
         Conc:  49.39 ppb
```

7.5.2

7
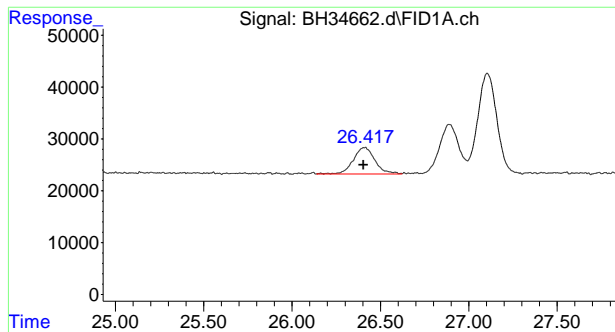
#9   nonane

       R.T.:   26.414 min
Delta R.T.:   0.009 min
  Response: 437034
      Conc: 2.11 ppb
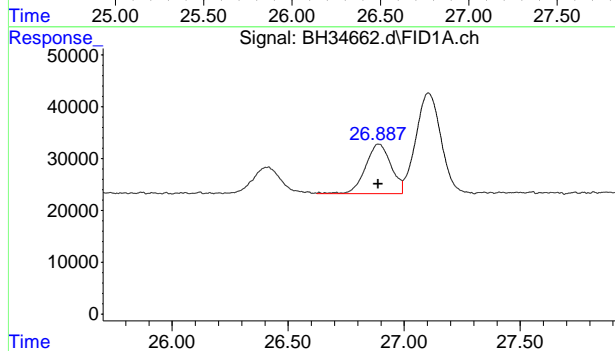
#10   ethylbenzene

       R.T.:   26.889 min
Delta R.T.:   0.001 min
  Response: 738845
      Conc: 2.01 ppb
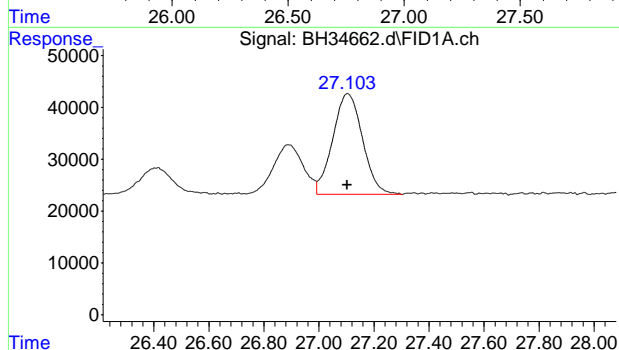
#11   m,p-xylene

       R.T.:   27.104 min
Delta R.T.:   0.001 min
  Response: 1462125
      Conc: 3.89 ppb
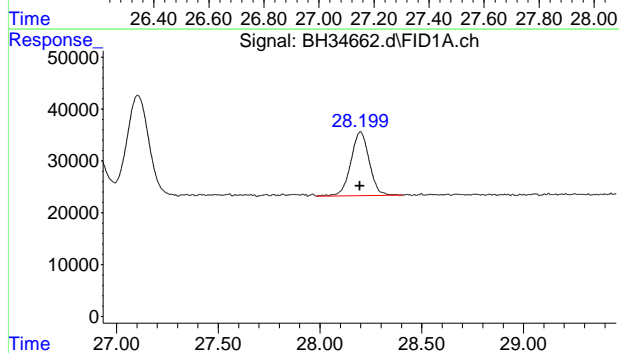
#12   o-xylene

       R.T.:   28.199 min
Delta R.T.:   0.003 min
  Response: 776428
      Conc: 2.01 ppb

7.5.2

7

BH34662.D: GBH1313-IC1313   Initial Calibration (2)   page 5 of 9
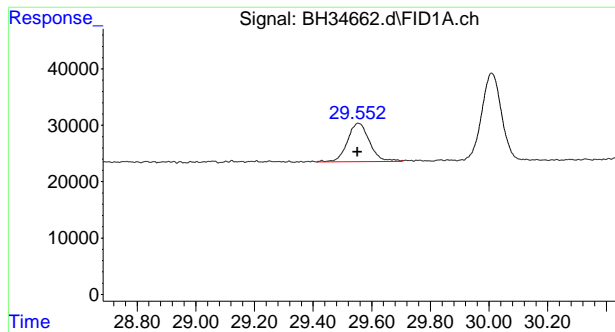
#13 decane

R.T.:	29.552 min
Delta R.T.:	0.000 min
Response:	358928
Conc:	1.92 ppb m
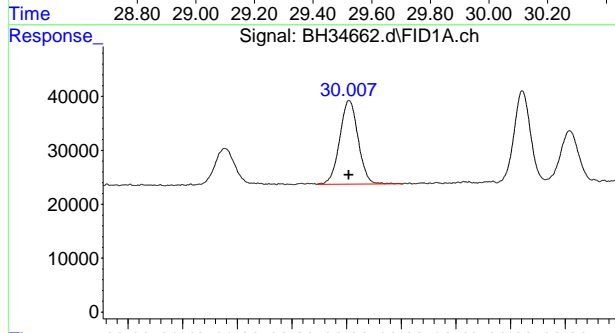
#14 1,3,5-trimethylbenzene

R.T.:	30.009 min
Delta R.T.:	0.002 min
Response:	732119
Conc:	1.94 ppb
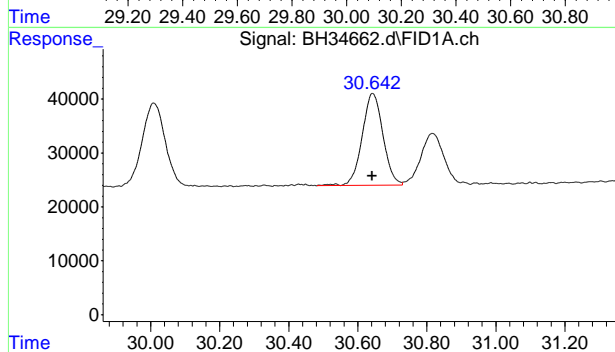
#15 1,2,4-trimethylbenzene

R.T.:	30.643 min
Delta R.T.:	0.002 min
Response:	713543
Conc:	1.92 ppb
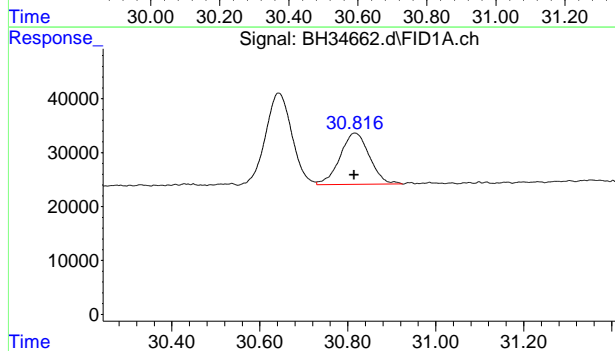
#16 butylcyclohexane

R.T.:	30.817 min
Delta R.T.:	0.002 min
Response:	441355
Conc:	2.01 ppb

7.5.2

7
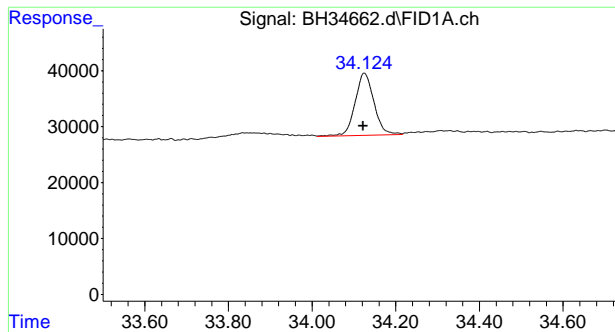
#17 naphthalene

R.T.:	34.126 min
Delta R.T.:	0.003 min
Response:	350492
Conc:	1.65 ppb
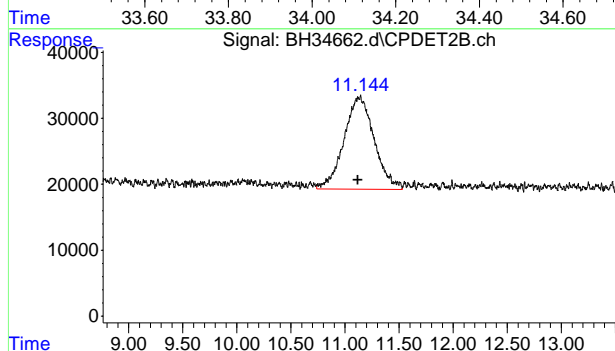
#21 Methyl Tert Butyl Ether #2

R.T.:	11.142 min
Delta R.T.:	0.026 min
Response:	2726929
Conc:	2.06 ppb
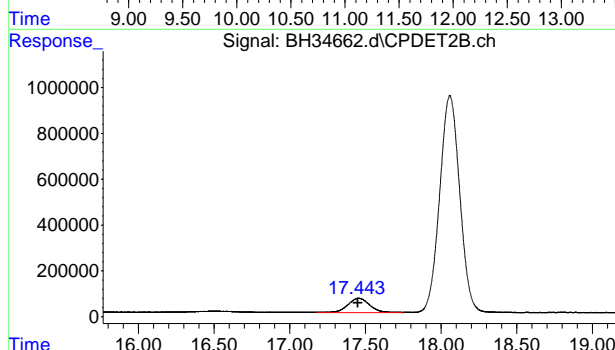
#22 benzene #2

R.T.:	17.453 min
Delta R.T.:	0.002 min
Response:	6250264
Conc:	1.94 ppb
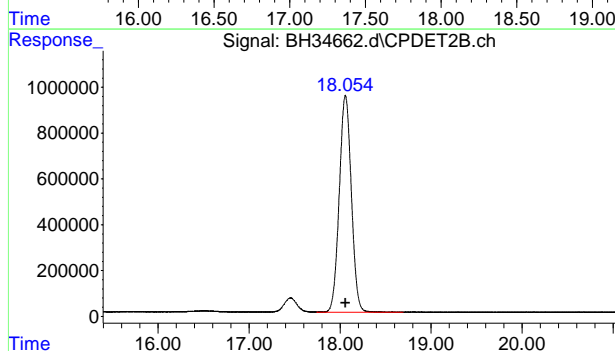
#23 fluorobenzene #2

R.T.:	18.057 min
Delta R.T.:	0.002 min
Response:	87347922
Conc:	48.68 ppb

7.5.2

7

BH34662.d   MBH1313.M   Wed Sep 28 09:47:06 2022

JD53080
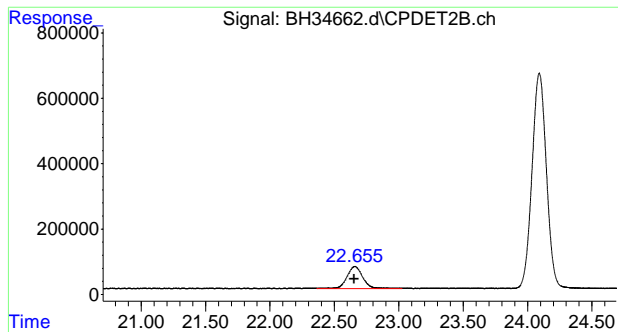
#24 toluene #2

```
        R.T.:    22.657 min
Delta R.T.:     0.002 min
  Response:   5671845
      Conc:    1.92 ppb
```
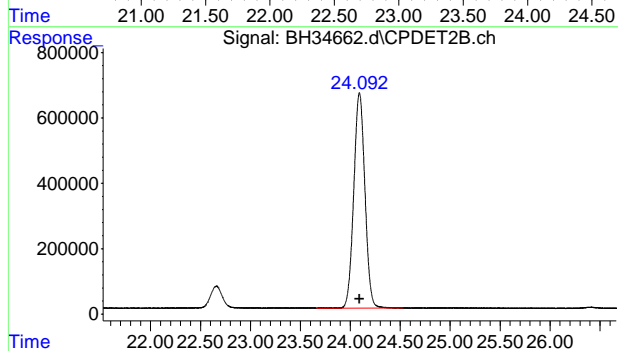
#25 2,3,4-trifluorotoluene #2

```
        R.T.:    24.091 min
Delta R.T.:     0.000 min
  Response:  51047378
      Conc:   48.07 ppb
```
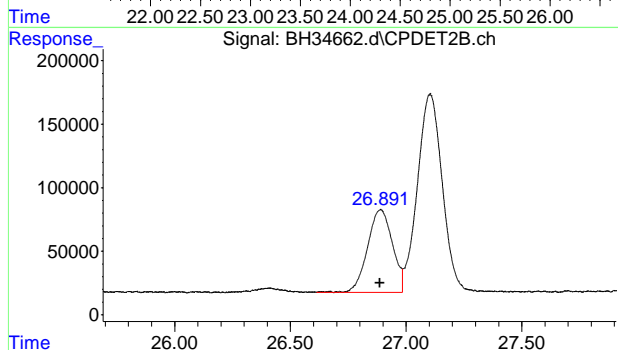
#26 ethylbenzene #2

```
        R.T.:    26.889 min
Delta R.T.:     0.003 min
  Response:   4882060
      Conc:    1.84 ppb
```
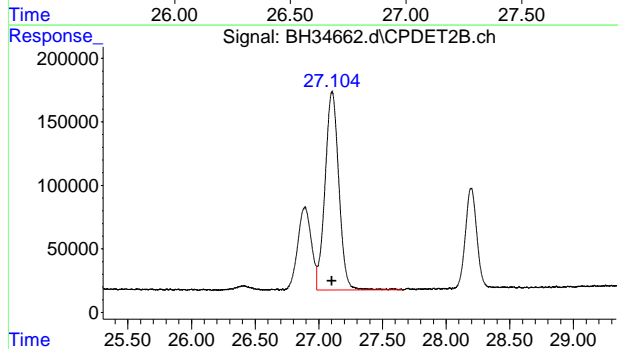
#27 m,p-xylene #2

```
        R.T.:    27.103 min
Delta R.T.:     0.002 min
  Response:  11768425
      Conc:    3.76 ppb
```

7.5.2

7
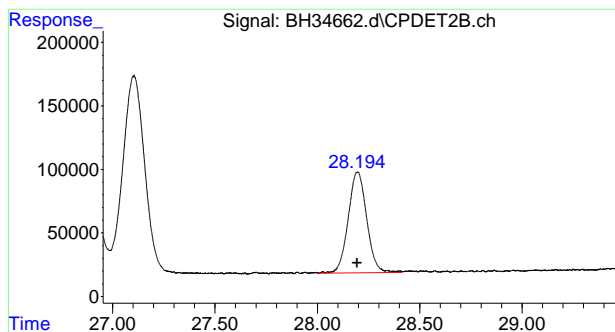
#28 o-xylene #2

R.T.:	28.195 min
Delta R.T.:	0.002 min
Response:	4996291
Conc:	1.88 ppb
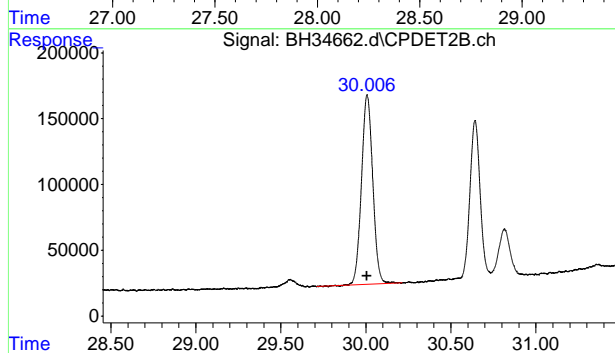
#29 1,3,5-trimethylbenzene #2

R.T.:	30.007 min
Delta R.T.:	0.002 min
Response:	6657653
Conc:	1.83 ppb
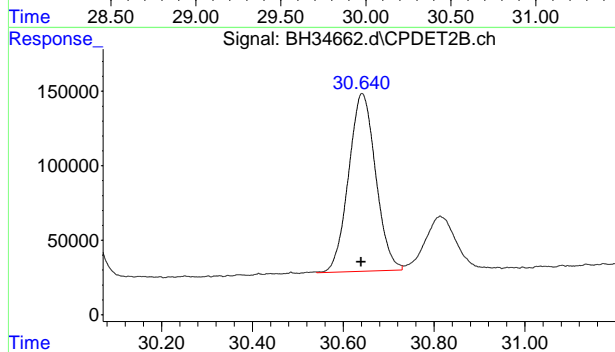
#30 1,2,4-trimethylbenzene #2

R.T.:	30.640 min
Delta R.T.:	0.000 min
Response:	4951963
Conc:	1.81 ppb m
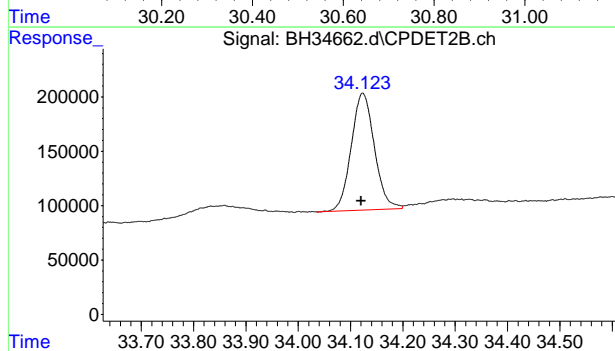
#31 naphthalene #2

R.T.:	34.123 min
Delta R.T.:	0.002 min
Response:	3311307
Conc:	1.56 ppb m

7.5.2

7

Manual Integration Approval Summary

Sample Number: GBH1313-IC1313   **Method:**   MADEP VPH REV 2.1
Lab FileID: BH34662.D   **Analyst approved:**   09/28/22 09:54 John Nieradka
Injection Time: 09/27/22 19:30   **Supervisor approved:**   09/28/22 10:49 Kanya Veerawat

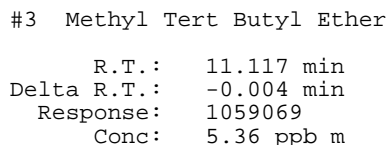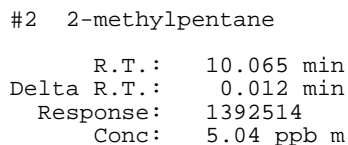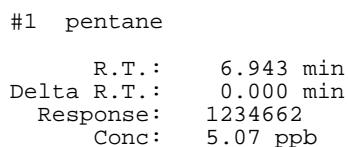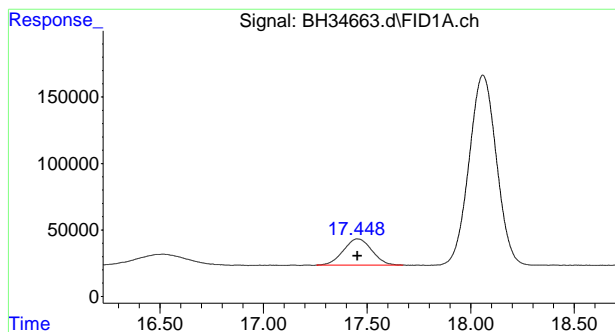| Parameter	CAS	Sig#	R.T. (min.)	Reason
Pentane	109-66-0	1	6.95	Poorly defined baseline
2-Methylpentane	107-83-5	1	10.04	Poor instrument integration
Methyl Tert Butyl Ether	1634-04-4	1	11.11	Poorly defined baseline
2,2,4-Trimethylpentane	540-84-1	1	16.51	Split peak
Decane	124-18-5	1	29.55	Poorly defined baseline
1,2,4-Trimethylbenzene	95-63-6	2	30.64	Poorly defined baseline
Naphthalene	91-20-3	2	34.12	Poorly defined baseline

7.5.2.1

7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


(1) pentane

6.954min   1.667 ppb

response   406200

```
 (+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:40:31 2022
```

Page: 1

BH34662.D edits: pentane

SGS

JD53080

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.2.3

7

Signal: BH34662.d\FID1A.ch

QEdit

(2) 2-methylpentane

10.043min   0.360 ppb

response   99475

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:41:10 2022

Page: 1

BH34662.D edits: 2-methylpentane

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022    7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

(3) Methyl Tert Butyl Ether

11.116min   1.553 ppb

response   307044

```
 (+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:42:37 2022
```

Page: 1

BH34662.D edits: **Methyl Tert Butyl Ether**

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :              Signal #2 Phase:
Signal #1 Info  :              Signal #2 Info :
```


Signal: BH34662.d\FID1A.ch

QEdit

(4) 2,2,4-trimethylpentane

16.513min   0.972 ppb

response   273397

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:43:50 2022

Page: 1

BH34662.D edits: **2,2,4-trimethylpentane**

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Signal: BH34662.d\FID1A.ch

29.552

Response_

Time

QEdit

(13) decane

29.554min   1.994 ppb

response   371959

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:44:17 2022

Page: 1

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :              Signal #2 Phase:
Signal #1 Info  :              Signal #2 Info :
```


Signal: BH34662.d\CPDET2B.ch

30.640

QEdit

(30) 1,2,4-trimethylbenzene #2

30.642min   1.843 ppb

response   5054623

```
 (+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:44:56 2022
```

Page: 1

JD53080

BH34662.D edits: 1,2,4-trimethylbenzene #2

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34662.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   7:30 pm
Operator  : johnn
Sample    : ic1313-2
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                 Signal #2 Phase:
Signal #1 Info  :                 Signal #2 Info :
```


Signal: BH34662.d\CPDET2B.ch

QEdit

(31) naphthalene #2

34.123min   2.022 ppb

response   4305976

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:45:09 2022
```

Page: 1

BH34662.D edits: naphthalene #2

7.5.2.8

7

```
                         Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:51:41 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

        Compound                 R.T.     Response    Conc Units
    -----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.058    13160240   49.767 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.53%
 8) s  2,3,4-trifluorotoluene    24.092    10609680   49.698 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.40%
23) s   fluorobenzene #2         18.057    87886837   48.978 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   97.96%
25) s  2,3,4-trifluorotoluen...  24.091    52006979   48.972 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   97.94%

 Target Compounds
 1)     pentane                   6.943     1234662    5.067 ppb
 2)     2-methylpentane          10.065     1392514    5.040 ppb   m
 3)     Methyl Tert Butyl Ether  11.117     1059069    5.356 ppb   m
 4)     2,2,4-trimethylpentane   16.509     1386809    4.932 ppb
 5)     benzene                  17.450     1887756    4.984 ppb
 7)     toluene                  22.658     1930743    5.196 ppb
 9)     nonane                   26.406     1012964    4.901 ppb
10)     ethylbenzene             26.889     1831995    4.981 ppb
11)     m,p-xylene               27.104     3762770   10.022 ppb
12)     o-xylene                 28.197     1949266    5.039 ppb
13)     decane                   29.553      878776    4.711 ppb
14)     1,3,5-trimethylbenzene   30.008     1881825    4.981 ppb
15)     1,2,4-trimethylbenzene   30.643     1831017    4.929 ppb
16)     butylcyclohexane         30.816     1114999    5.085 ppb
17)     naphthalene              34.124      937924    4.420 ppb   m
21)     Methyl Tert Butyl Eth... 11.120     6703825    5.062 ppb   m
22)     benzene #2               17.452    16082520    4.999 ppb
24)     toluene #2               22.657    14752563    4.991 ppb
26)     ethylbenzene #2          26.888    12881307    4.853 ppb
27) t   m,p-xylene #2            27.102    30891125    9.873 ppb
28)     o-xylene #2              28.196    13135674    4.930 ppb
29)     1,3,5-trimethylbenzen... 30.007    17755402    4.881 ppb
30)     1,2,4-trimethylbenzen... 30.642    13276020    4.841 ppb
31)     naphthalene #2           34.122     9052138    4.251 ppb   m
    -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
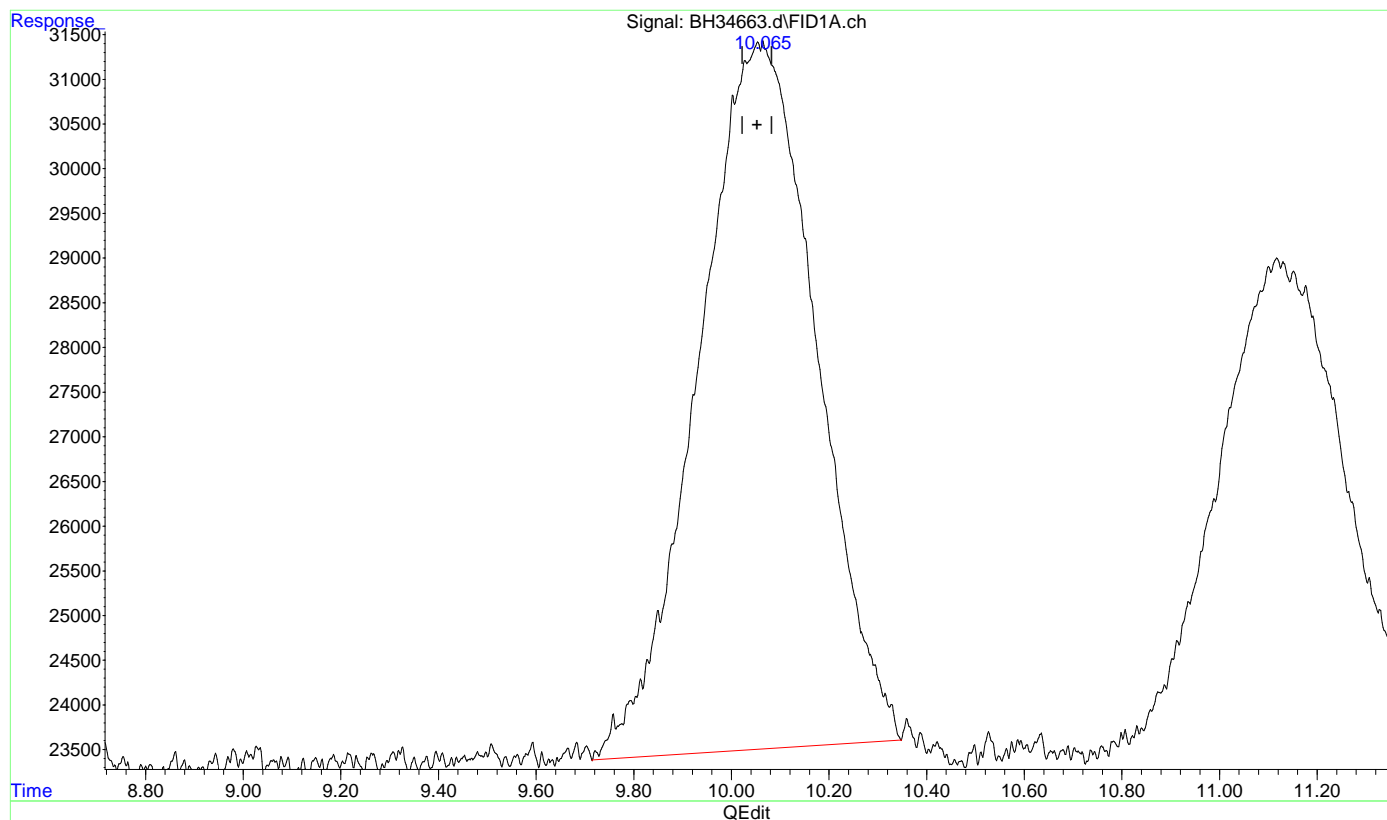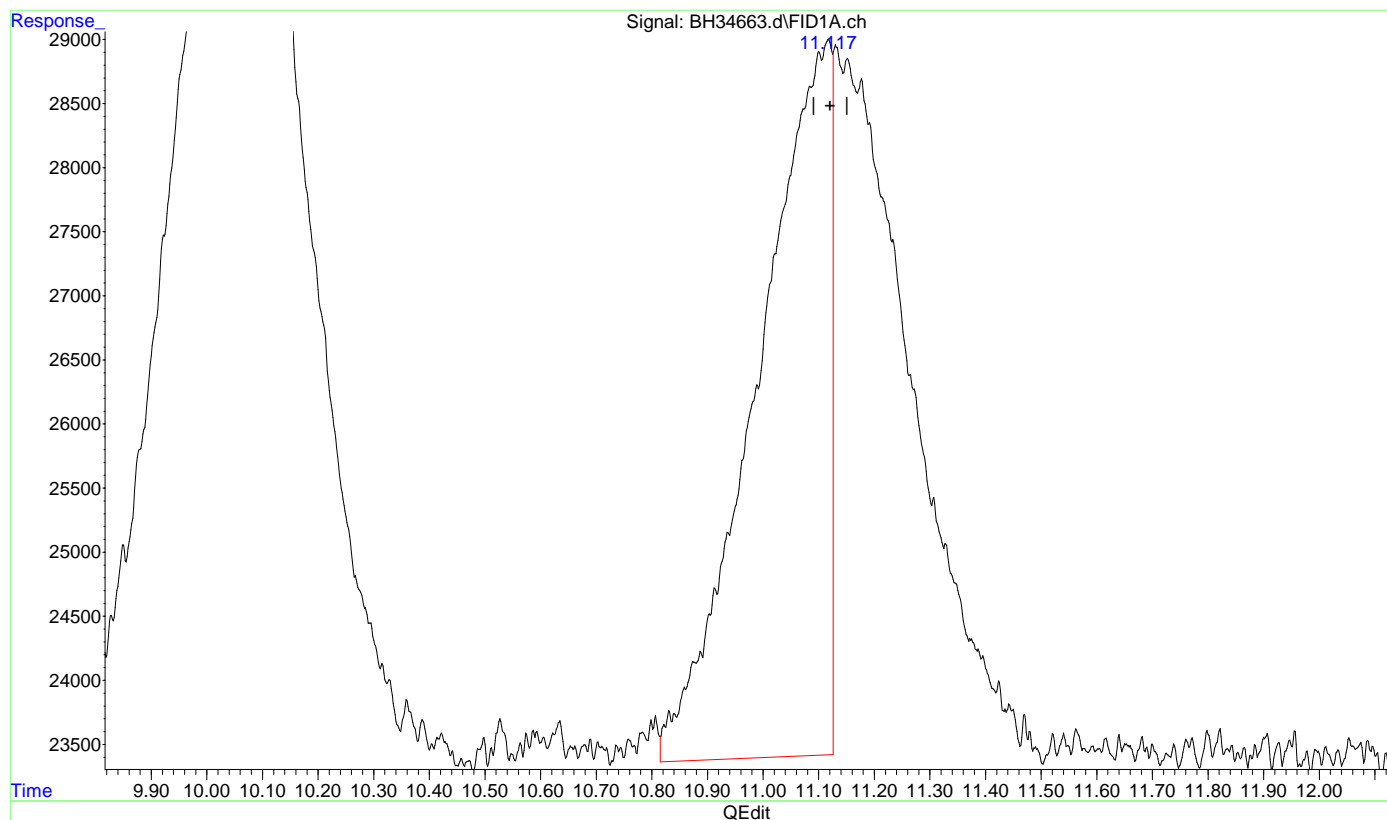
7.5.3

7
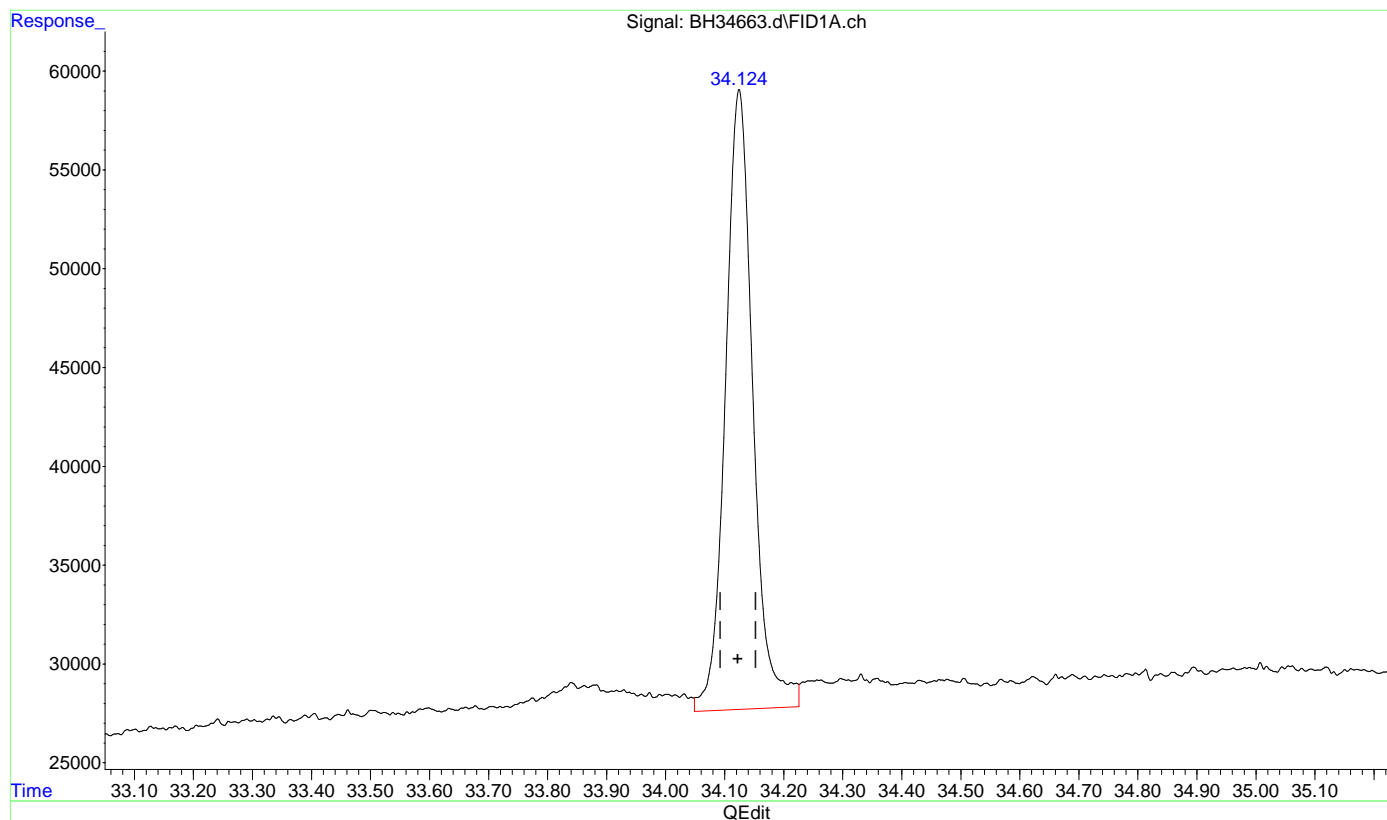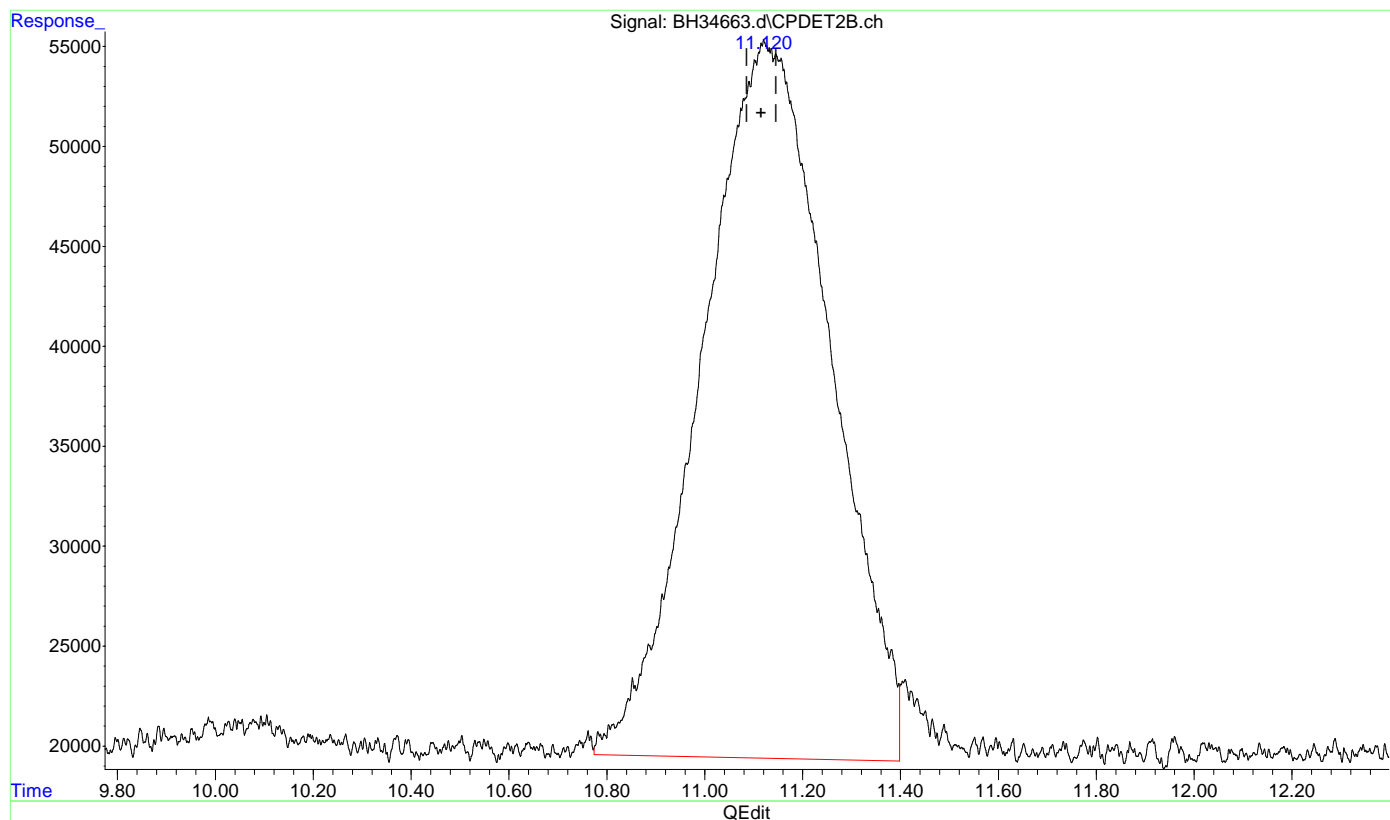
Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:51:41 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.3

7

SGS   **140 of 421**

JD53080

#1 pentane

```
        R.T.:     6.943 min
Delta R.T.:     0.000 min
  Response:     1234662
      Conc:     5.07 ppb
```

#2 2-methylpentane

```
        R.T.:    10.065 min
Delta R.T.:     0.012 min
  Response:     1392514
      Conc:     5.04 ppb m
```

#3 Methyl Tert Butyl Ether

```
        R.T.:    11.117 min
Delta R.T.:    -0.004 min
  Response:     1059069
      Conc:     5.36 ppb m
```

#4 2,2,4-trimethylpentane

```
        R.T.:    16.509 min
Delta R.T.:     0.002 min
  Response:     1386809
      Conc:     4.93 ppb
```

7.5.3

7

#5   benzene

        R.T.:   17.450 min
Delta R.T.:   -0.002 min
  Response: 1887756
      Conc: 4.98 ppb
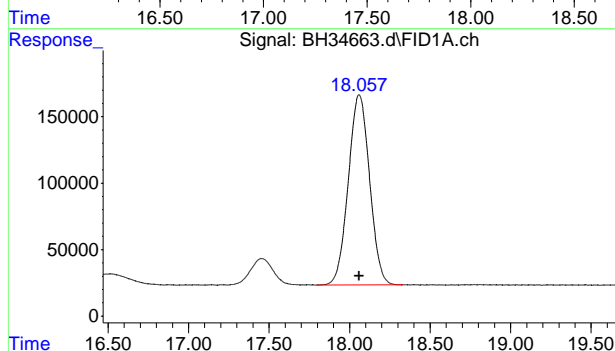
#6   fluorobenzene

        R.T.:   18.058 min
Delta R.T.:   0.000 min
  Response: 13160240
      Conc: 49.77 ppb
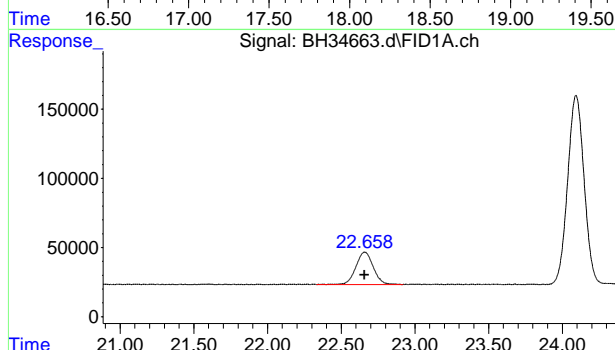
#7   toluene

        R.T.:   22.658 min
Delta R.T.:   0.002 min
  Response: 1930743
      Conc: 5.20 ppb
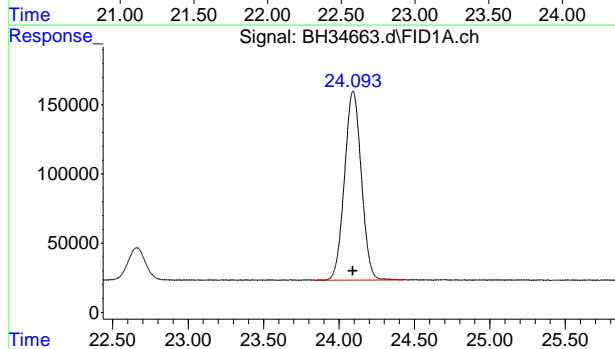
#8   2,3,4-trifluorotoluene

        R.T.:   24.092 min
Delta R.T.:   0.000 min
  Response: 10609680
      Conc: 49.70 ppb

7.5.3

7

BH34663.d   MBH1313.M   Wed Sep 28 09:47:14 2022

SGS

JD53080
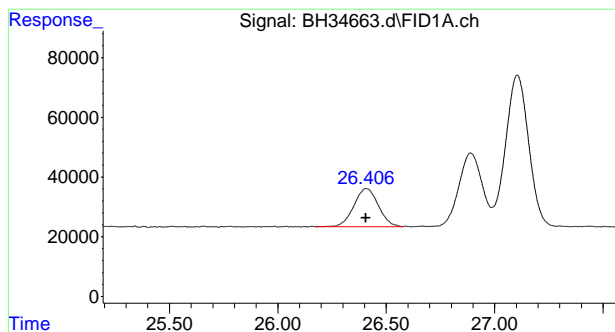
#9 nonane

```
       R.T.:   26.406 min
Delta R.T.:    0.002 min
  Response:    1012964
      Conc:    4.90 ppb
```
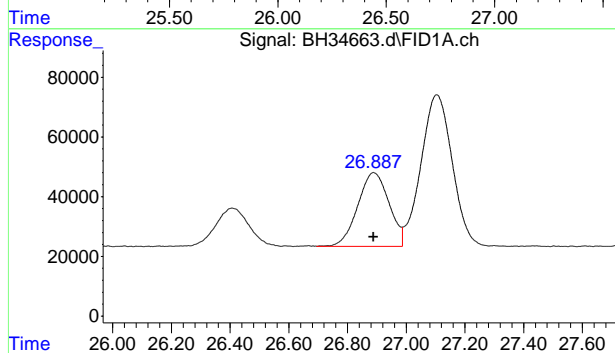
#10 ethylbenzene

```
       R.T.:   26.889 min
Delta R.T.:    0.001 min
  Response:    1831995
      Conc:    4.98 ppb
```
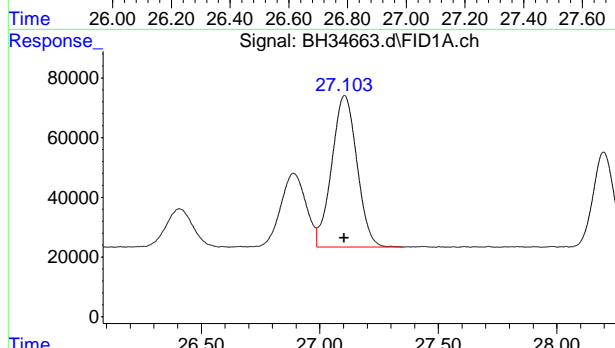
#11 m,p-xylene

```
       R.T.:   27.104 min
Delta R.T.:    0.002 min
  Response:    3762770
      Conc:    10.02 ppb
```
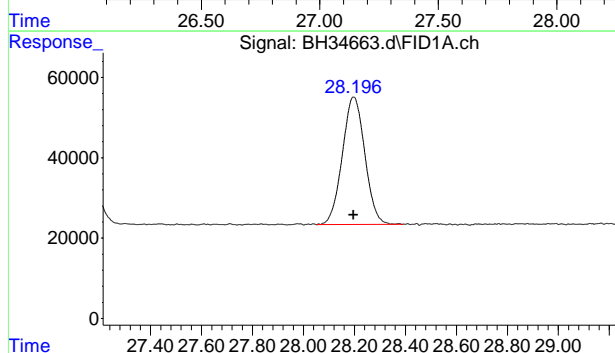
#12 o-xylene

```
       R.T.:   28.197 min
Delta R.T.:    0.001 min
  Response:    1949266
      Conc:    5.04 ppb
```

BH34663.d MBH1313.M   Wed Sep 28 09:47:14 2022
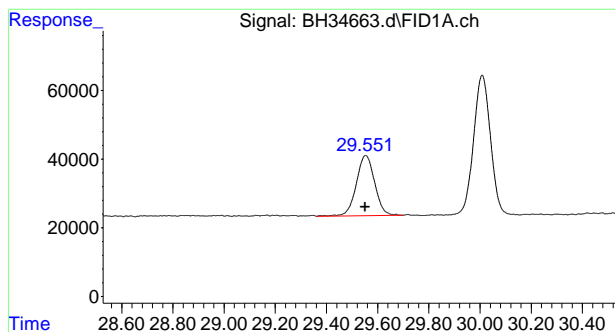
#13   decane

```
     R.T.:     29.553 min
Delta R.T.:    0.002 min
  Response:     878776
      Conc:   4.71 ppb
```
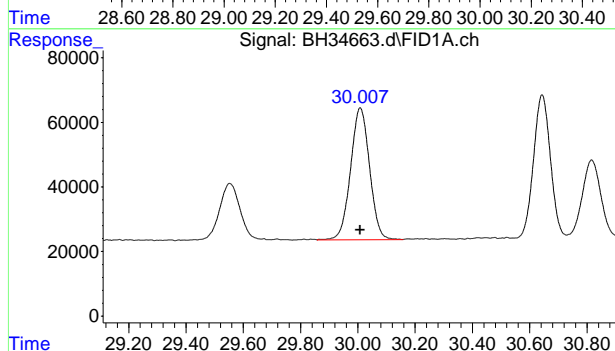
#14   1,3,5-trimethylbenzene

```
     R.T.:     30.008 min
Delta R.T.:    0.001 min
  Response:    1881825
      Conc:   4.98 ppb
```
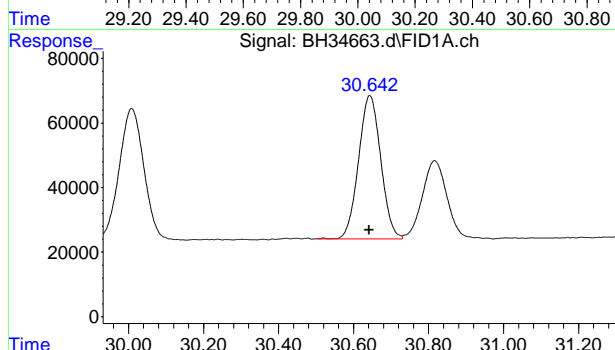
#15   1,2,4-trimethylbenzene

```
     R.T.:     30.643 min
Delta R.T.:    0.002 min
  Response:    1831017
      Conc:   4.93 ppb
```
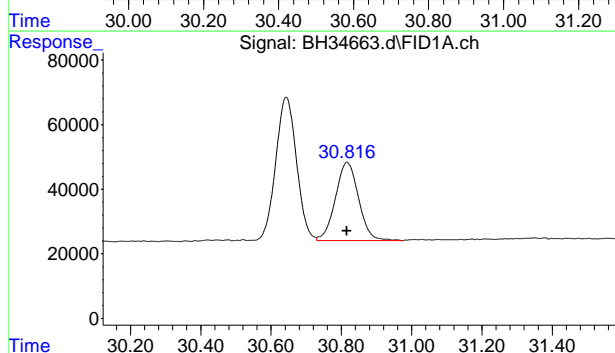
#16   butylcyclohexane

```
     R.T.:     30.816 min
Delta R.T.:    0.001 min
  Response:    1114999
      Conc:   5.08 ppb
```

7.5.3

7
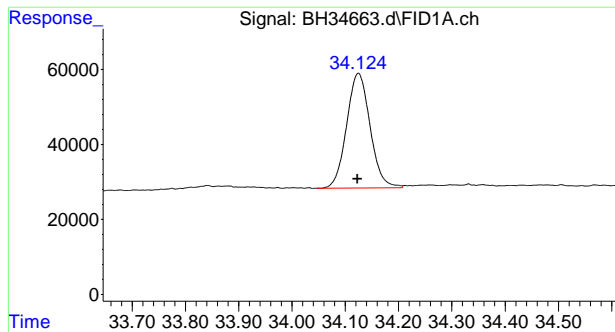
#17   naphthalene

R.T.:	34.124 min
Delta R.T.:	0.002 min
Response:	937924
Conc:	4.42 ppb m
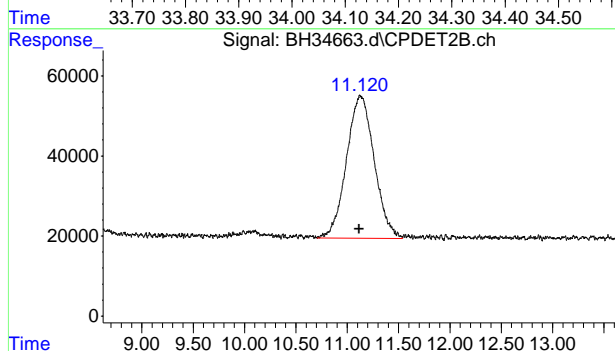
#21   Methyl Tert Butyl Ether #2

R.T.:	11.120 min
Delta R.T.:	0.005 min
Response:	6703825
Conc:	5.06 ppb m
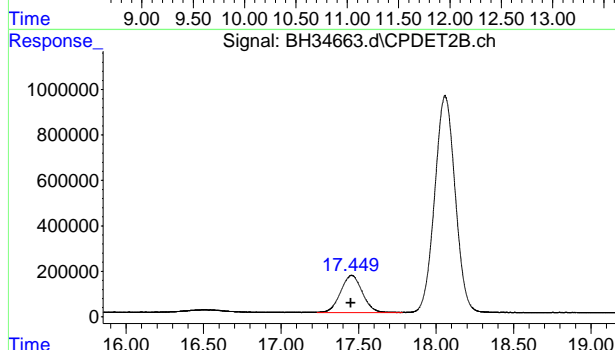
#22   benzene #2

R.T.:	17.452 min
Delta R.T.:	0.000 min
Response:	16082520
Conc:	5.00 ppb
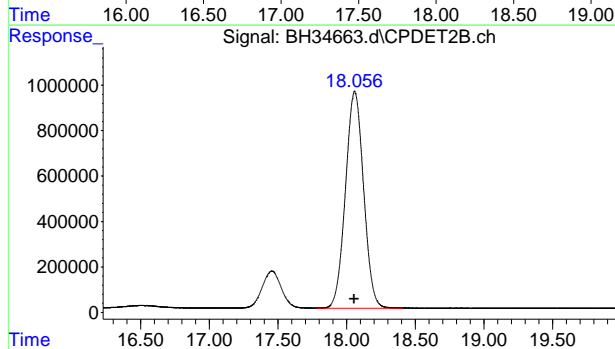
#23   fluorobenzene #2

R.T.:	18.057 min
Delta R.T.:	0.002 min
Response:	87886837
Conc:	48.98 ppb

7.5.3

7

BH34663.d   MBH1313.M   Wed Sep 28 09:47:14 2022

JD53080
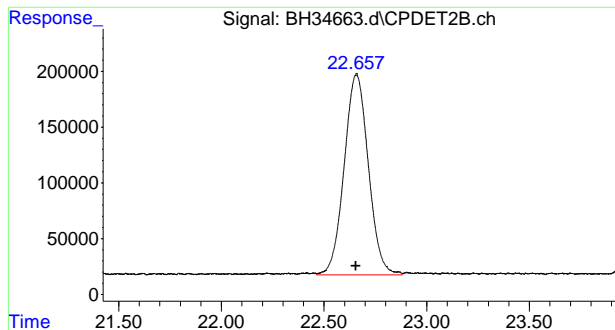
#24   toluene #2

          R.T.:   22.657 min
Delta R.T.:   0.003 min
    Response: 14752563
          Conc: 4.99 ppb
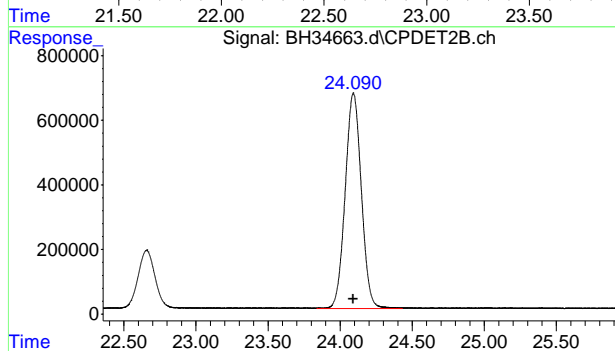
#25   2,3,4-trifluorotoluene #2

          R.T.:   24.091 min
Delta R.T.:   0.001 min
    Response: 52006979
          Conc: 48.97 ppb
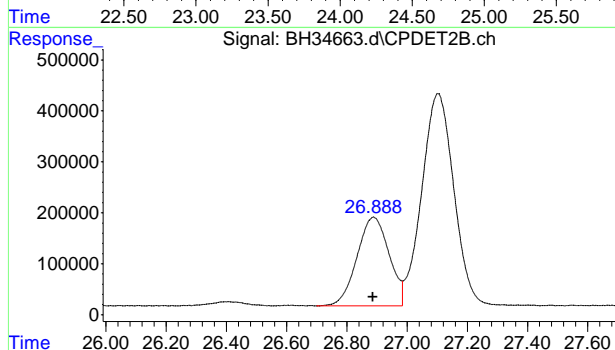
#26   ethylbenzene #2

          R.T.:   26.888 min
Delta R.T.:   0.002 min
    Response: 12881307
          Conc: 4.85 ppb
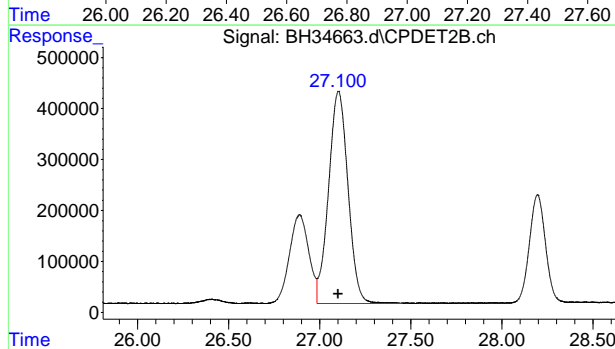
#27   m,p-xylene #2

          R.T.:   27.102 min
Delta R.T.:   0.002 min
    Response: 30891125
          Conc: 9.87 ppb
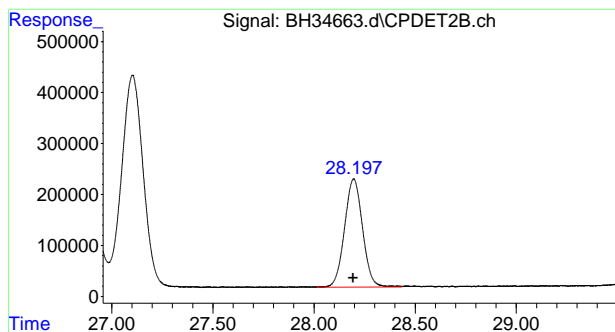
#28 o-xylene #2

          R.T.:   28.196 min
Delta R.T.:   0.002 min
  Response: 13135674
        Conc: 4.93 ppb
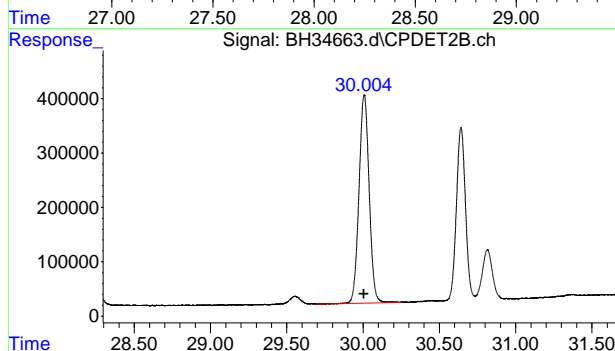
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.007 min
Delta R.T.:   0.002 min
  Response: 17755402
        Conc: 4.88 ppb
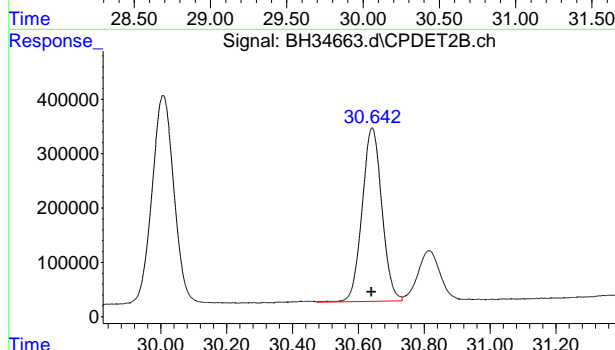
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.642 min
Delta R.T.:   0.002 min
  Response: 13276020
        Conc: 4.84 ppb
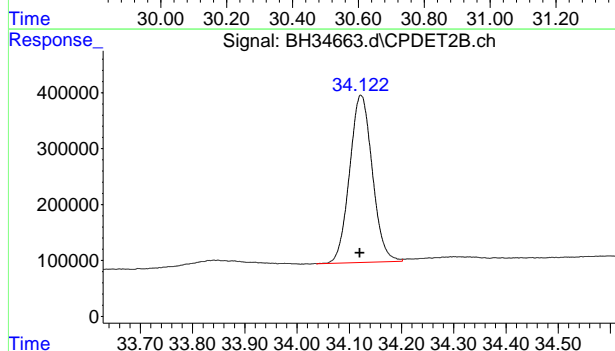
#31 naphthalene #2

          R.T.:   34.122 min
Delta R.T.:   0.002 min
  Response: 9052138
        Conc: 4.25 ppb m

7.5.3

7

BH34663.d MBH1313.M   Wed Sep 28 09:47:15 2022

Manual Integration Approval Summary

Sample Number: GBH1313-IC1313   **Method:** MADEP VPH REV 2.1
Lab FileID: BH34663.D   **Analyst approved:** 09/28/22 09:54 John Nieradka
Injection Time: 09/27/22 20:13   **Supervisor approved:** 09/28/22 10:49 Kanya Veerawat

Parameter	CAS	Sig#	R.T. (min.)	Reason
2-Methylpentane	107-83-5	1	10.07	Poorly defined baseline
Methyl Tert Butyl Ether	1634-04-4	1	11.12	Split peak
Methyl Tert Butyl Ether	1634-04-4	2	11.12	Poorly defined baseline
Naphthalene	91-20-3	1	34.12	Poorly defined baseline
Naphthalene	91-20-3	2	34.12	Poorly defined baseline

7.5.3.1

7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:24 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.3.2

7

Signal: BH34663.d\FID1A.ch

(2) 2-methylpentane

10.065min   4.814 ppb

response   1329914

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:48:03 2022
```

Page: 1

BH34663.D edits: 2-methylpentane

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:24 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


(3) Methyl Tert Butyl Ether

11.118min   2.563 ppb

response   506801

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:48:28 2022

Page: 1

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:24 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.       :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.3.4

7

Signal: BH34663.d\FID1A.ch

34.124

QEdit

(17) naphthalene

34.125min   4.782 ppb

response   1014663

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:48:54 2022

Page: 1

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:24 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


(21) Methyl Tert Butyl Ether #2

11.121min   4.944 ppb

response   6547847

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:50:56 2022

Page: 1

BH34663.D edits: Methyl Tert Butyl Ether #2

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34663.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:13 pm
Operator  : johnn
Sample    : ic1313-5
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 16    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:24 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```


(31) naphthalene #2

34.122min   4.884 ppb

response 10399543

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:51:33 2022                      Page: 1
```

BH34663.D edits: naphthalene #2

```
                          Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34664.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:55 pm
Operator  : johnn
Sample    : ic1313-10
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 17   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:57:38 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

        Compound                 R.T.      Response    Conc Units
   ----------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.055      13167451   49.794 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery   =   99.59%
 8) s   2,3,4-trifluorotoluene   24.091      10636309   49.823 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery   =   99.65%
23) s   fluorobenzene #2         18.055      88505295   49.323 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery   =   98.65%
25) s   2,3,4-trifluorotoluen... 24.090      52063162   49.025 ppb
Spiked Amount    50.000   Range  70 - 130   Recovery   =   98.05%

 Target Compounds
 1)    pentane                   6.936       2403858    9.865 ppb
 2)    2-methylpentane           10.042      2747976    9.946 ppb  m
 3)    Methyl Tert Butyl Ether   11.112      1999858   10.113 ppb
 4)    2,2,4-trimethylpentane    16.508      2756217    9.802 ppb
 5)    benzene                   17.450      3767735    9.948 ppb
 7)    toluene                   22.656      3721548   10.015 ppb
 9)    nonane                    26.405      2004755    9.699 ppb
10)    ethylbenzene              26.888      3660712    9.953 ppb
11)    m,p-xylene                27.103      7474061   19.908 ppb
12)    o-xylene                  28.196      3874255   10.015 ppb
13)    decane                    29.552      1733744    9.295 ppb
14)    1,3,5-trimethylbenzene    30.008      3765419    9.967 ppb
15)    1,2,4-trimethylbenzene    30.643      3695719    9.948 ppb
16)    butylcyclohexane          30.816      2135169    9.738 ppb
17)    naphthalene               34.124      2032906    9.581 ppb
21)    Methyl Tert Butyl Eth...  11.109     13245992   10.002 ppb
22)    benzene #2                17.449     31821056    9.892 ppb
24)    toluene #2                22.655     29007217    9.814 ppb
26)    ethylbenzene #2           26.886     25968460    9.783 ppb
27) t  m,p-xylene #2             27.101     62033055   19.827 ppb
28)    o-xylene #2               28.194     26478289    9.938 ppb
29)    1,3,5-trimethylbenzen...  30.006     35850329    9.856 ppb
30)    1,2,4-trimethylbenzen...  30.641     26908621    9.812 ppb
31)    naphthalene #2            34.121     19987129    9.386 ppb  m
   ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
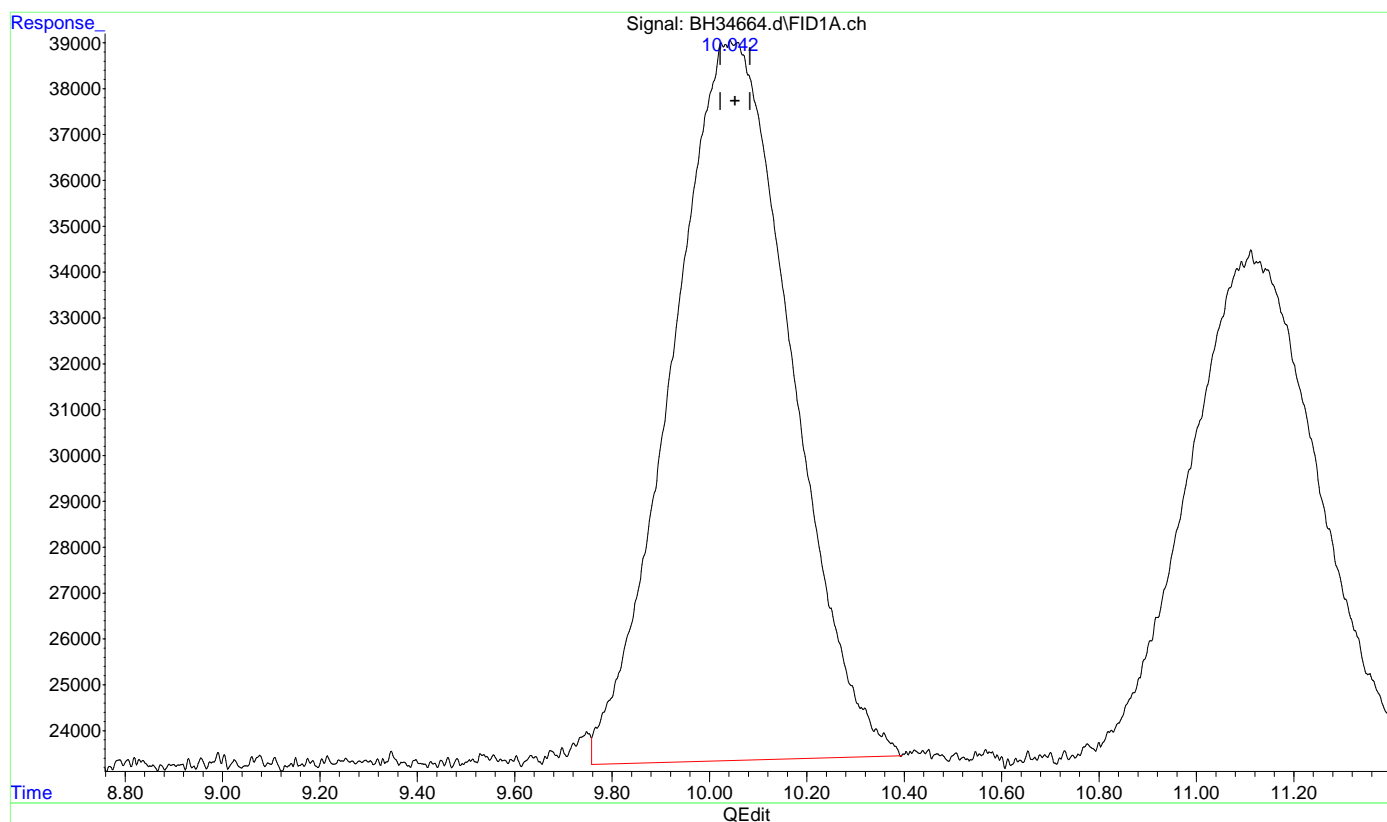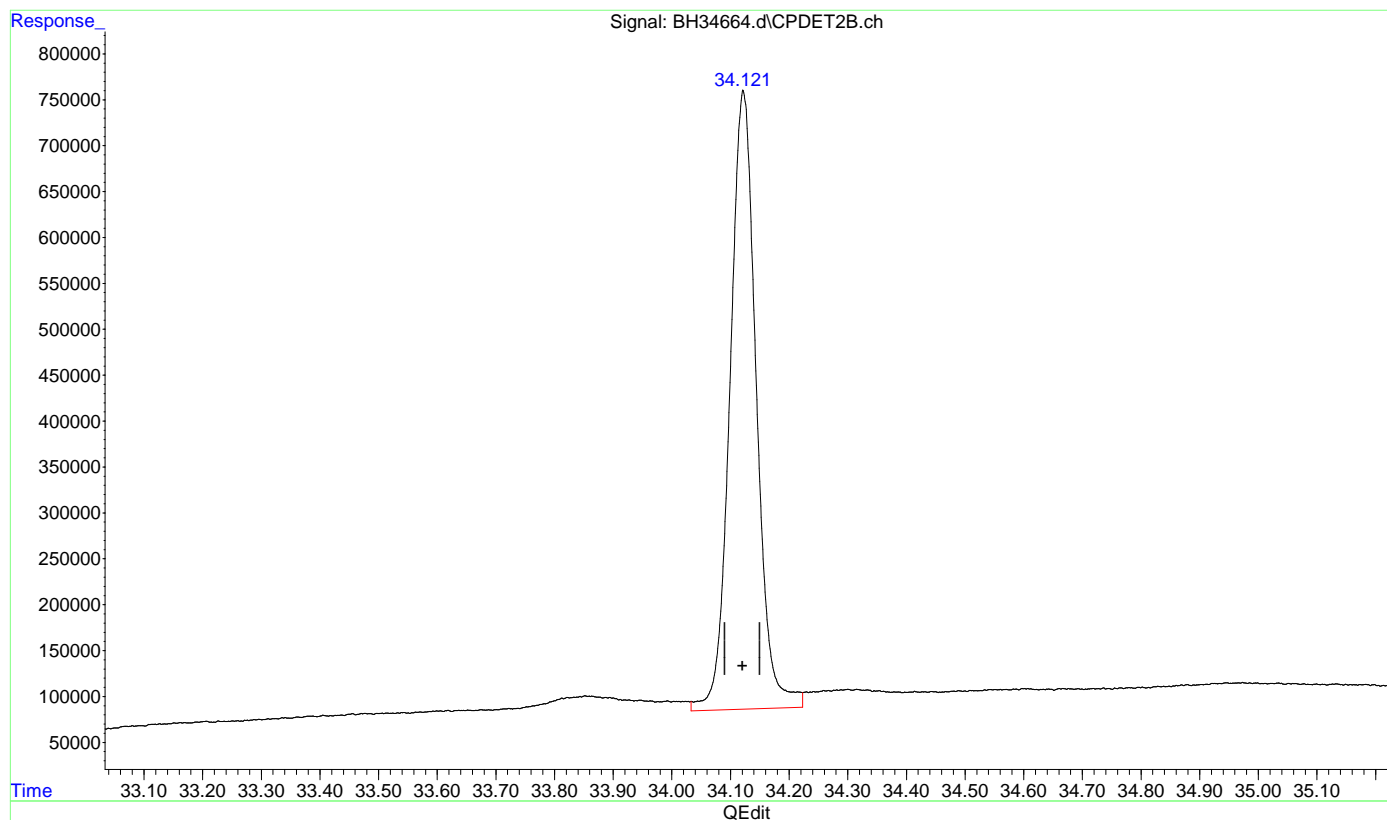
SGS

JD53080

7.5.4

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34664.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:55 pm
Operator  : johnn
Sample    : ic1313-10
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 17    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:57:38 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.4

7


```
MBH1313.M Wed Sep 28 09:47:21 2022                          Page: 2
```

#1 pentane

```
           R.T.:    6.936 min
Delta R.T.:   -0.006 min
   Response:    2403858
       Conc:    9.86 ppb
```
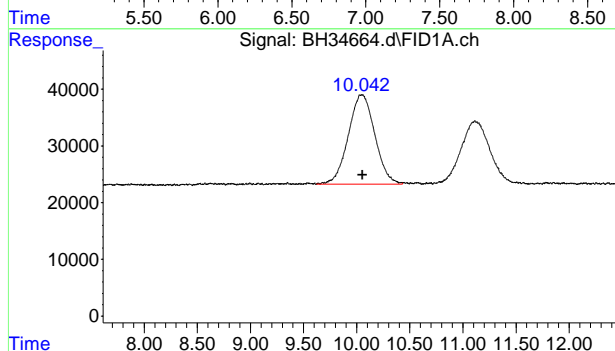
#2 2-methylpentane

```
           R.T.:   10.042 min
Delta R.T.:   -0.010 min
   Response:    2747976
       Conc:    9.95 ppb m
```
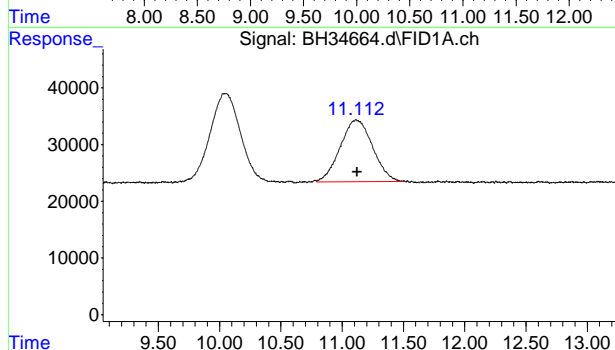
#3 Methyl Tert Butyl Ether

```
           R.T.:   11.112 min
Delta R.T.:   -0.009 min
   Response:    1999858
       Conc:   10.11 ppb
```
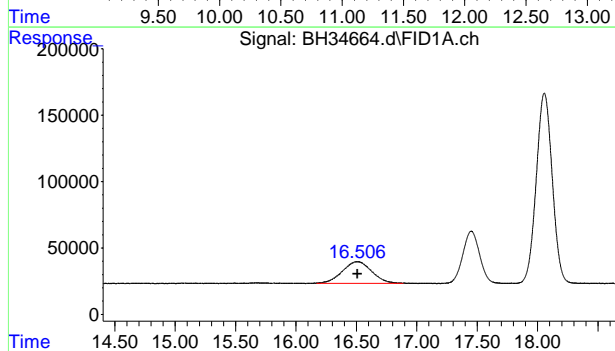
#4 2,2,4-trimethylpentane

```
           R.T.:   16.508 min
Delta R.T.:    0.000 min
   Response:    2756217
       Conc:    9.80 ppb
```
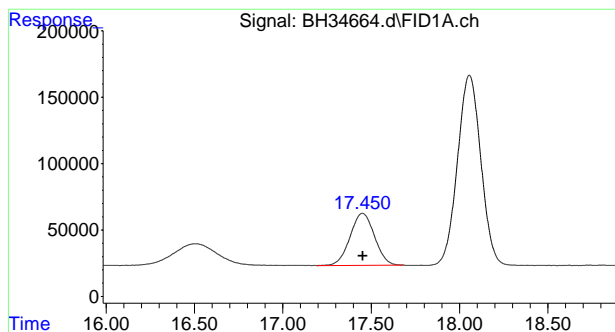
#5   benzene

            R.T.:   17.450 min
Delta R.T.:   -0.002 min
  Response: 3767735
      Conc: 9.95 ppb
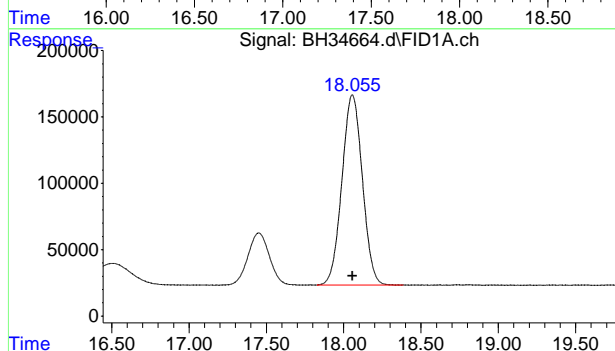
#6   fluorobenzene

            R.T.:   18.055 min
Delta R.T.:   -0.002 min
  Response: 13167451
      Conc: 49.79 ppb
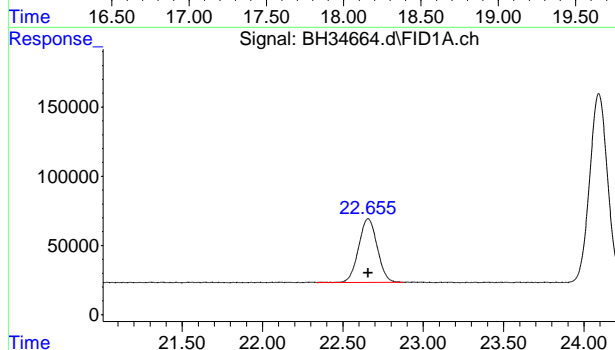
#7   toluene

            R.T.:   22.656 min
Delta R.T.:   0.000 min
  Response: 3721548
      Conc: 10.01 ppb
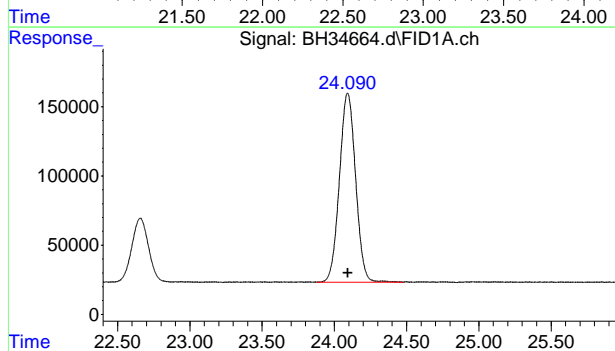
#8   2,3,4-trifluorotoluene

            R.T.:   24.091 min
Delta R.T.:   0.000 min
  Response: 10636309
      Conc: 49.82 ppb

7.5.4

7

BH34664.d   MBH1313.M   Wed Sep 28 09:47:22 2022
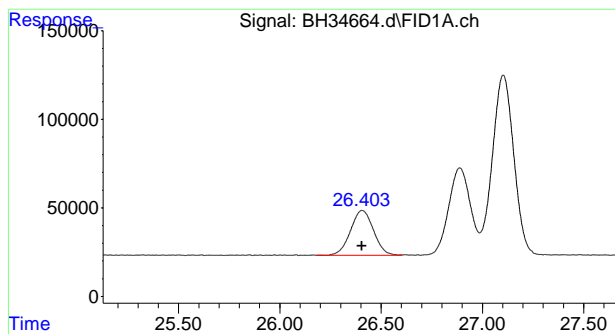
#9   nonane

R.T.:   26.405 min
Delta R.T.:   0.000 min
Response: 2004755
Conc: 9.70 ppb
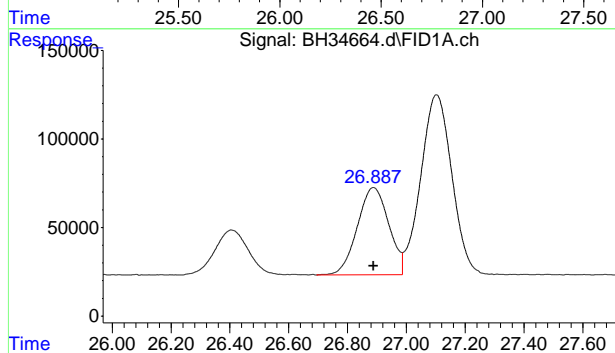
#10   ethylbenzene

R.T.:   26.888 min
Delta R.T.:   0.000 min
Response: 3660712
Conc: 9.95 ppb
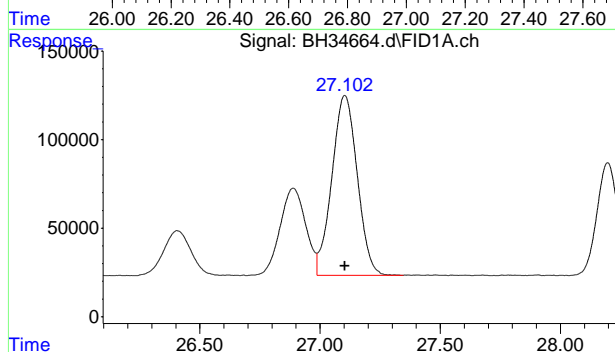
#11   m,p-xylene

R.T.:   27.103 min
Delta R.T.:   0.000 min
Response: 7474061
Conc: 19.91 ppb
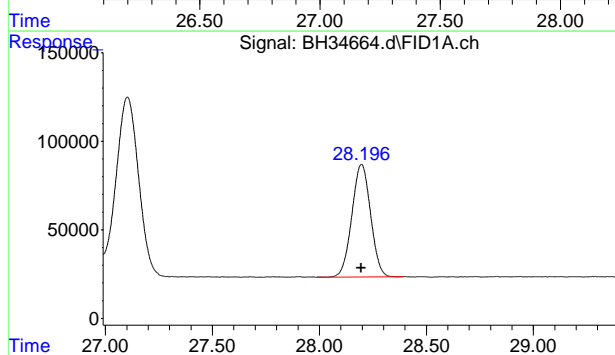
#12   o-xylene

R.T.:   28.196 min
Delta R.T.:   0.000 min
Response: 3874255
Conc: 10.01 ppb

7.5.4

7

BH34664.d   MBH1313.M   Wed Sep 28 09:47:23 2022
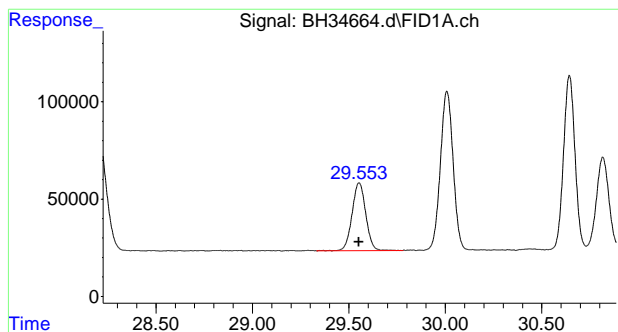
#13　decane

```
       R.T.:    29.552 min
Delta R.T.:     0.001 min
  Response:    1733744
      Conc:    9.30 ppb
```
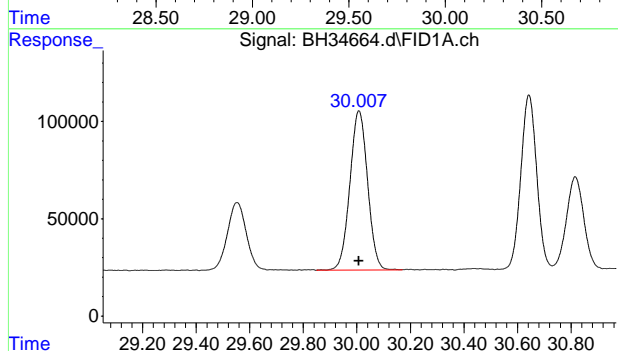

#14　1,3,5-trimethylbenzene

```
       R.T.:    30.008 min
Delta R.T.:     0.000 min
  Response:    3765419
      Conc:    9.97 ppb
```
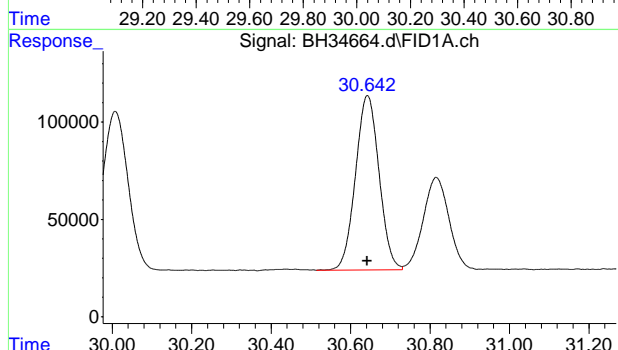

#15　1,2,4-trimethylbenzene

```
       R.T.:    30.643 min
Delta R.T.:     0.001 min
  Response:    3695719
      Conc:    9.95 ppb
```
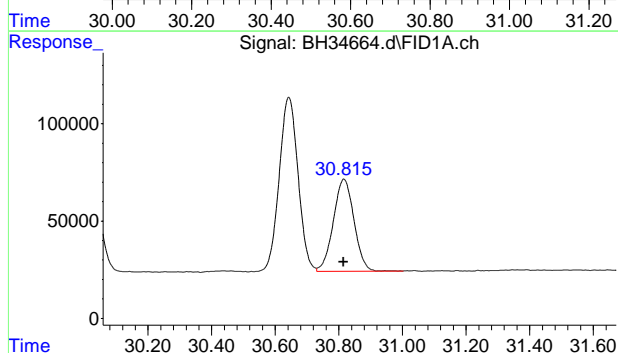

#16　butylcyclohexane

```
       R.T.:    30.816 min
Delta R.T.:     0.001 min
  Response:    2135169
      Conc:    9.74 ppb
```

7.5.4

7
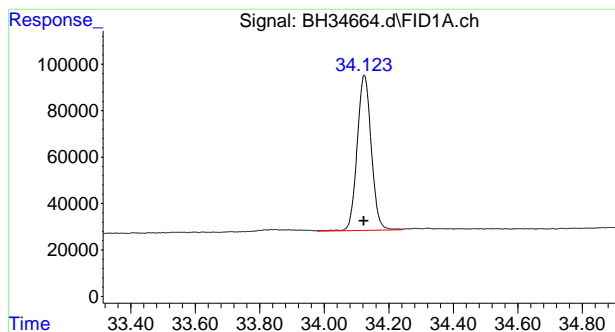
#17 naphthalene

```
        R.T.:     34.124 min
Delta R.T.:      0.002 min
  Response:    2032906
       Conc:    9.58 ppb
```
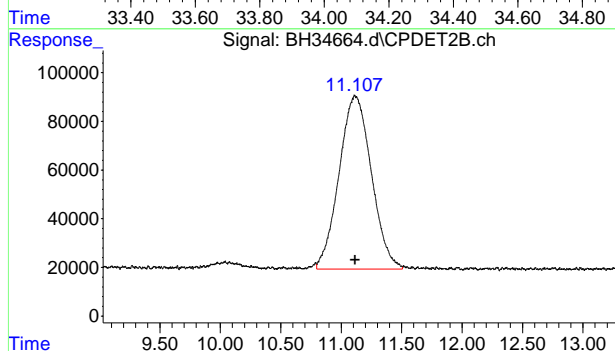

#21 Methyl Tert Butyl Ether #2

```
        R.T.:     11.109 min
Delta R.T.:     -0.006 min
  Response:   13245992
       Conc:   10.00 ppb
```
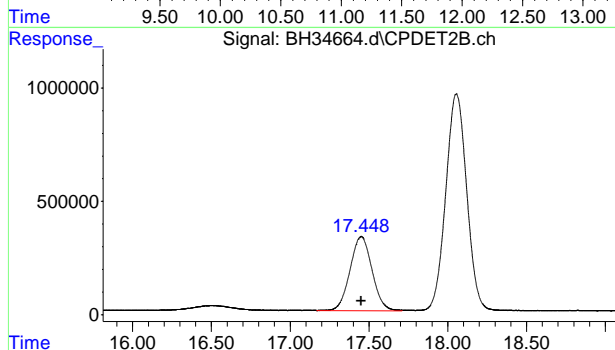

#22 benzene #2

```
        R.T.:     17.449 min
Delta R.T.:     -0.001 min
  Response:   31821056
       Conc:    9.89 ppb
```
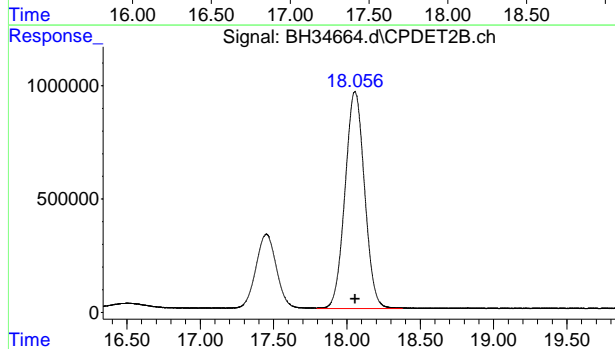

#23 fluorobenzene #2

```
        R.T.:     18.055 min
Delta R.T.:      0.000 min
  Response:   88505295
       Conc:   49.32 ppb
```

7.5.4

7
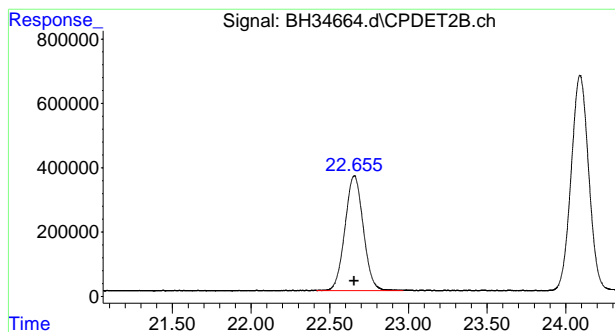
#24 toluene #2

             R.T.:   22.655 min
Delta R.T.:   0.001 min
  Response: 29007217
       Conc: 9.81 ppb
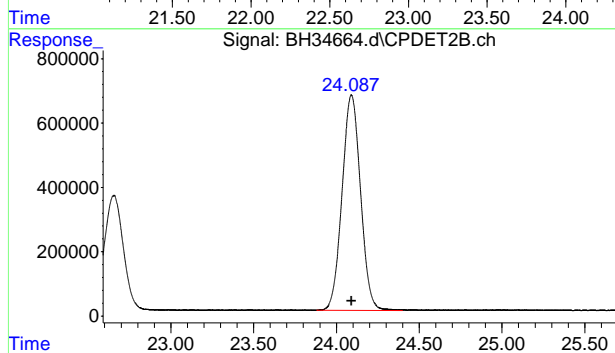
#25 2,3,4-trifluorotoluene #2

             R.T.:   24.090 min
Delta R.T.:   0.000 min
  Response: 52063162
       Conc: 49.03 ppb
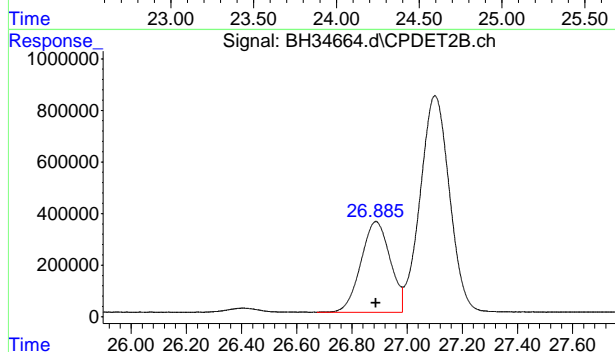
#26 ethylbenzene #2

             R.T.:   26.886 min
Delta R.T.:   0.000 min
  Response: 25968460
       Conc: 9.78 ppb
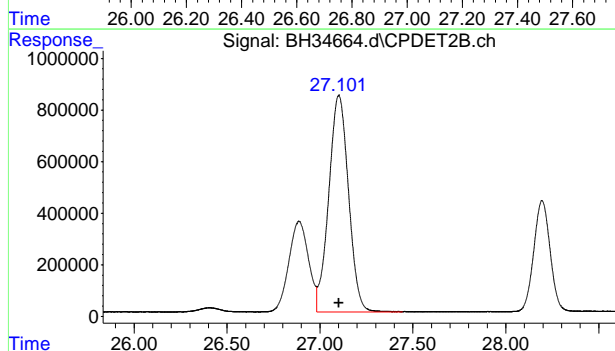
#27 m,p-xylene #2

             R.T.:   27.101 min
Delta R.T.:   0.000 min
  Response: 62033055
       Conc: 19.83 ppb

7.5.4

7

BH34664.d MBH1313.M   Wed Sep 28 09:47:24 2022
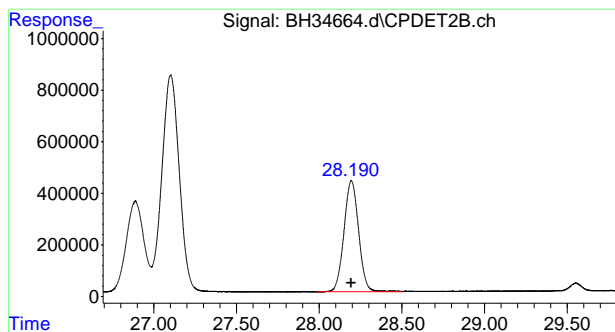
#28   o-xylene #2

```
        R.T.:    28.194 min
Delta R.T.:     0.000 min
  Response:  26478289
      Conc:    9.94 ppb
```
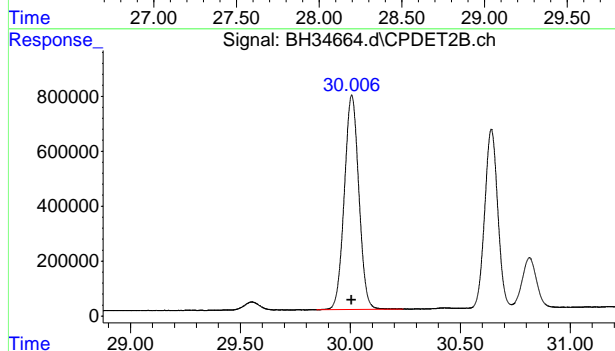

#29   1,3,5-trimethylbenzene #2

```
        R.T.:    30.006 min
Delta R.T.:     0.000 min
  Response:  35850329
      Conc:    9.86 ppb
```
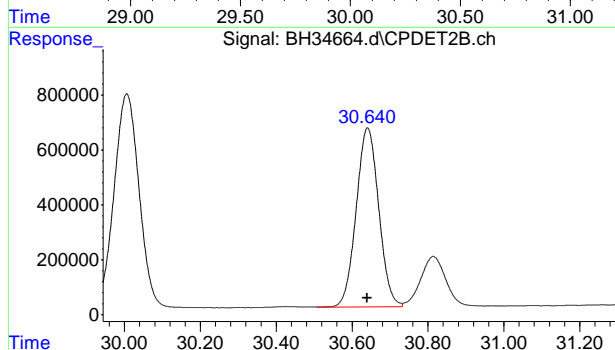

#30   1,2,4-trimethylbenzene #2

```
        R.T.:    30.641 min
Delta R.T.:     0.001 min
  Response:  26908621
      Conc:    9.81 ppb
```
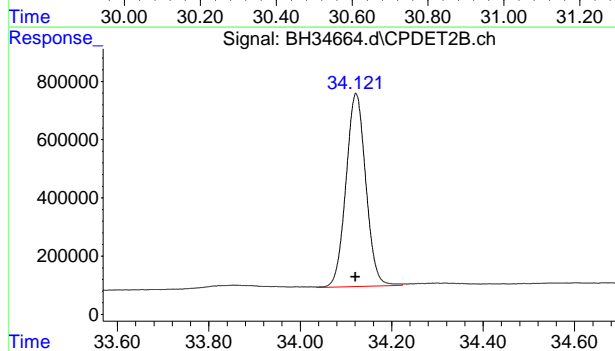

#31   naphthalene #2

```
        R.T.:    34.121 min
Delta R.T.:     0.000 min
  Response:  19987129
      Conc:    9.39 ppb m
```

Manual Integration Approval Summary

Sample Number: GBH1313-IC1313   **Method:**   MADEP VPH REV 2.1
Lab FileID: BH34664.D   **Analyst approved:** 09/28/22 09:54 John Nieradka
Injection Time: 09/27/22 20:55   **Supervisor approved:** 09/28/22 10:49 Kanya Veerawat

Parameter	CAS	Sig#	R.T. (min.)	Reason
2-Methylpentane	107-83-5	1	10.04	Poorly defined baseline
Naphthalene	91-20-3	2	34.12	Poorly defined baseline

7.5.4.1

7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34664.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   8:55 pm
Operator  : johnn
Sample    : ic1313-10
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 17   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:28 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                        Signal #2 Phase:
Signal #1 Info  :                        Signal #2 Info :
```


(2) 2-methylpentane

10.044min   9.684 ppb

response 2675517

```
 (+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:56:53 2022
```

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34664.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022   8:55 pm
Operator : johnn
Sample   : ic1313-10
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 17   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:28 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

Signal: BH34664.d\CPDET2B.ch

34.121

QEdit

(31) naphthalene #2

34.122min   9.891 ppb

response   21062159

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:57:24 2022

Page: 1

BH34664.D edits: naphthalene #2

```
                         Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34665.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   9:38 pm
Operator  : johnn
Sample    : ic1313-20
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 18   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:00:48 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

        Compound                  R.T.      Response    Conc Units
   ------------------------------------------------------------------------

  System Monitoring Compounds
  6) s   fluorobenzene             18.056    13225941   50.016 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  100.03%
  8) s   2,3,4-trifluorotoluene    24.091    10666909   49.966 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.93%
 23) s   fluorobenzene #2          18.054    89279613   49.755 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   99.51%
 25) s   2,3,4-trifluorotoluen...  24.090    52437109   49.377 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   98.75%


  Target Compounds
  1)     pentane                    6.934     4951041   20.318 ppb
  2)     2-methylpentane           10.049     5551992   20.095 ppb
  3)     Methyl Tert Butyl Ether   11.111     4025456   20.357 ppb
  4)     2,2,4-trimethylpentane    16.507     5703169   20.283 ppb
  5)     benzene                   17.451     7589149   20.038 ppb
  7)     toluene                   22.655     7423687   19.977 ppb
  9)     nonane                    26.405     4059973   19.642 ppb
 10)     ethylbenzene              26.887     7327924   19.924 ppb
 11)     m,p-xylene                27.102    15010564   39.981 ppb
 12)     o-xylene                  28.195     7737471   20.001 ppb
 13)     decane                    29.551     3427562   18.377 ppb
 14)     1,3,5-trimethylbenzene    30.007     7532995   19.939 ppb
 15)     1,2,4-trimethylbenzene    30.641     7394700   19.906 ppb
 16)     butylcyclohexane          30.815     4306595   19.640 ppb
 17)     naphthalene               34.122     4193031   19.762 ppb  m
 21)     Methyl Tert Butyl Eth...  11.121    26508706   20.017 ppb
 22)     benzene #2                17.449    63754488   19.819 ppb
 24)     toluene #2                22.654    58400537   19.758 ppb
 26)     ethylbenzene #2           26.886    52295414   19.702 ppb
 27) t   m,p-xylene #2             27.100   124522676   39.800 ppb
 28)     o-xylene #2               28.193    53056437   19.914 ppb
 29)     1,3,5-trimethylbenzen...  30.005    72299602   19.876 ppb
 30)     1,2,4-trimethylbenzen...  30.640    54239872   19.778 ppb
 31)     naphthalene #2            34.119    41455330   19.468 ppb  m
   ------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

7.5.5

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34665.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   9:38 pm
Operator  : johnn
Sample    : ic1313-20
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 18    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:00:48 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.5

7

MBH1313.M Wed Sep 28 09:47:30 2022   Page: 2

#1 pentane

```
         R.T.:     6.934 min
Delta R.T.:    -0.008 min
    Response:   4951041
         Conc:   20.32 ppb
```
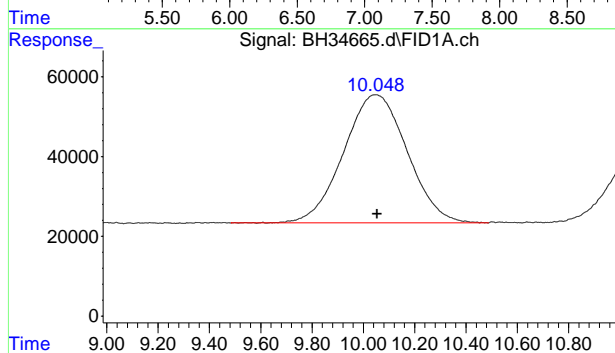
#2 2-methylpentane

```
         R.T.:    10.049 min
Delta R.T.:    -0.004 min
    Response:   5551992
         Conc:   20.10 ppb
```
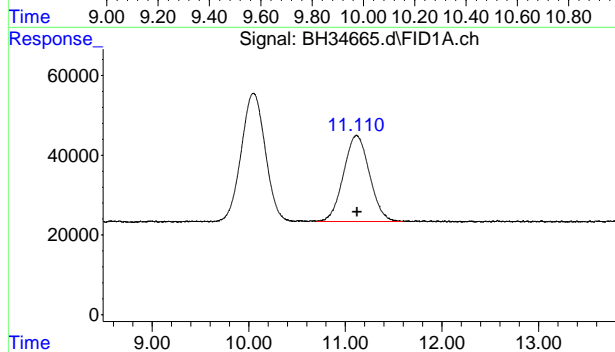
#3 Methyl Tert Butyl Ether

```
         R.T.:    11.111 min
Delta R.T.:    -0.010 min
    Response:   4025456
         Conc:   20.36 ppb
```
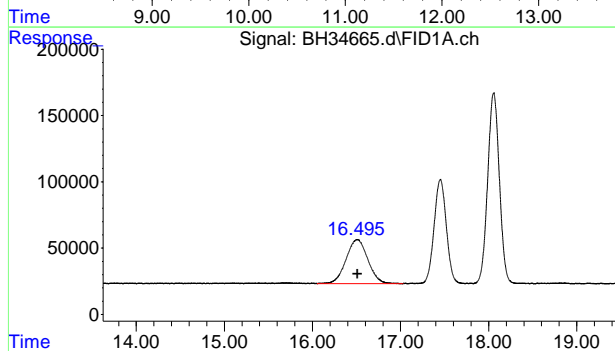
#4 2,2,4-trimethylpentane

```
         R.T.:    16.507 min
Delta R.T.:     0.000 min
    Response:   5703169
         Conc:   20.28 ppb
```

7.5.5

7
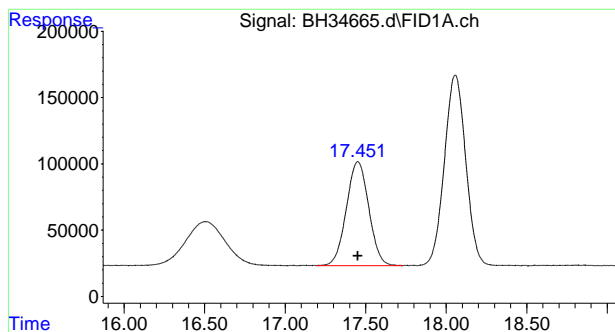
#5　benzene

　　　　　　　　R.T.:　　17.451 min
　　Delta R.T.:　　-0.001 min
　　　　Response:　　7589149
　　　　　　　Conc:　20.04 ppb
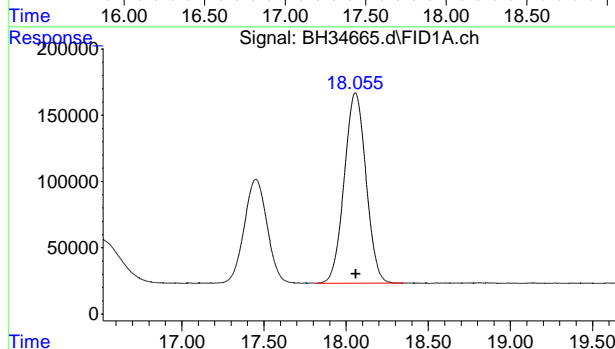
#6　fluorobenzene

　　　　　　　　R.T.:　　18.056 min
　　Delta R.T.:　　-0.002 min
　　　　Response:　13225941
　　　　　　　Conc:　50.02 ppb
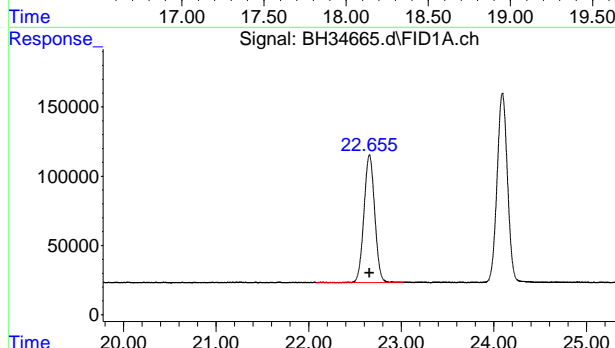
#7　toluene

　　　　　　　　R.T.:　　22.655 min
　　Delta R.T.:　　0.000 min
　　　　Response:　　7423687
　　　　　　　Conc:　19.98 ppb
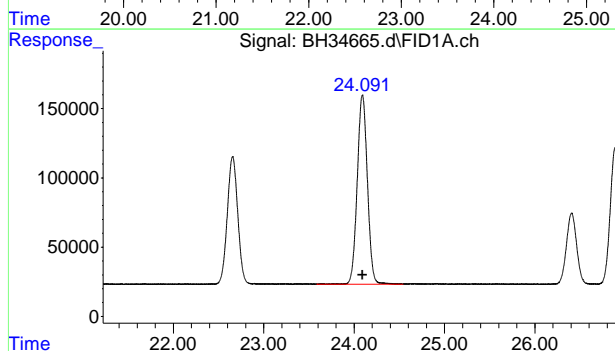
#8　2,3,4-trifluorotoluene

　　　　　　　　R.T.:　　24.091 min
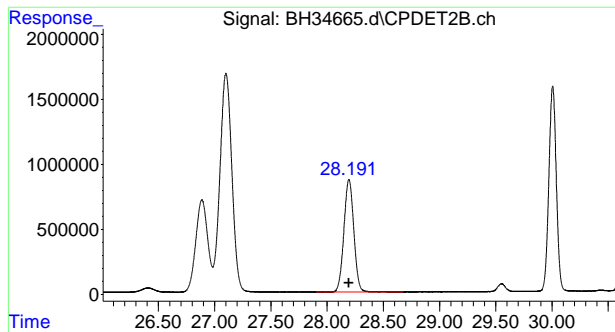　　Delta R.T.:　　0.000 min
　　　　Response:　10666909
　　　　　　　Conc:　49.97 ppb

BH34665.d　MBH1313.M　　　　Wed Sep 28 09:47:31 2022

SGS

JD53080
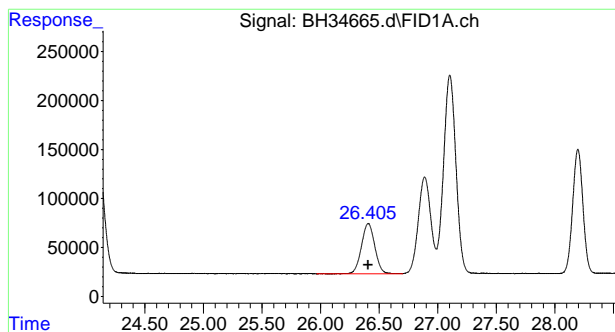
#9　nonane

```
        R.T.:    26.405 min
Delta R.T.:     0.000 min
  Response:    4059973
      Conc:    19.64 ppb
```
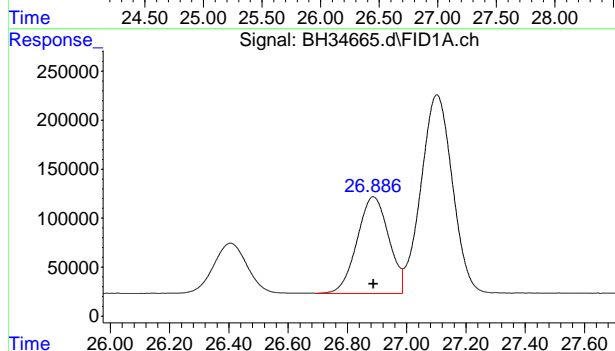
#10　ethylbenzene

```
        R.T.:    26.887 min
Delta R.T.:     0.000 min
  Response:    7327924
      Conc:    19.92 ppb
```
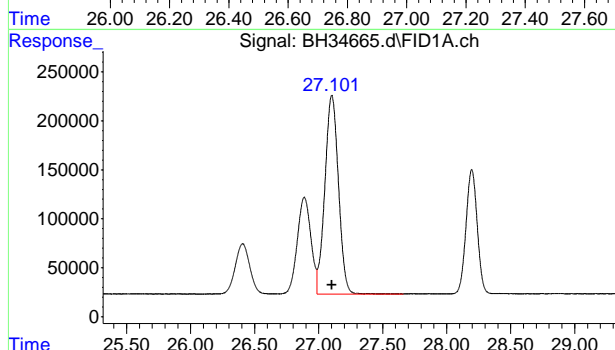
#11　m,p-xylene

```
        R.T.:    27.102 min
Delta R.T.:     0.000 min
  Response:   15010564
      Conc:    39.98 ppb
```
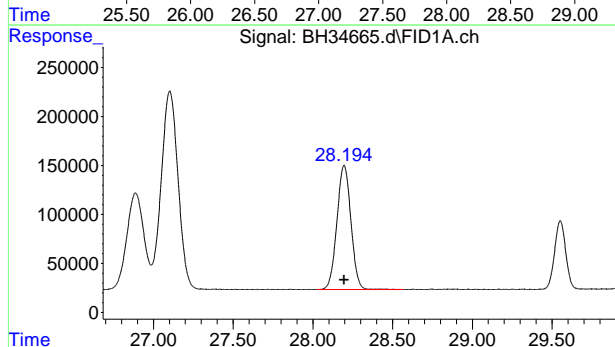
#12　o-xylene

```
        R.T.:    28.195 min
Delta R.T.:     0.000 min
  Response:    7737471
      Conc:    20.00 ppb
```

7.5.5

7

BH34665.d   MBH1313.M   Wed Sep 28 09:47:31 2022
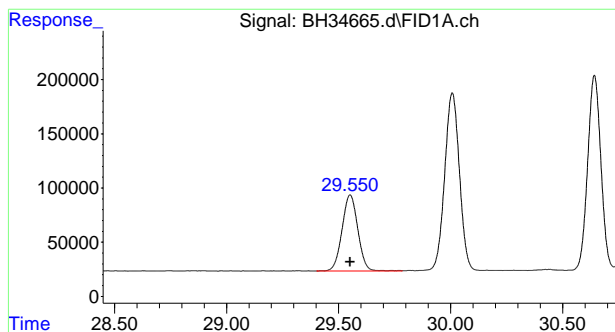
#13 decane

           R.T.:   29.551 min
Delta R.T.:   0.000 min
   Response: 3427562
       Conc: 18.38 ppb
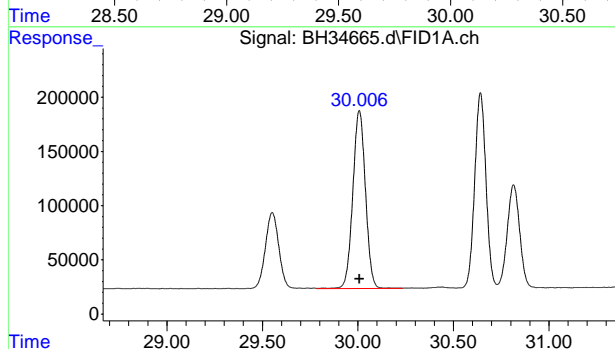
#14 1,3,5-trimethylbenzene

           R.T.:   30.007 min
Delta R.T.:   0.000 min
   Response: 7532995
       Conc: 19.94 ppb
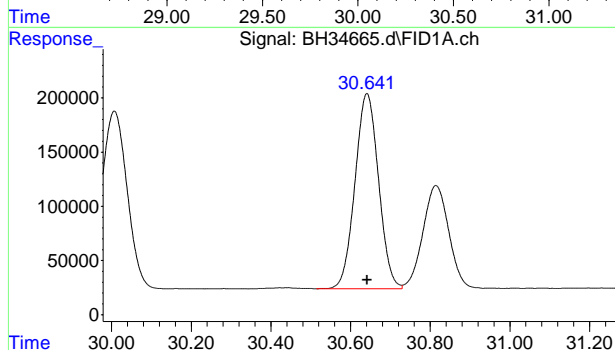
#15 1,2,4-trimethylbenzene

           R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 7394700
       Conc: 19.91 ppb
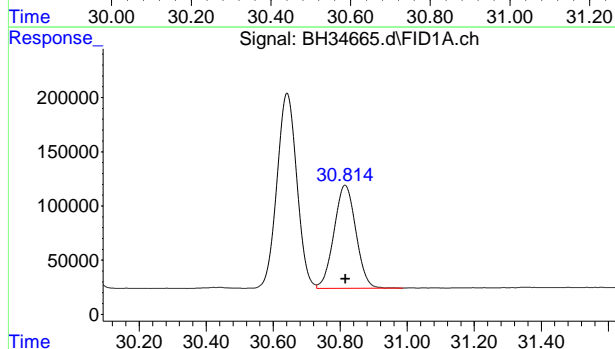
#16 butylcyclohexane

           R.T.:   30.815 min
Delta R.T.:   0.000 min
   Response: 4306595
       Conc: 19.64 ppb

7.5.5

7

BH34665.d MBH1313.M   Wed Sep 28 09:47:32 2022
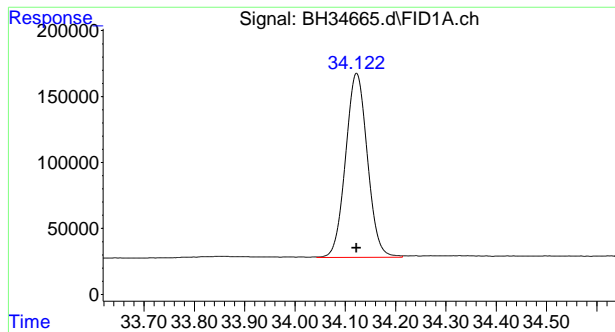
#17 naphthalene

```
      R.T.:    34.122 min
Delta R.T.:     0.000 min
  Response:   4193031
       Conc:   19.76 ppb m
```
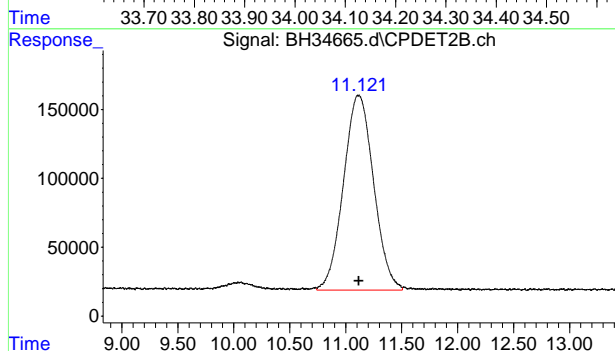
#21 Methyl Tert Butyl Ether #2

```
      R.T.:    11.121 min
Delta R.T.:     0.005 min
  Response:  26508706
       Conc:   20.02 ppb
```
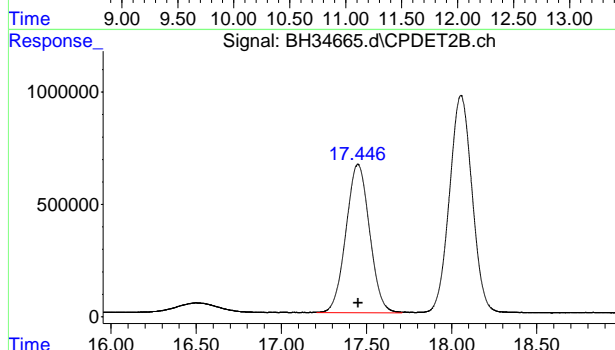
#22 benzene #2

```
      R.T.:    17.449 min
Delta R.T.:    -0.002 min
  Response:  63754488
       Conc:   19.82 ppb
```
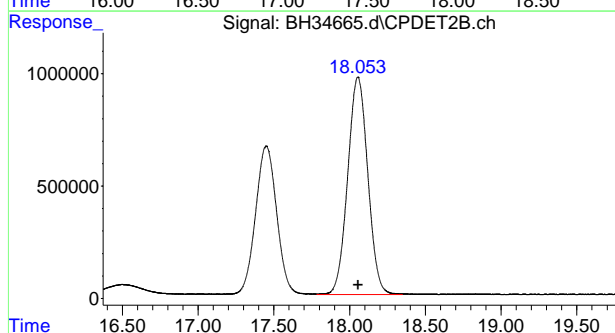
#23 fluorobenzene #2

```
      R.T.:    18.054 min
Delta R.T.:    -0.002 min
  Response:  89279613
       Conc:   49.75 ppb
```

7.5.5

7

BH34665.d   MBH1313.M   Wed Sep 28 09:47:32 2022
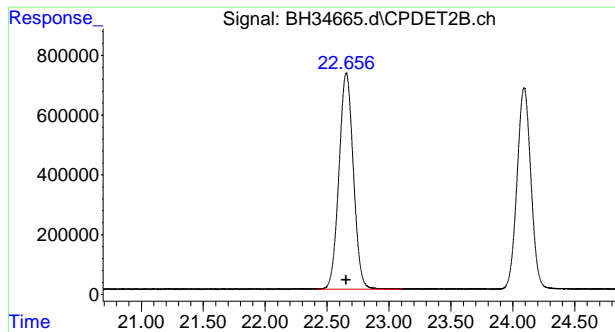
#24 toluene #2

```
       R.T.:    22.654 min
Delta R.T.:     0.000 min
  Response:  58400537
      Conc:   19.76 ppb
```
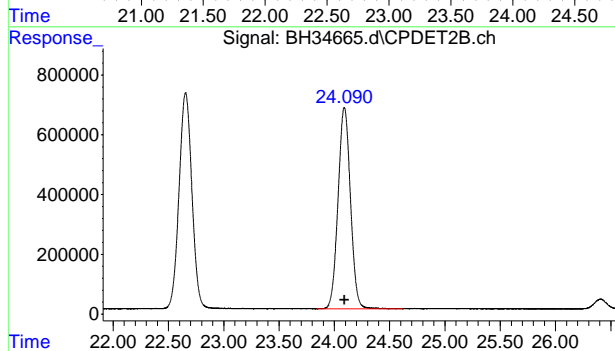
#25 2,3,4-trifluorotoluene #2

```
       R.T.:    24.090 min
Delta R.T.:     0.000 min
  Response:  52437109
      Conc:   49.38 ppb
```
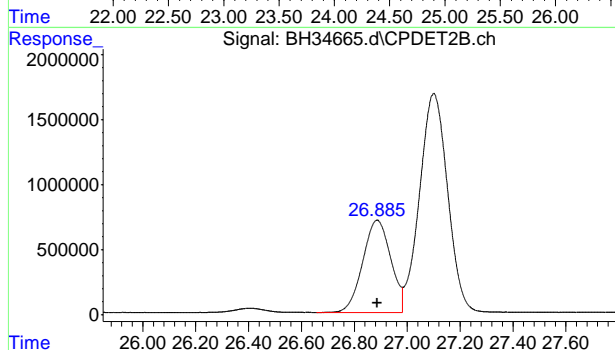
#26 ethylbenzene #2

```
       R.T.:    26.886 min
Delta R.T.:     0.000 min
  Response:  52295414
      Conc:   19.70 ppb
```
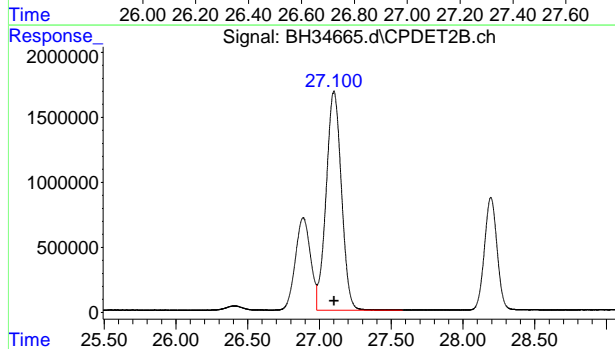
#27 m,p-xylene #2

```
       R.T.:    27.100 min
Delta R.T.:     0.000 min
  Response: 124522676
      Conc:   39.80 ppb
```

7.5.5

7

#28 o-xylene #2

```
       R.T.:    28.193 min
Delta R.T.:     0.000 min
  Response:  53056437
      Conc:   19.91 ppb
```
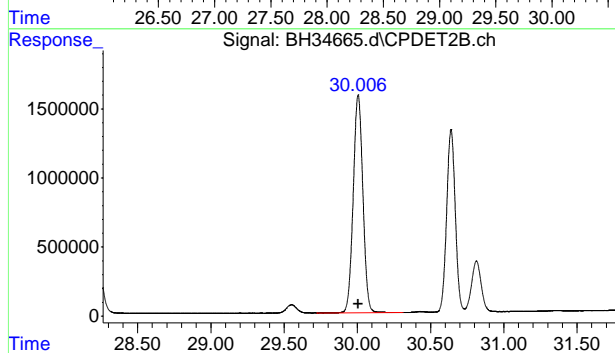

#29 1,3,5-trimethylbenzene #2

```
       R.T.:    30.005 min
Delta R.T.:     0.000 min
  Response:  72299602
      Conc:   19.88 ppb
```
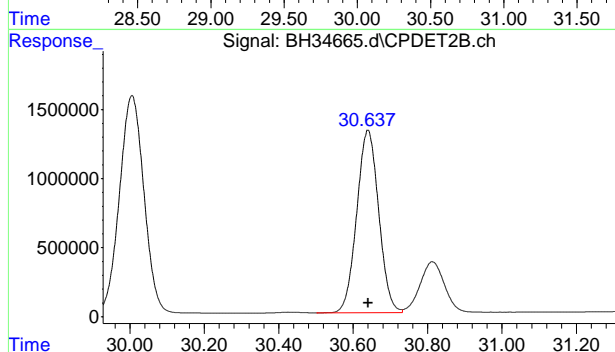

#30 1,2,4-trimethylbenzene #2

```
       R.T.:    30.640 min
Delta R.T.:     0.000 min
  Response:  54239872
      Conc:   19.78 ppb
```
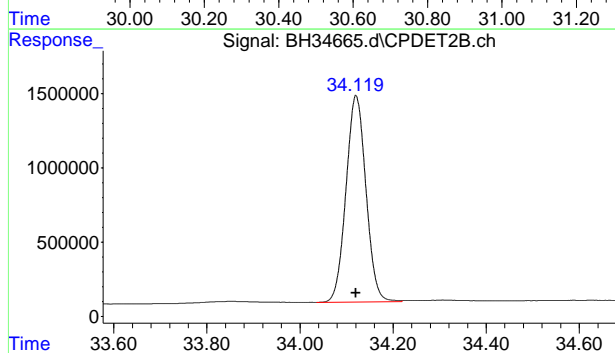

#31 naphthalene #2

```
       R.T.:    34.119 min
Delta R.T.:     0.000 min
  Response:  41455330
      Conc:   19.47 ppb m
```

7.5.5

7

Manual Integration Approval Summary

Sample Number:	GBH1313-IC1313	**Method:**	MADEP VPH REV 2.1	
Lab FileID:	BH34665.D	**Analyst approved:**	09/28/22 09:54 John Nieradka	
Injection Time:	09/27/22 21:38	**Supervisor approved:**	09/28/22 10:49 Kanya Veerawat	

Parameter	CAS	Sig#	R.T. (min.)	Reason
Naphthalene	91-20-3	1	34.12	Poorly defined baseline
Naphthalene	91-20-3	2	34.12	Poorly defined baseline

7.5.5.1

7

JD53080

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34665.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022    9:38 pm
Operator  : johnn
Sample    : ic1313-20
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 18    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :
```

7.5.5.2

7

(17) naphthalene

34.123min   20.365 ppb

response   4321114

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 09:00:15 2022

Page: 1

BH34665.D edits: naphthalene

```
                    Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34665.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022   9:38 pm
Operator  : johnn
Sample    : ic1313-20
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 18    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:31:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```
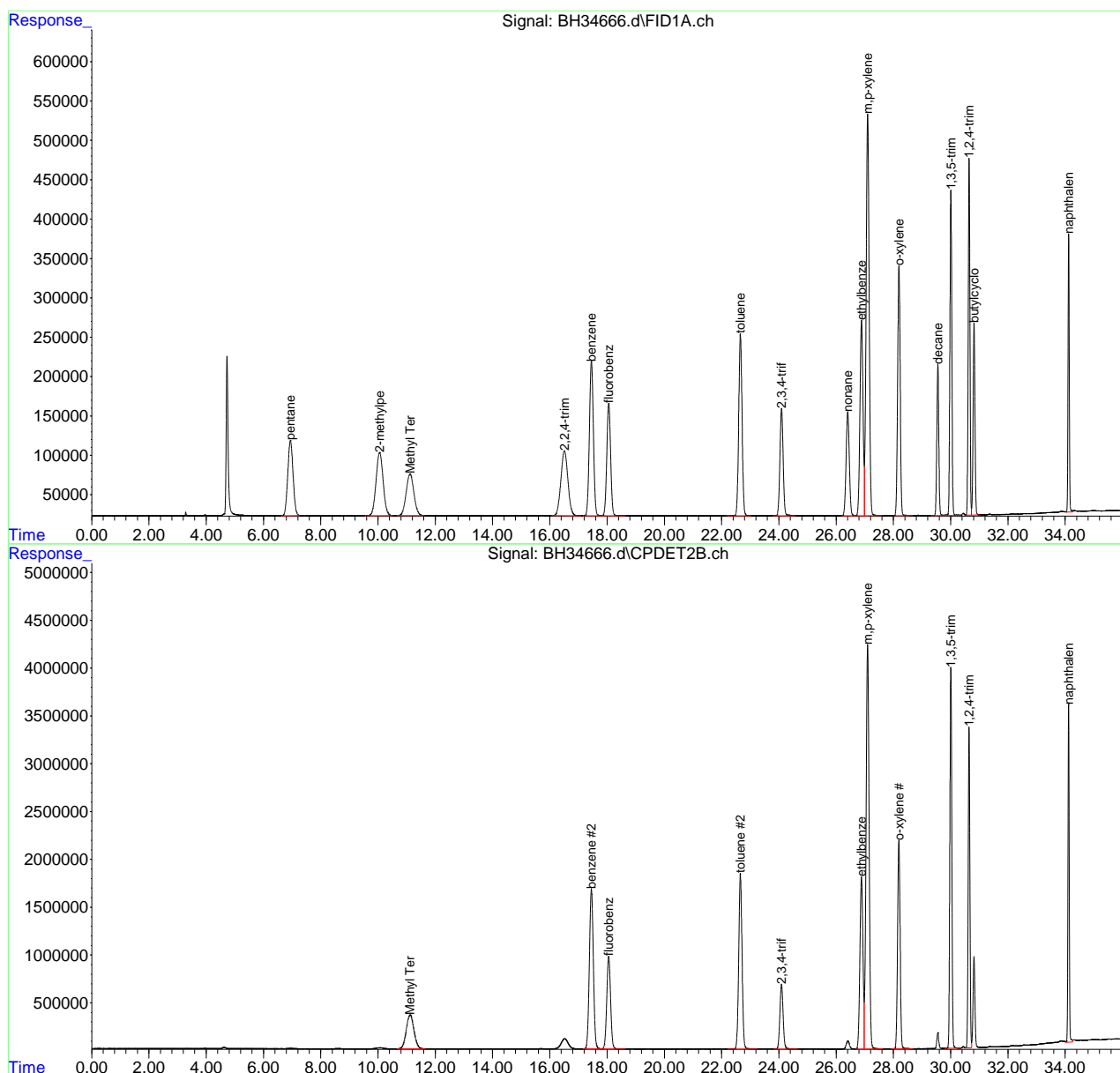

Signal: BH34665.d\CPDET2B.ch

QEdit

(31) naphthalene #2

34.121min   20.088 ppb

response   42774903

```
(+) = Expected Retention Time
MBH1313.M Wed Sep 28 09:00:39 2022
```
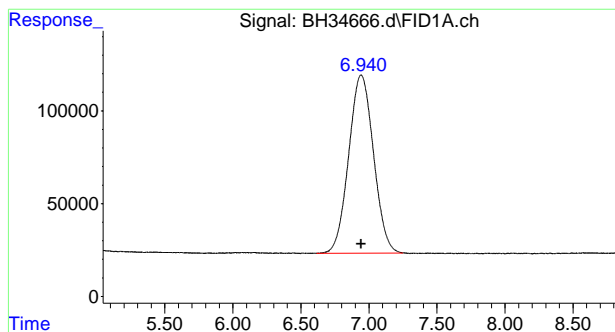
Page: 1

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34666.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022  10:20 pm
Operator  : johnn
Sample    : icc1313-50
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 19   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:03:34 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

```
        Compound                  R.T.      Response    Conc Units
  ----------------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.057     13221832   50.000 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  100.00%
 8) s   2,3,4-trifluorotoluene   24.092     10674173   50.000 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  100.00%
23) s   fluorobenzene #2         18.055     89719871   50.000 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  100.00%
25) s   2,3,4-trifluorotoluen... 24.090     53098327   50.000 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  100.00%


 Target Compounds
 1)     pentane                   6.942     12183853   50.000 ppb
 2)     2-methylpentane          10.053     13814239   50.000 ppb
 3)     Methyl Tert Butyl Ether  11.121      9887323   50.000 ppb
 4)     2,2,4-trimethylpentane   16.508     14058887   50.000 ppb
 5)     benzene                  17.452     18937345   50.000 ppb
 7)     toluene                  22.656     18580230   50.000 ppb
 9)     nonane                   26.405     10347472   50.062 ppb  m
10)     ethylbenzene             26.888     18389566   50.000 ppb
11)     m,p-xylene               27.103     37543805  100.000 ppb
12)     o-xylene                 28.195     19342509   50.000 ppb
13)     decane                   29.551      9325913   50.000 ppb
14)     1,3,5-trimethylbenzene   30.007     18889947   50.000 ppb
15)     1,2,4-trimethylbenzene   30.642     18574416   50.000 ppb
16)     butylcyclohexane         30.815     10963623   50.000 ppb
17)     naphthalene              34.122     10609044   50.000 ppb
21)     Methyl Tert Butyl Eth... 11.115     66215168   50.000 ppb
22)     benzene #2               17.451    160841547   50.000 ppb
24)     toluene #2               22.654    147792021   50.000 ppb
26)     ethylbenzene #2          26.886    132716023   50.000 ppb
27) t   m,p-xylene #2            27.101    312874121  100.000 ppb
28)     o-xylene #2              28.193    133216296   50.000 ppb
29)     1,3,5-trimethylbenzen... 30.005    181876234   50.000 ppb
30)     1,2,4-trimethylbenzen... 30.640    137122086   50.000 ppb
31)     naphthalene #2           34.120    106469406   50.000 ppb
  ----------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                    (m)=manual int.
```

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34666.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022  10:20 pm
Operator  : johnn
Sample    : icc1313-50
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 19   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:03:34 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.6

7


```
MBH1313.M Wed Sep 28 09:47:39 2022                          Page: 2
```

JD53080

#1 pentane

                R.T.:   6.942 min
     Delta R.T.:   0.000 min
        Response: 12183853
            Conc: 50.00 ppb
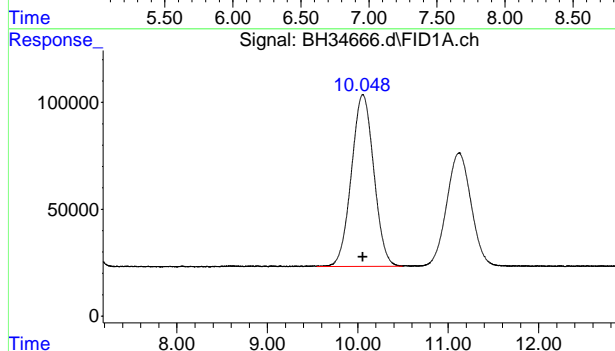
#2 2-methylpentane

                R.T.:   10.053 min
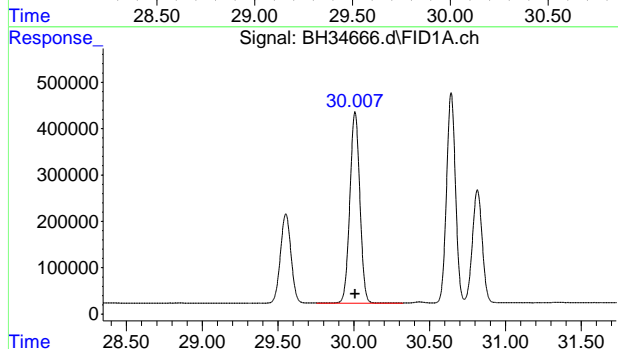   Delta R.T.:   0.000 min
        Response: 13814239
            Conc: 50.00 ppb
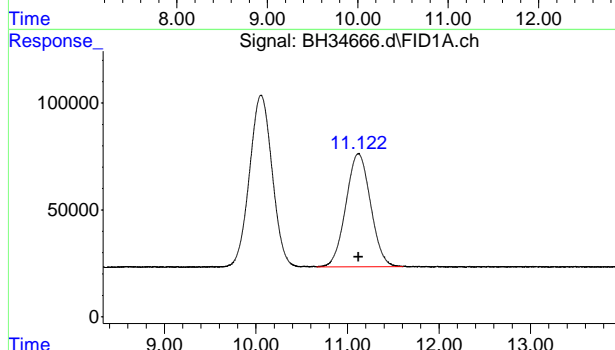
#3 Methyl Tert Butyl Ether

                R.T.:   11.121 min
     Delta R.T.:   0.000 min
        Response: 9887323
            Conc: 50.00 ppb
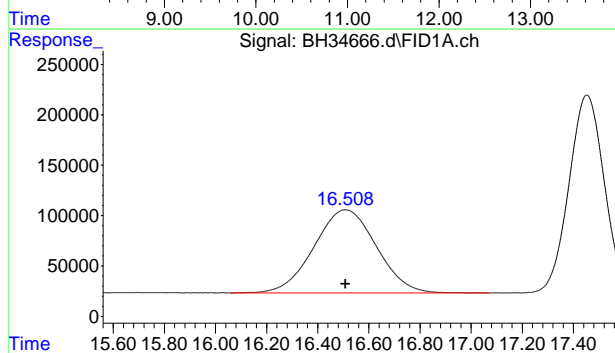
#4 2,2,4-trimethylpentane

                R.T.:   16.508 min
     Delta R.T.:   0.000 min
        Response: 14058887
            Conc: 50.00 ppb
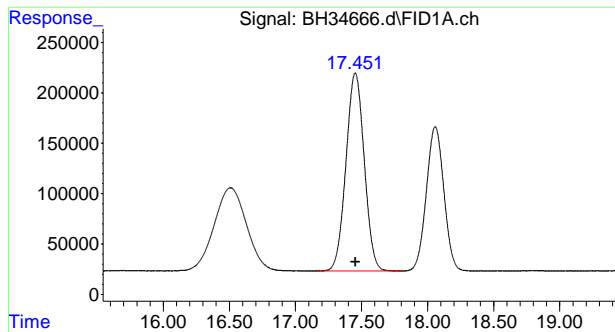
#5 benzene

R.T.: 17.452 min
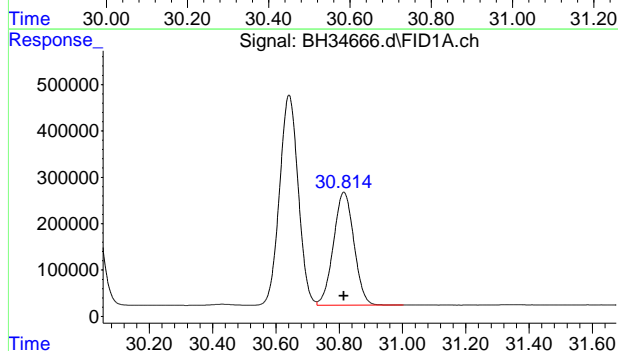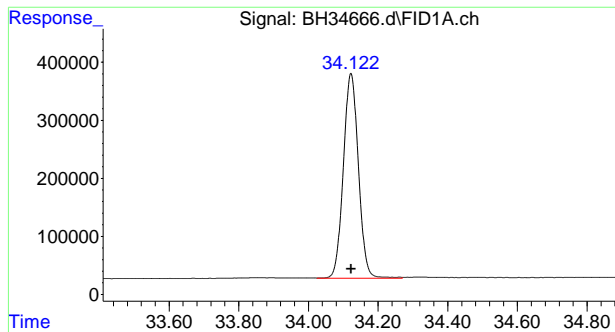Delta R.T.: 0.000 min
Response: 18937345
Conc: 50.00 ppb
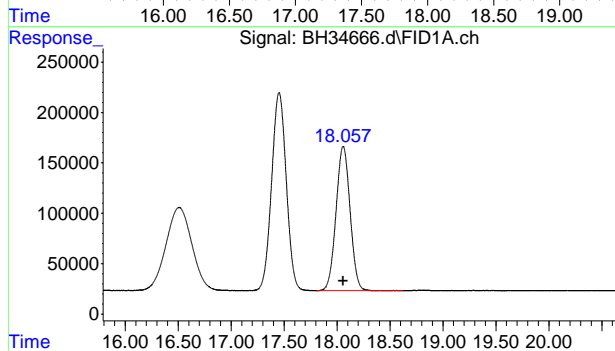
#6 fluorobenzene

R.T.: 18.057 min
Delta R.T.: 0.000 min
Response: 13221832
Conc: 50.00 ppb
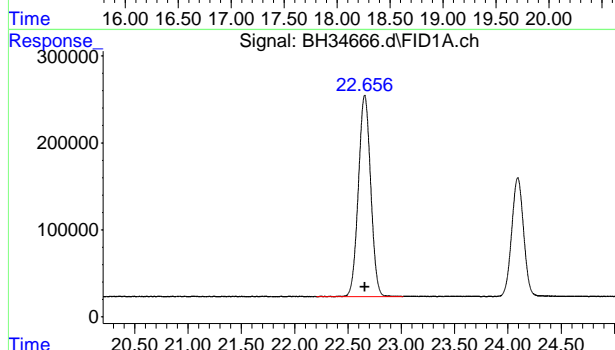
#7 toluene

R.T.: 22.656 min
Delta R.T.: 0.000 min
Response: 18580230
Conc: 50.00 ppb
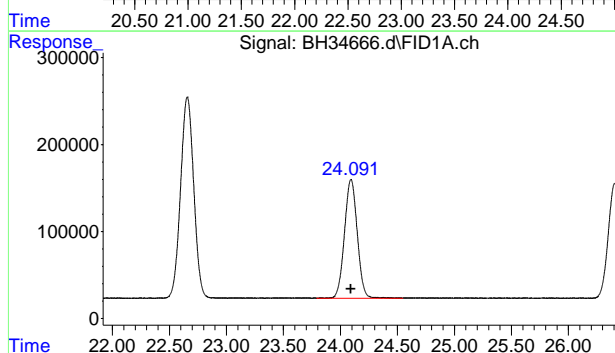
#8 2,3,4-trifluorotoluene

R.T.: 24.092 min
Delta R.T.: 0.000 min
Response: 10674173
Conc: 50.00 ppb
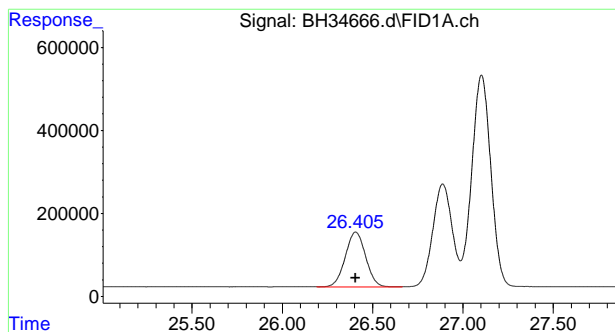
#9 nonane

```
       R.T.:    26.405 min
Delta R.T.:     0.000 min
  Response:  10347472
      Conc:   50.06 ppb m
```
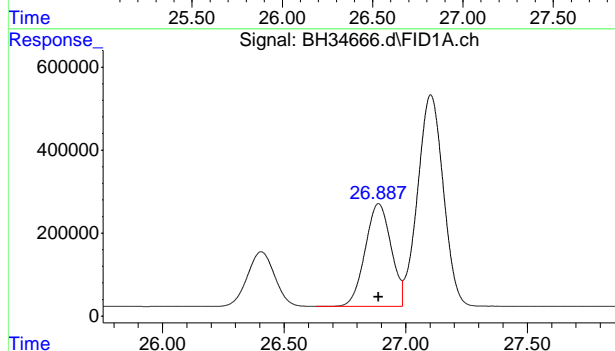
#10 ethylbenzene

```
       R.T.:    26.888 min
Delta R.T.:     0.000 min
  Response:  18389566
      Conc:   50.00 ppb
```
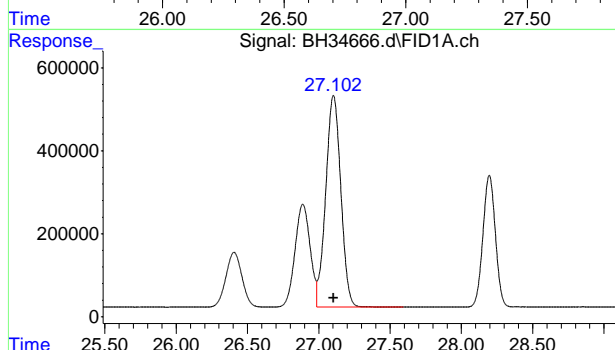
#11 m,p-xylene

```
       R.T.:    27.103 min
Delta R.T.:     0.000 min
  Response:  37543805
      Conc:  100.00 ppb
```
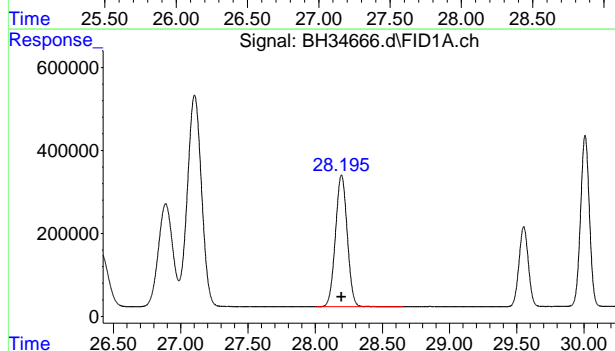
#12 o-xylene

```
       R.T.:    28.195 min
Delta R.T.:     0.000 min
  Response:  19342509
      Conc:   50.00 ppb
```

7.5.6

7
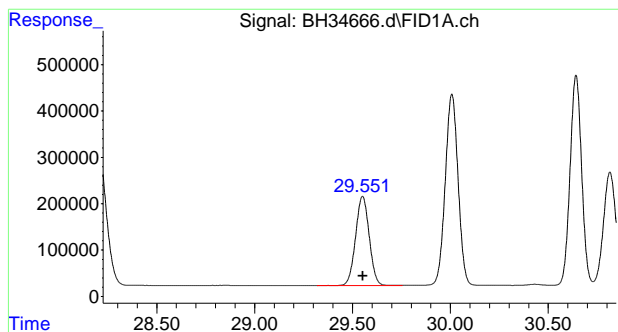
#13   decane

          R.T.:   29.551 min
Delta R.T.:   0.000 min
  Response: 9325913
      Conc: 50.00 ppb

#14   1,3,5-trimethylbenzene

          R.T.:   30.007 min
Delta R.T.:   0.000 min
  Response: 18889947
      Conc: 50.00 ppb
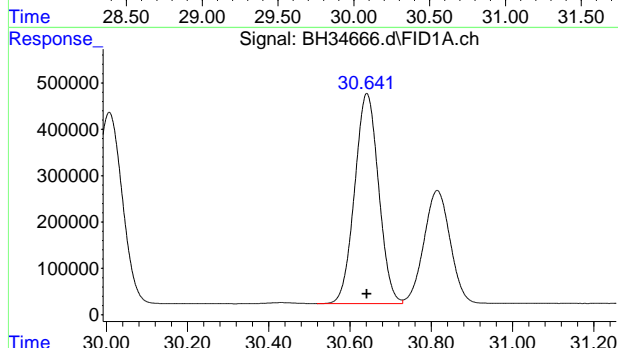
#15   1,2,4-trimethylbenzene

          R.T.:   30.642 min
Delta R.T.:   0.000 min
  Response: 18574416
      Conc: 50.00 ppb

#16   butylcyclohexane

          R.T.:   30.815 min
Delta R.T.:   0.000 min
  Response: 10963623
      Conc: 50.00 ppb

7.5.6

7

#17   naphthalene

        R.T.:   34.122 min
Delta R.T.:   0.000 min
  Response: 10609044
      Conc: 50.00 ppb
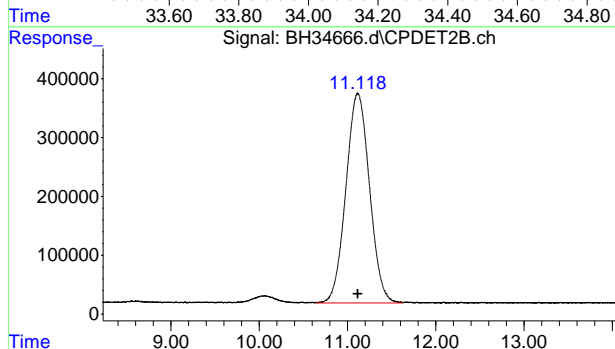
#21   Methyl Tert Butyl Ether #2

        R.T.:   11.115 min
Delta R.T.:   0.000 min
  Response: 66215168
      Conc: 50.00 ppb
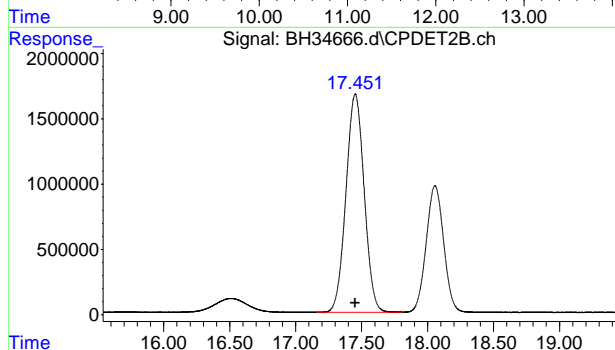
#22   benzene #2

        R.T.:   17.451 min
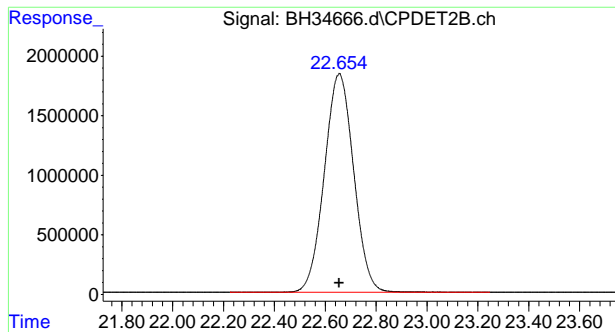Delta R.T.:   0.000 min
  Response: 160841547
      Conc: 50.00 ppb
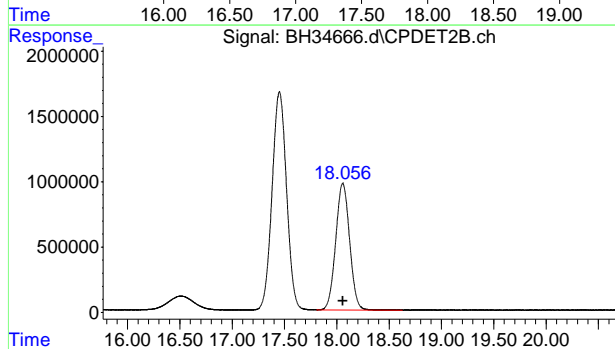
#23   fluorobenzene #2

        R.T.:   18.055 min
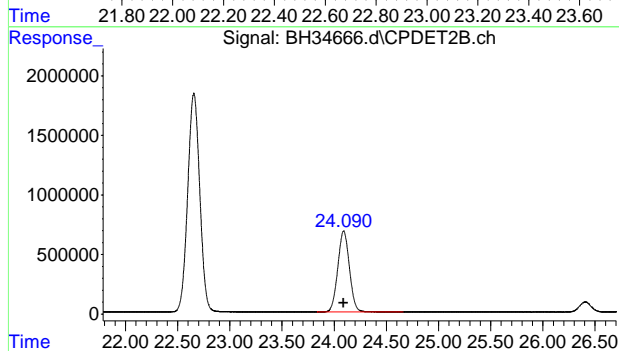Delta R.T.:   0.000 min
  Response: 89719871
      Conc: 50.00 ppb

7.5.6

7

BH34666.d   MBH1313.M   Wed Sep 28 09:47:41 2022   Page 8

#24 toluene #2

```
        R.T.:     22.654 min
Delta R.T.:      0.000 min
  Response: 147792021
        Conc:  50.00 ppb
```
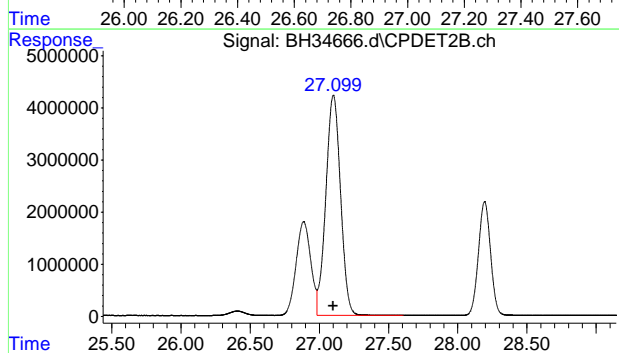

#25 2,3,4-trifluorotoluene #2

```
        R.T.:     24.090 min
Delta R.T.:      0.000 min
  Response: 53098327
        Conc:  50.00 ppb
```
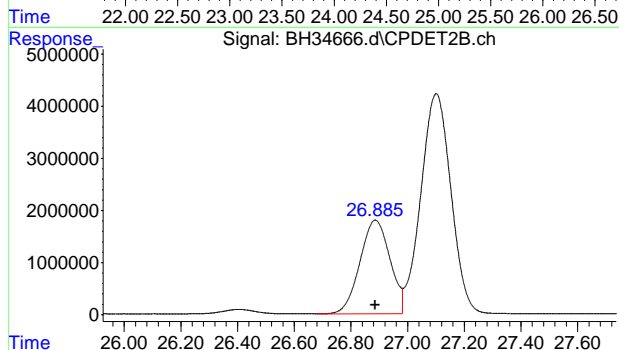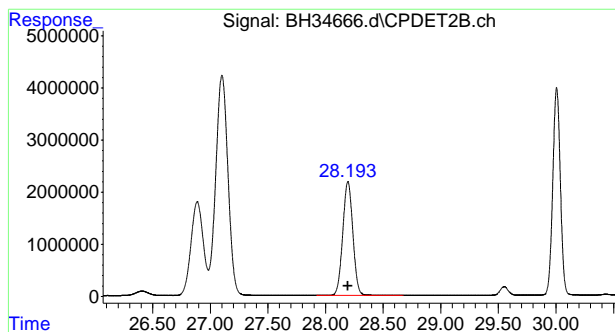

#26 ethylbenzene #2

```
        R.T.:     26.886 min
Delta R.T.:      0.000 min
  Response: 132716023
        Conc:  50.00 ppb
```
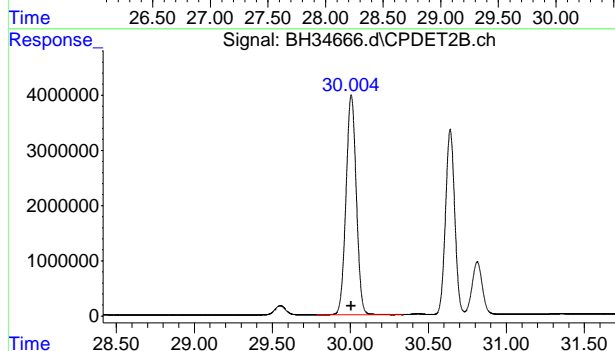

#27 m,p-xylene #2

```
        R.T.:     27.101 min
Delta R.T.:      0.000 min
  Response: 312874121
        Conc: 100.00 ppb
```
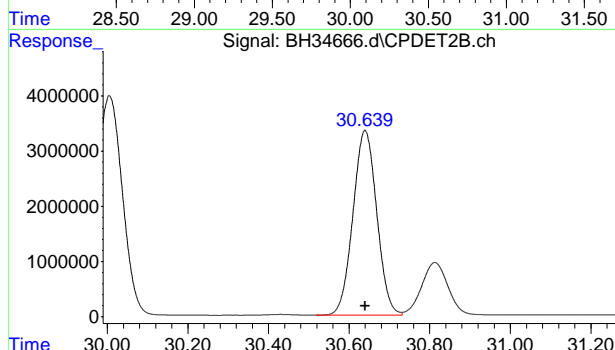
#28 o-xylene #2

```
      R.T.:    28.193 min
Delta R.T.:    0.000 min
  Response: 133216296
      Conc:  50.00 ppb
```
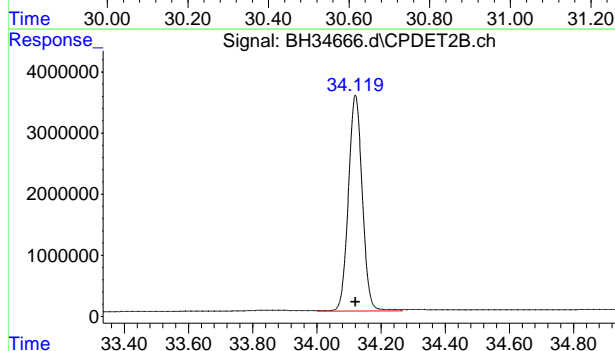

#29 1,3,5-trimethylbenzene #2

```
      R.T.:    30.005 min
Delta R.T.:    0.000 min
  Response: 181876234
      Conc:  50.00 ppb
```


#30 1,2,4-trimethylbenzene #2

```
      R.T.:    30.640 min
Delta R.T.:    0.000 min
  Response: 137122086
      Conc:  50.00 ppb
```


#31 naphthalene #2

```
      R.T.:    34.120 min
Delta R.T.:    0.000 min
  Response: 106469406
      Conc:  50.00 ppb
```

7.5.6

7

```
BH34666.d  MBH1313.M     Wed Sep 28 09:47:42 2022
```

Manual Integration Approval Summary

Sample Number: GBH1313-ICC1313   **Method:** MADEP VPH REV 2.1
Lab FileID: BH34666.D   **Analyst approved:** 09/28/22 09:54 John Nieradka
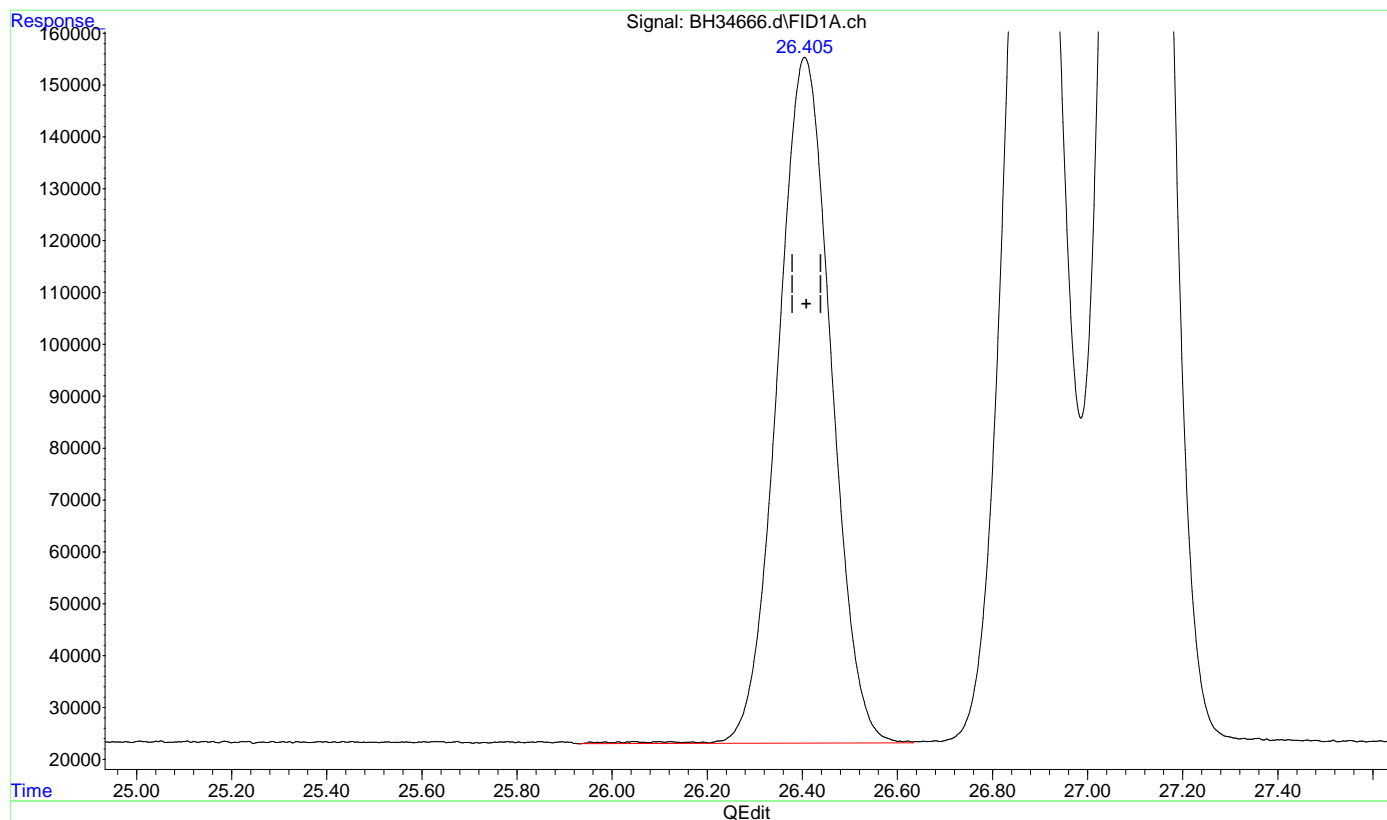**Injection Time:** 09/27/22 22:20   **Supervisor approved:** 09/28/22 10:49 Kanya Veerawat

Parameter	CAS	Sig#	R.T. (min.)	Reason
Nonane	111-84-2	1	26.40	Poorly defined baseline

7.5.6.1

7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34666.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022   10:20 pm
Operator : johnn
Sample   : icc1313-50
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 19   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 08:29:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 07 12:15:18 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

(9) nonane

26.406min   0.000 ppb

response 10380741

(+) = Expected Retention Time
MBH1313.M Wed Sep 28 08:29:34 2022   Page: 1

BH34666.D edits: nonane   JD53080

```
                         Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34667.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 27 Sep 2022  11:03 pm
Operator  : johnn
Sample    : ic1313-100
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 20   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:06:51 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :

        Compound                 R.T.      Response    Conc Units
   -------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.055    13704770   51.826 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  103.65%
 8) s   2,3,4-trifluorotoluene   24.091    10996632   51.510 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  103.02%
23) s   fluorobenzene #2         18.053    93970327   52.369 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  104.74%
25) s   2,3,4-trifluorotoluen... 24.089    54948139   51.742 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  103.48%

 Target Compounds
 1)     pentane                   6.932    24099009   98.897 ppb
 2)     2-methylpentane          10.047    27162330   98.313 ppb
 3)     Methyl Tert Butyl Ether  11.108    19580293   99.017 ppb
 4)     2,2,4-trimethylpentane   16.505    28113798   99.986 ppb
 5)     benzene                  17.449    37094908   97.941 ppb
 7)     toluene                  22.655    36258459   97.573 ppb
 9)     nonane                   26.405    24147807  116.829 ppb
10)     ethylbenzene             26.887    36061922   98.050 ppb
11)     m,p-xylene               27.102    73780594  196.519 ppb
12)     o-xylene                 28.196    38218738   98.795 ppb
13)     decane                   29.552    27208095  145.874 ppb
14)     1,3,5-trimethylbenzene   30.008    37257078   98.616 ppb
15)     1,2,4-trimethylbenzene   30.642    36842293   99.175 ppb
16)     butylcyclohexane         30.815    25130971  114.611 ppb
17)     naphthalene              34.123    22025041  103.803 ppb
21)     Methyl Tert Butyl Eth... 11.111   133626677  100.903 ppb
22)     benzene #2               17.447   317450601   98.684 ppb
24)     toluene #2               22.653   289150404   97.823 ppb
26)     ethylbenzene #2          26.885   261397315   98.480 ppb
27) t   m,p-xylene #2            27.100   612552305  195.782 ppb
28)     o-xylene #2              28.193   262484203   98.518 ppb
29)     1,3,5-trimethylbenzen... 30.006   358390074   98.526 ppb
30)     1,2,4-trimethylbenzen... 30.640   271435438   98.976 ppb
31)     naphthalene #2           34.121   219442833  103.054 ppb
   -------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

7.5.7
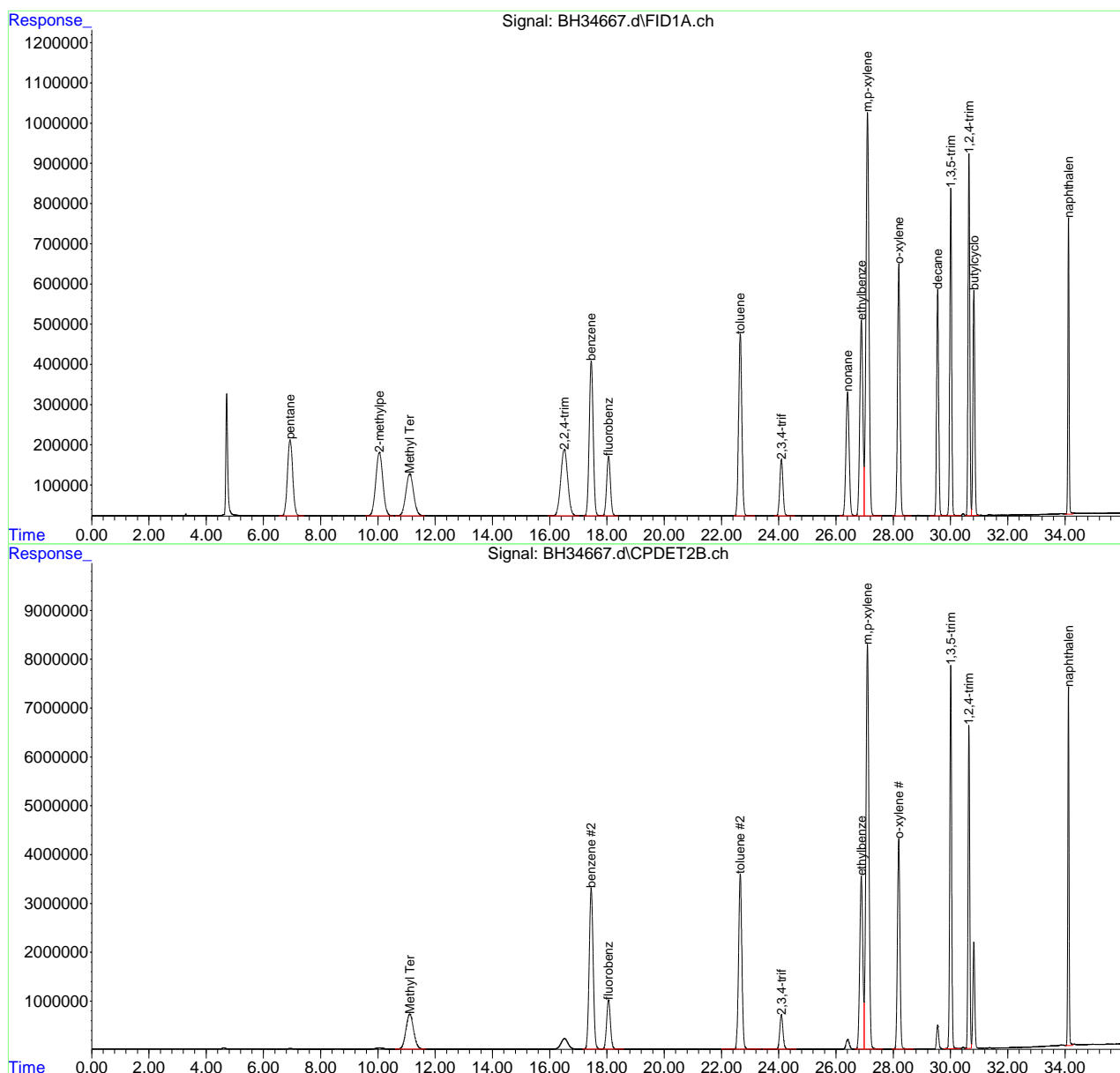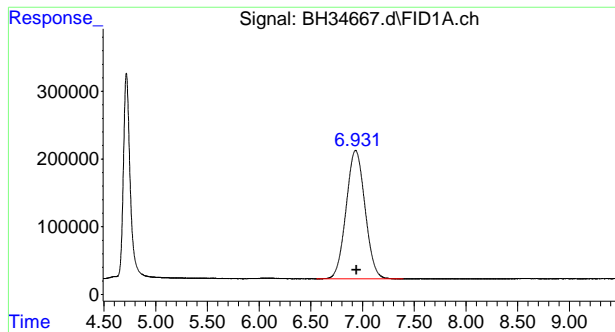
7

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34667.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022 11:03 pm
Operator : johnn
Sample   : ic1313-100
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 20   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:06:51 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
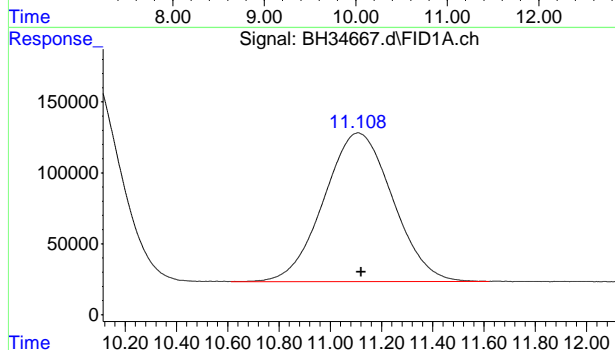Signal #1 Info :   Signal #2 Info :

MBH1313.M Wed Sep 28 09:47:48 2022   Page: 2

Signal: BH34667.d\FID1A.ch

#1   pentane

```
       R.T.:      6.932 min
Delta R.T.:     -0.010 min
  Response:    24099009
      Conc:    98.90 ppb
```
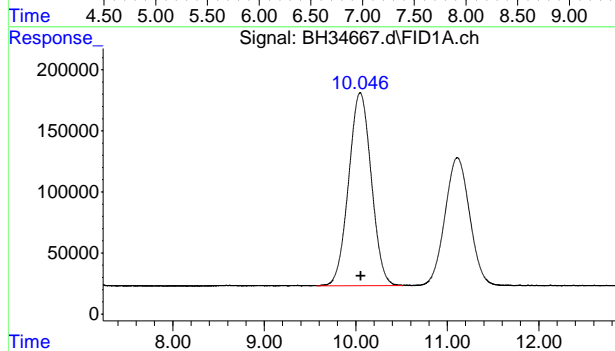
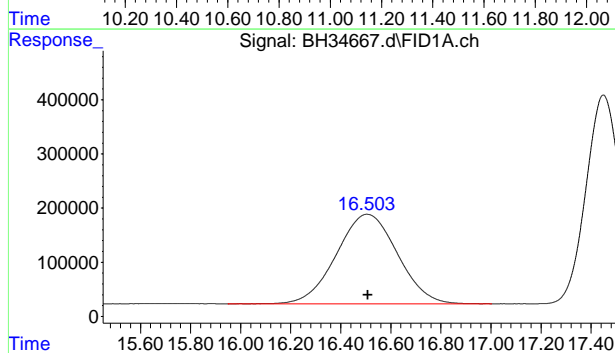#2   2-methylpentane

```
       R.T.:     10.047 min
Delta R.T.:     -0.006 min
  Response:    27162330
      Conc:    98.31 ppb
```

#3   Methyl Tert Butyl Ether

```
       R.T.:     11.108 min
Delta R.T.:     -0.012 min
  Response:    19580293
      Conc:    99.02 ppb
```
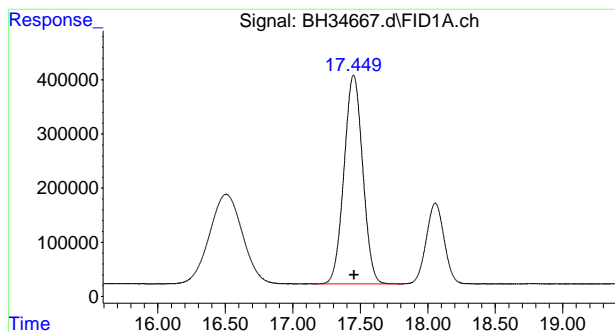
#4   2,2,4-trimethylpentane

```
       R.T.:     16.505 min
Delta R.T.:     -0.002 min
  Response:    28113798
      Conc:    99.99 ppb
```

7.5.7

7

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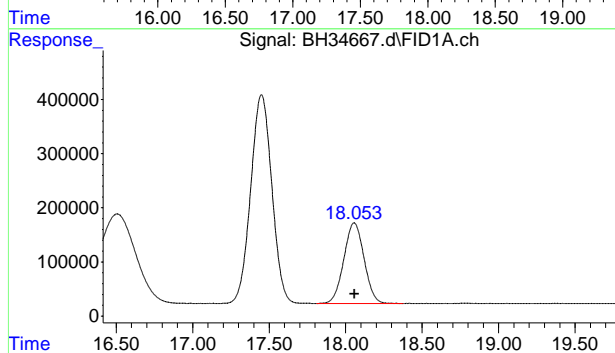
JD53080
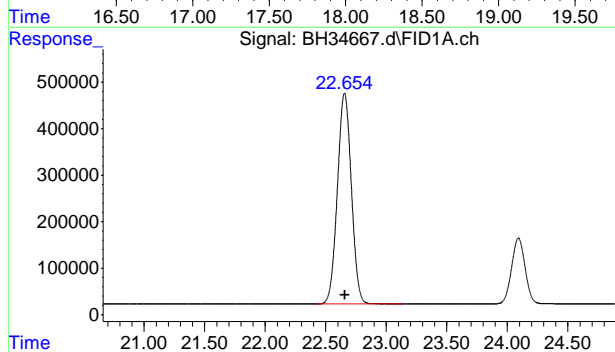
#5   benzene

          R.T.:   17.449 min
Delta R.T.:   -0.003 min
  Response: 37094908
      Conc: 97.94 ppb
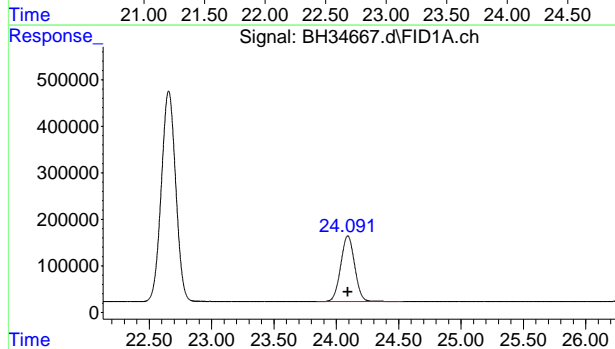
#6   fluorobenzene

          R.T.:   18.055 min
Delta R.T.:   -0.002 min
  Response: 13704770
      Conc: 51.83 ppb
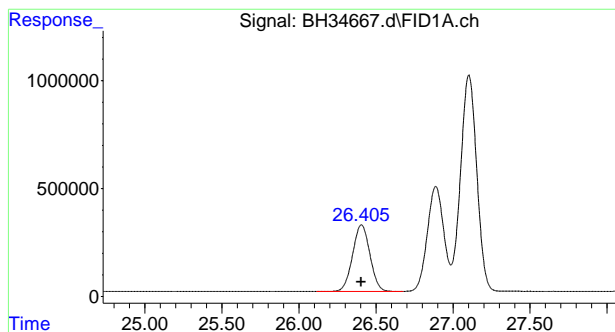
#7   toluene

          R.T.:   22.655 min
Delta R.T.:   -0.001 min
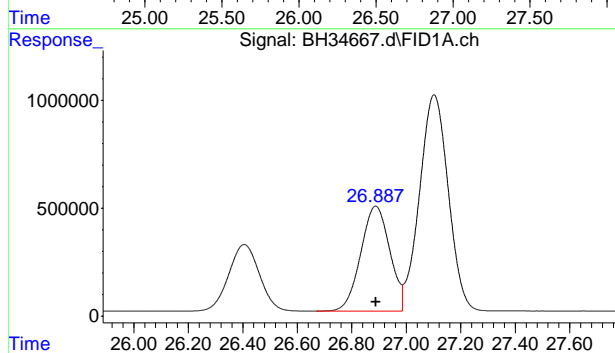 Response: 36258459
      Conc: 97.57 ppb

#8   2,3,4-trifluorotoluene

          R.T.:   24.091 min
Delta R.T.:   0.000 min
  Response: 10996632
      Conc: 51.51 ppb

7.5.7
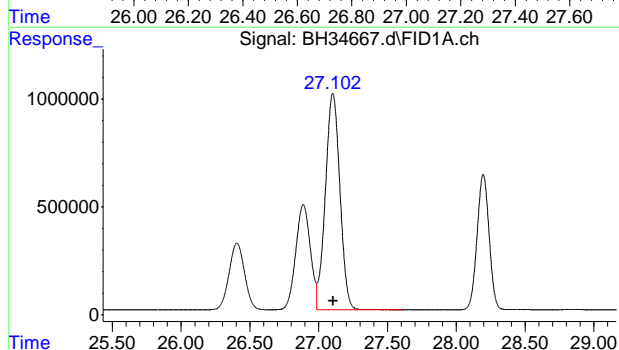
7

#9 nonane

           R.T.:   26.405 min
Delta R.T.:   0.000 min
    Response: 24147807
       Conc: 116.83 ppb

#10 ethylbenzene

           R.T.:   26.887 min
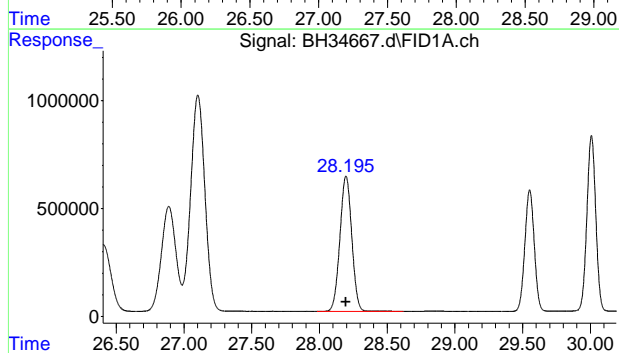Delta R.T.:   0.000 min
    Response: 36061922
       Conc: 98.05 ppb
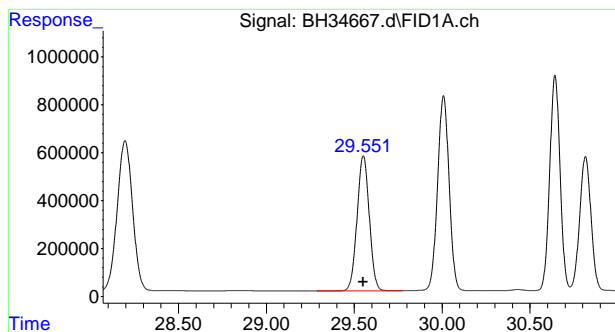
#11 m,p-xylene

           R.T.:   27.102 min
Delta R.T.:   0.000 min
    Response: 73780594
       Conc: 196.52 ppb

#12 o-xylene

           R.T.:   28.196 min
Delta R.T.:   0.000 min
    Response: 38218738
       Conc: 98.79 ppb

7.5.7

7

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#13   decane

           R.T.:   29.552 min
Delta R.T.:   0.000 min
   Response: 27208095
       Conc: 145.87 ppb
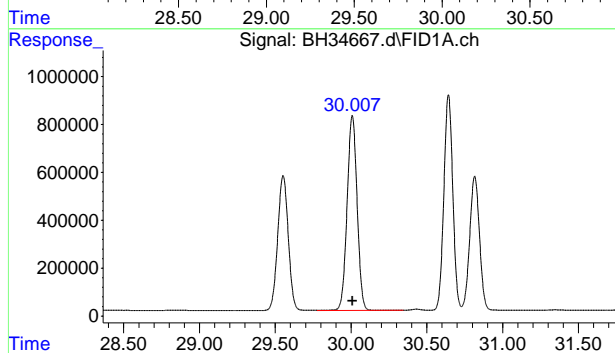
#14   1,3,5-trimethylbenzene

           R.T.:   30.008 min
Delta R.T.:   0.000 min
   Response: 37257078
       Conc: 98.62 ppb
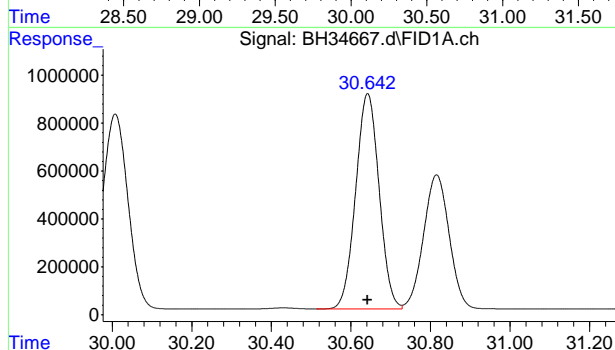
#15   1,2,4-trimethylbenzene

           R.T.:   30.642 min
Delta R.T.:   0.000 min
   Response: 36842293
       Conc: 99.17 ppb
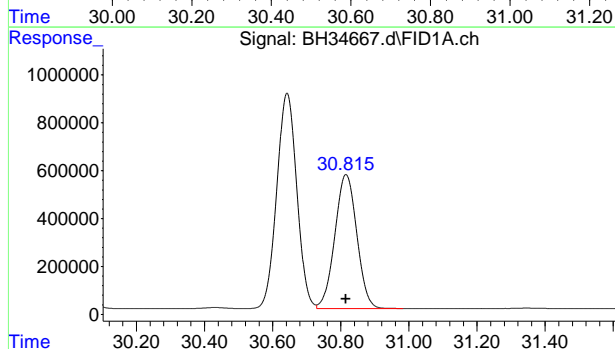
#16   butylcyclohexane

           R.T.:   30.815 min
Delta R.T.:   0.000 min
   Response: 25130971
       Conc: 114.61 ppb

7.5.7

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#17 naphthalene

R.T.:   34.123 min
Delta R.T.:   0.000 min
Response: 22025041
Conc: 103.80 ppb

#21 Methyl Tert Butyl Ether #2

R.T.:   11.111 min
Delta R.T.:   -0.005 min
Response: 133626677
Conc: 100.90 ppb
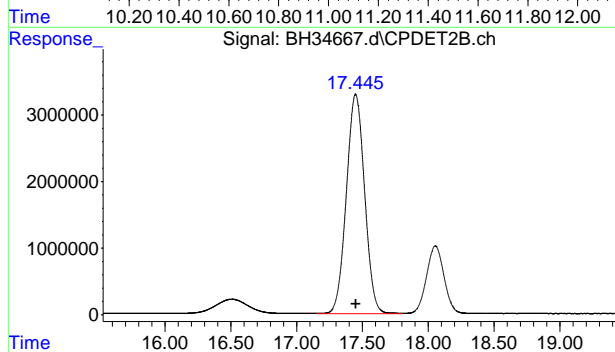
#22 benzene #2

R.T.:   17.447 min
Delta R.T.:   -0.004 min
Response: 317450601
Conc: 98.68 ppb
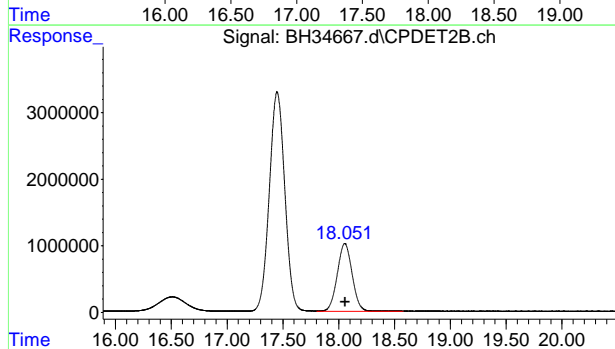
#23 fluorobenzene #2

R.T.:   18.053 min
Delta R.T.:   -0.003 min
Response: 93970327
Conc: 52.37 ppb

7.5.7

7
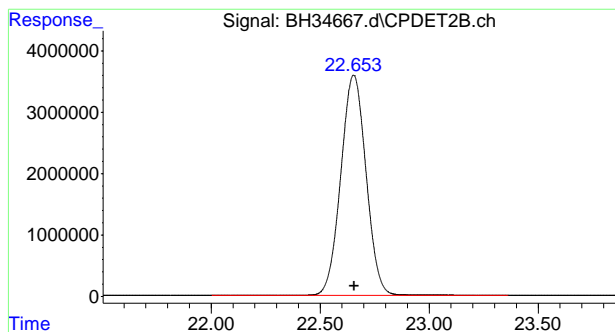
#24 toluene #2

```
         R.T.:    22.653 min
Delta R.T.:    -0.001 min
   Response: 289150404
        Conc:  97.82 ppb
```
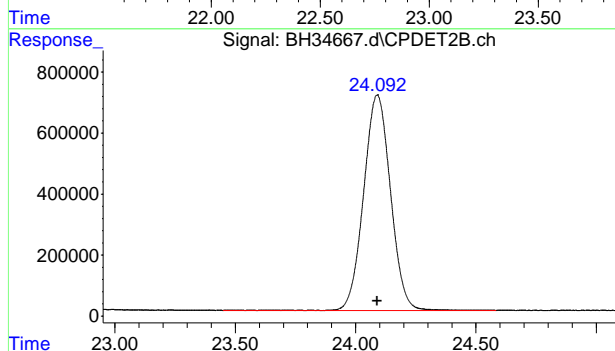
#25 2,3,4-trifluorotoluene #2

```
         R.T.:    24.089 min
Delta R.T.:     0.000 min
   Response: 54948139
        Conc:  51.74 ppb
```
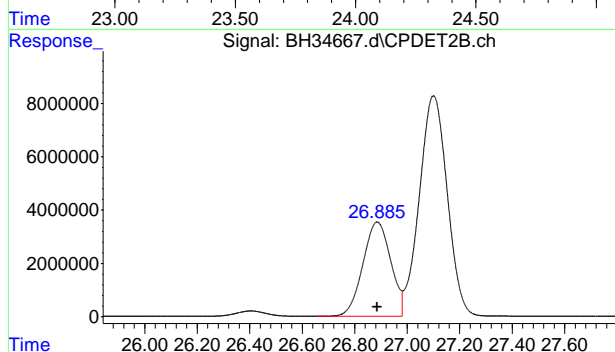
#26 ethylbenzene #2

```
         R.T.:    26.885 min
Delta R.T.:     0.000 min
   Response: 261397315
        Conc:  98.48 ppb
```
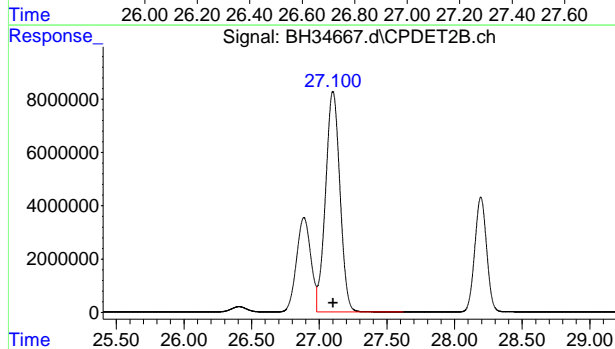
#27 m,p-xylene #2

```
         R.T.:    27.100 min
Delta R.T.:     0.000 min
   Response: 612552305
        Conc: 195.78 ppb
```

7.5.7

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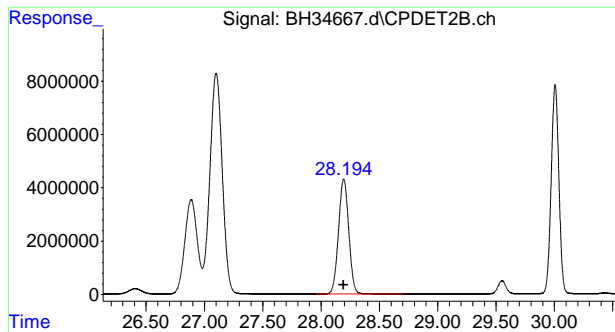
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
   Response: 262484203
        Conc: 98.52 ppb
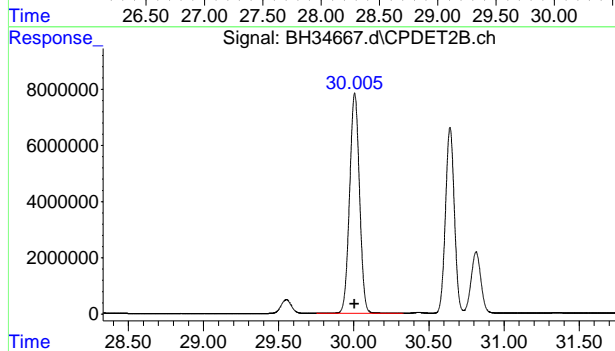
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.006 min
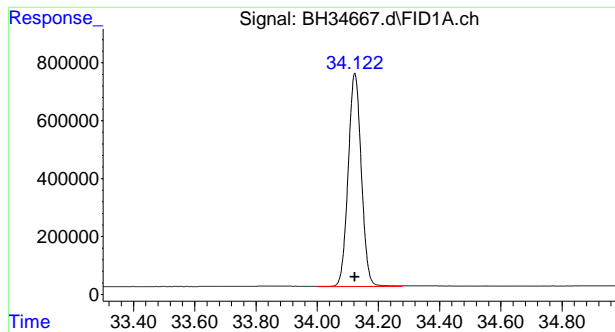Delta R.T.:   0.000 min
   Response: 358390074
        Conc: 98.53 ppb
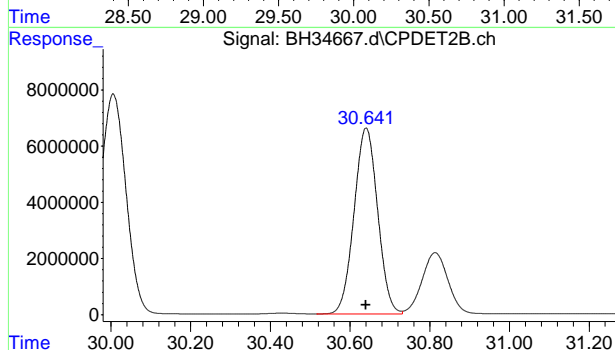
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.640 min
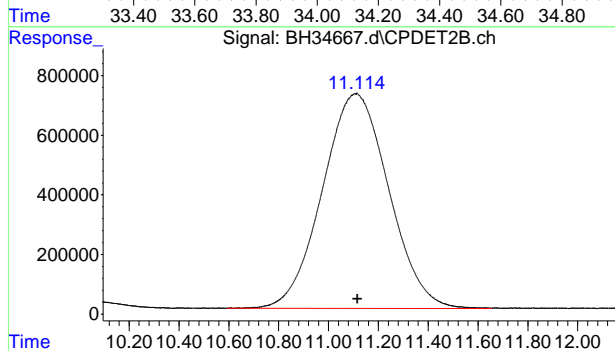Delta R.T.:   0.000 min
   Response: 271435438
        Conc: 98.98 ppb
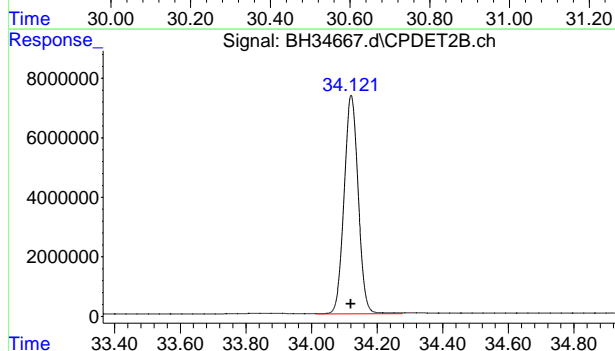
#31 naphthalene #2

          R.T.:   34.121 min
Delta R.T.:   0.000 min
   Response: 219442833
        Conc: 103.05 ppb

7.5.7

7

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Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34668.d
Signal(s) : Signal #1: FID1A.ch Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022 11:45 pm
Operator : johnn
Sample   : ic1313-500
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 21   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:10:02 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

         Compound   R.T.   Response   Conc Units

 System Monitoring Compounds
 6) s   fluorobenzene   18.057   13785010   52.130 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 104.26%
 8) s   2,3,4-trifluorotoluene   24.092   10997702   51.515 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 103.03%
23) s   fluorobenzene #2   18.056   94473846   52.649 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 105.30%
25) s   2,3,4-trifluorotoluen... 24.090   55373876   52.143 ppb
Spiked Amount   50.000   Range 70 - 130   Recovery = 104.29%

 Target Compounds
 1)   pentane   6.941   118981653 488.276 ppb
 2)   2-methylpentane   10.054   134732410 487.658 ppb
 3)   Methyl Tert Butyl Ether 11.112   91310555 461.756 ppb
 4)   2,2,4-trimethylpentane   16.510   127093321 452.003 ppb
 5)   benzene   17.452   187939866 496.215 ppb
 7)   toluene   22.656   184641240 496.876 ppb
 9)   nonane   26.407   161158381 779.696 ppb
10)   ethylbenzene   26.888   182138362 495.222 ppb
11)   m,p-xylene   27.104   371572573 989.704 ppb
12)   o-xylene   28.196   192646429 497.987 ppb
13)   decane   29.552   170303320 913.065 ppb
14)   1,3,5-trimethylbenzene   30.008   188842488 499.849 ppb
15)   1,2,4-trimethylbenzene   30.642   186165151 501.133 ppb
16)   butylcyclohexane   30.816   168737768 769.535 ppb
17)   naphthalene   34.123   117532171 553.924 ppb
21)   Methyl Tert Butyl Eth... 11.109   633800529 478.592 ppb
22)   benzene #2   17.451 1587163105 493.393 ppb
24)   toluene #2   22.653 1449186785 490.279 ppb
26)   ethylbenzene #2   26.886 1299901517 489.730 ppb
27) t   m,p-xylene #2   27.101 2955503826 944.630 ppb
28)   o-xylene #2   28.193 1294176550 485.743 ppb
29)   1,3,5-trimethylbenzen... 30.006 1750081964 481.119 ppb
30)   1,2,4-trimethylbenzen... 30.640 1326203257 483.585 ppb
31)   naphthalene #2   34.120 1133508042 532.316 ppb

(f)=RT Delta > 1/2 Window   (m)=manual int.

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34668.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 27 Sep 2022   11:45 pm
Operator : johnn
Sample   : ic1313-500
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 21   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:10:02 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

Signal: BH34668.d\FID1A.ch

#1   pentane

      R.T.:   6.941 min
Delta R.T.:   -0.001 min
  Response: 118981653
     Conc: 488.28 ppb

Signal: BH34668.d\FID1A.ch
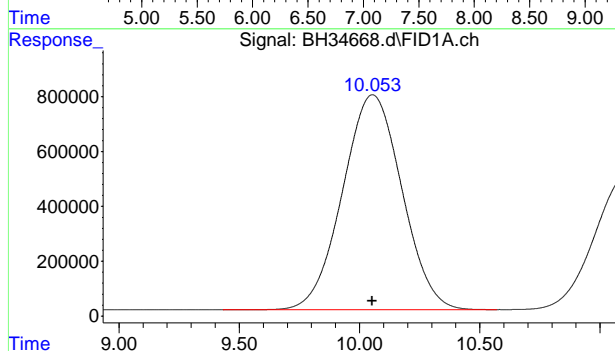
#2   2-methylpentane

      R.T.:   10.054 min
Delta R.T.:   0.000 min
  Response: 134732410
     Conc: 487.66 ppb

Signal: BH34668.d\FID1A.ch
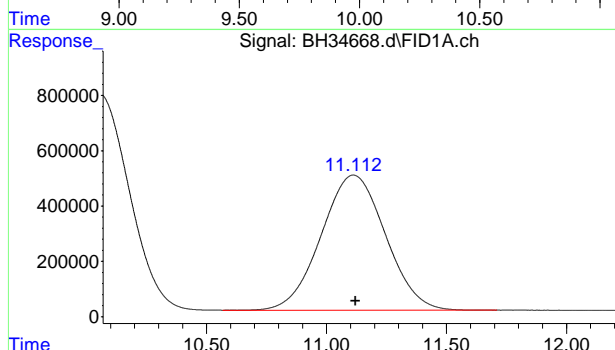
#3   Methyl Tert Butyl Ether

      R.T.:   11.112 min
Delta R.T.:   -0.009 min
  Response: 91310555
     Conc: 461.76 ppb

Signal: BH34668.d\FID1A.ch
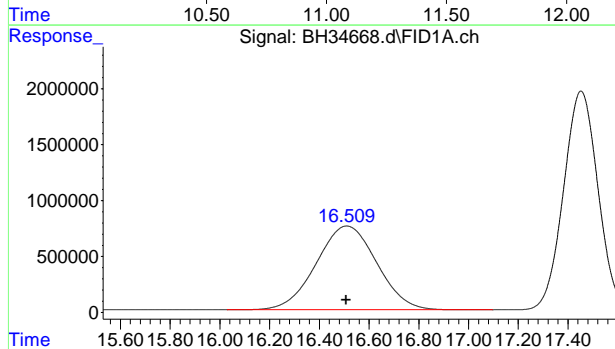
#4   2,2,4-trimethylpentane

      R.T.:   16.510 min
Delta R.T.:   0.002 min
  Response: 127093321
     Conc: 452.00 ppb

7.5.8

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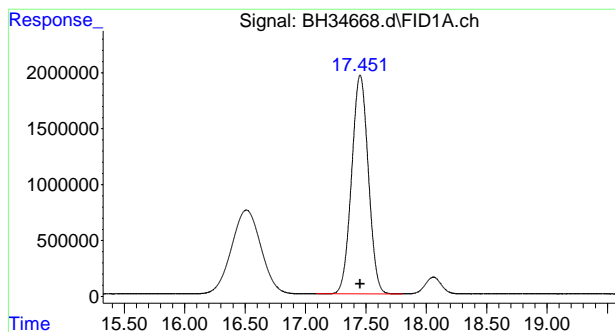
#5   benzene

          R.T.:   17.452 min
Delta R.T.:   0.000 min
    Response: 187939866
        Conc: 496.21 ppb
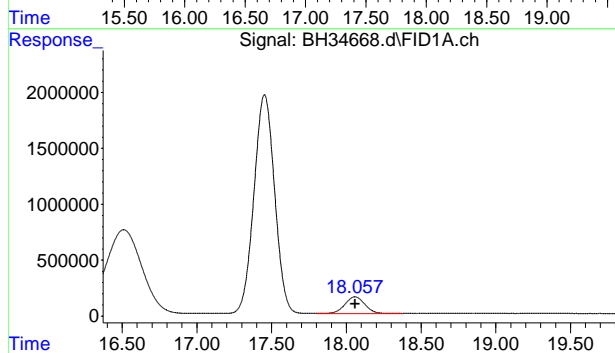
#6   fluorobenzene

          R.T.:   18.057 min
Delta R.T.:   0.000 min
    Response: 13785010
        Conc: 52.13 ppb
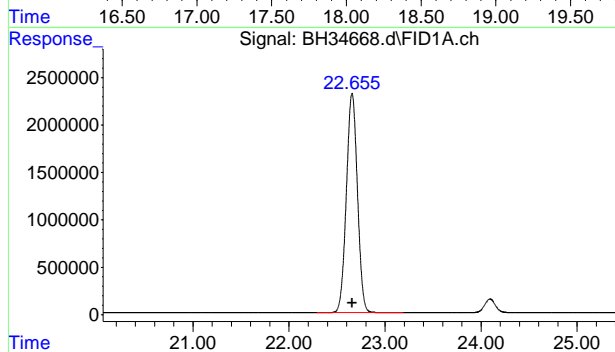
#7   toluene

          R.T.:   22.656 min
Delta R.T.:   0.000 min
    Response: 184641240
        Conc: 496.88 ppb
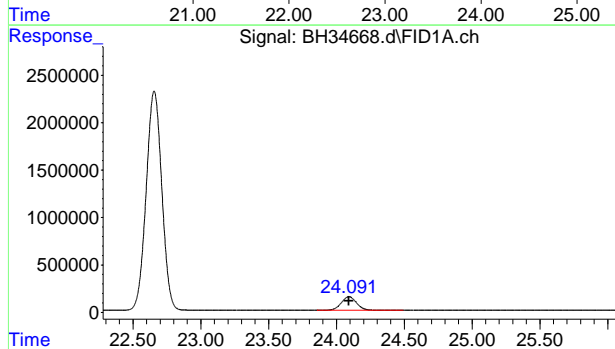
#8   2,3,4-trifluorotoluene

          R.T.:   24.092 min
Delta R.T.:   0.000 min
    Response: 10997702
        Conc: 51.52 ppb

BH34668.d   MBH1313.M   Wed Sep 28 09:47:58 2022
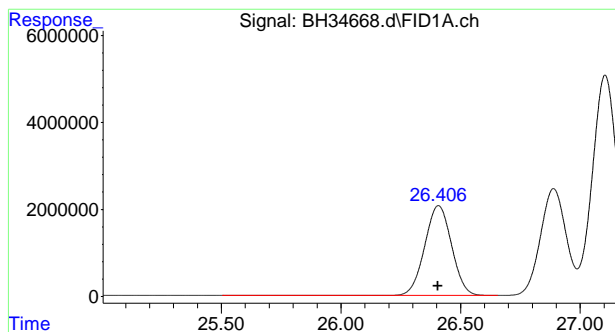
#9 nonane

          R.T.:   26.407 min
Delta R.T.:   0.002 min
  Response: 161158381
      Conc: 779.70 ppb
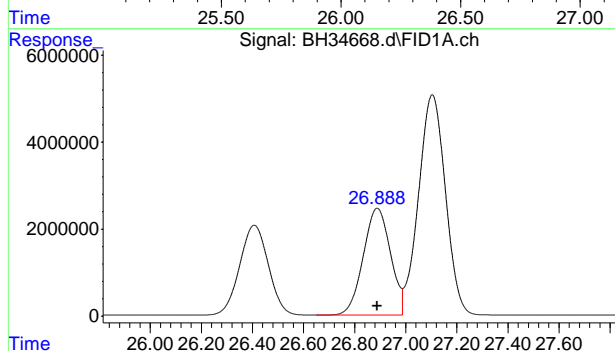
#10 ethylbenzene

          R.T.:   26.888 min
Delta R.T.:   0.000 min
  Response: 182138362
      Conc: 495.22 ppb
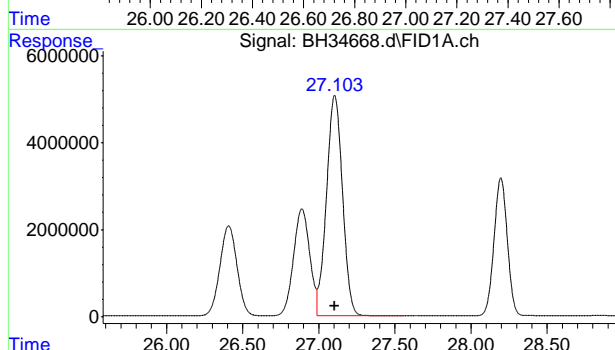
#11 m,p-xylene

          R.T.:   27.104 min
Delta R.T.:   0.001 min
  Response: 371572573
      Conc: 989.70 ppb
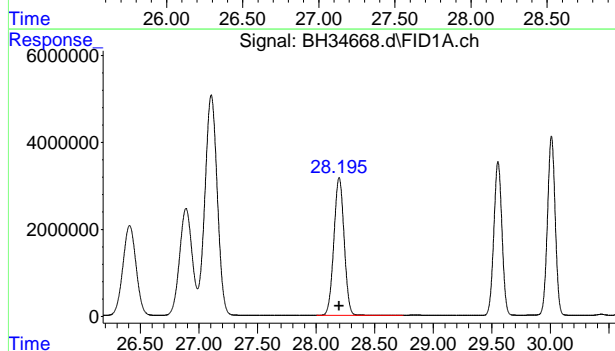
#12 o-xylene

          R.T.:   28.196 min
Delta R.T.:   0.000 min
  Response: 192646429
      Conc: 497.99 ppb

7.5.8

7

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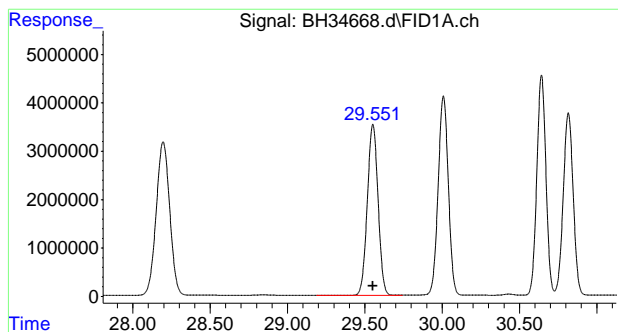
#13   decane

           R.T.:   29.552 min
Delta R.T.:   0.000 min
  Response: 170303320
       Conc: 913.07 ppb
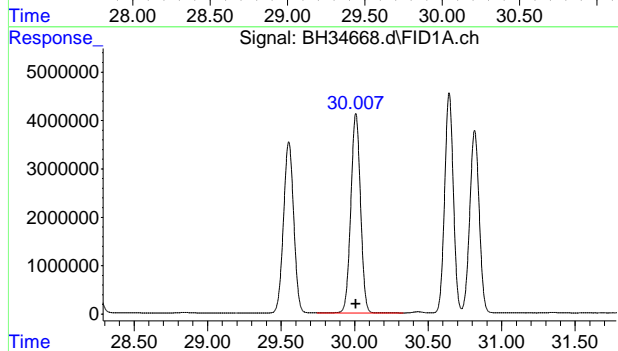
#14   1,3,5-trimethylbenzene

           R.T.:   30.008 min
Delta R.T.:   0.000 min
  Response: 188842488
       Conc: 499.85 ppb
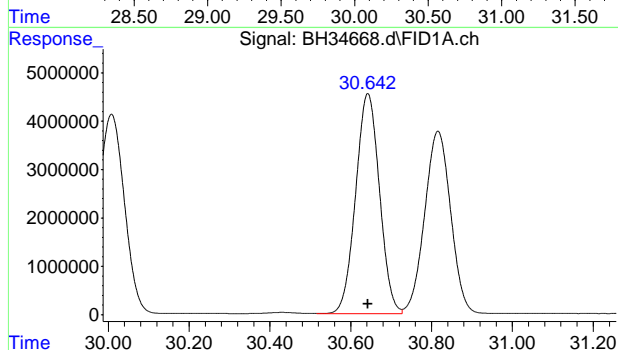
#15   1,2,4-trimethylbenzene

           R.T.:   30.642 min
Delta R.T.:   0.000 min
  Response: 186165151
       Conc: 501.13 ppb
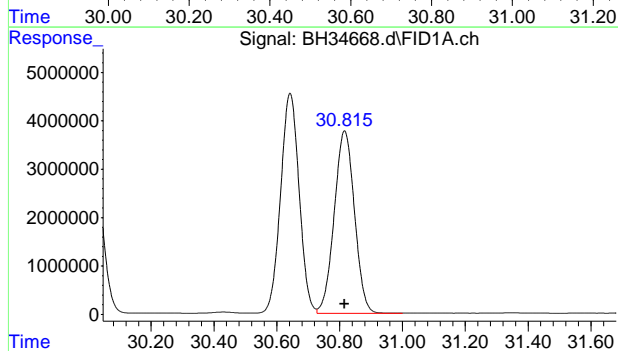
#16   butylcyclohexane

           R.T.:   30.816 min
Delta R.T.:   0.001 min
  Response: 168737768
       Conc: 769.53 ppb

7.5.8

7

Signal: BH34668.d\FID1A.ch
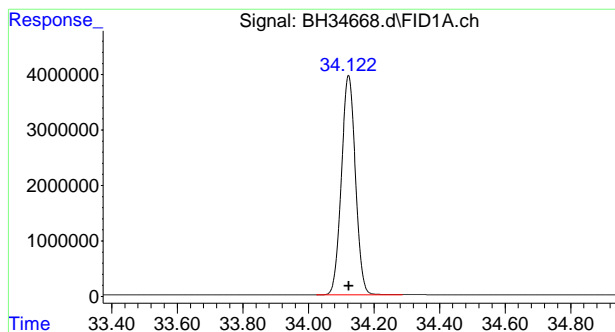
#17   naphthalene

          R.T.:   34.123 min
Delta R.T.:   0.000 min
  Response: 117532171
        Conc: 553.92 ppb

Signal: BH34668.d\CPDET2B.ch
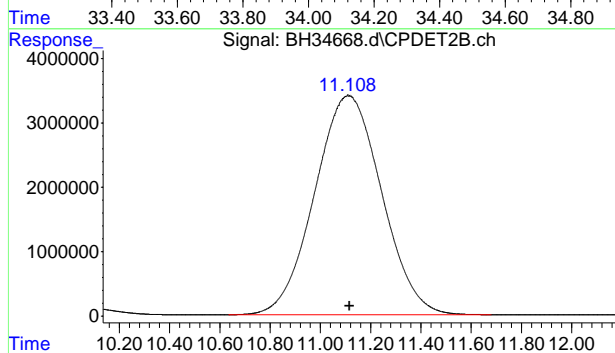
#21   Methyl Tert Butyl Ether #2

          R.T.:   11.109 min
Delta R.T.:   -0.006 min
  Response: 633800529
        Conc: 478.59 ppb

Signal: BH34668.d\CPDET2B.ch
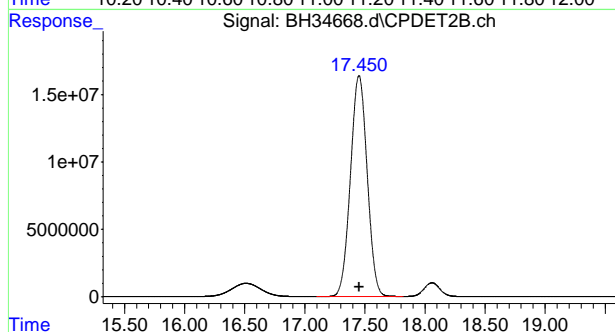
#22   benzene #2

          R.T.:   17.451 min
Delta R.T.:   0.000 min
  Response: 1587163105
        Conc: 493.39 ppb

Signal: BH34668.d\CPDET2B.ch
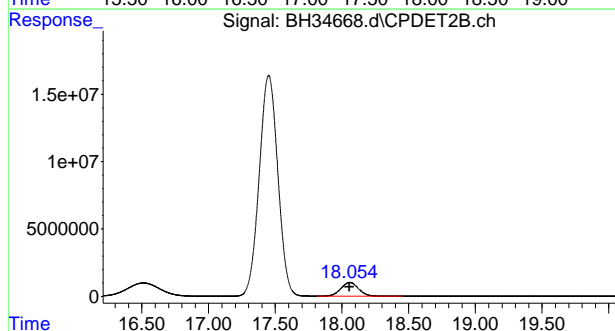
#23   fluorobenzene #2

          R.T.:   18.056 min
Delta R.T.:   0.000 min
  Response: 94473846
        Conc: 52.65 ppb

7.5.8

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BH34668.d   MBH1313.M   Wed Sep 28 09:47:59 2022

SGS   JD53080
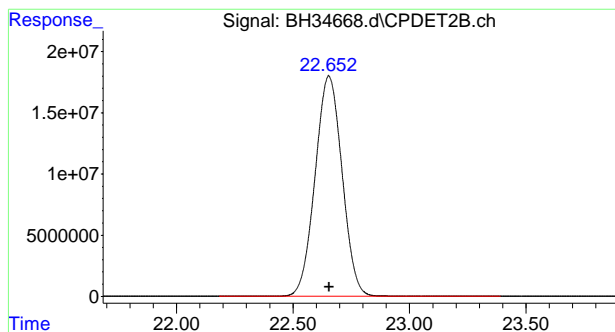
#24 toluene #2

          R.T.:   22.653 min
Delta R.T.:   -0.001 min
  Response: 1449186785
         Conc: 490.28 ppb
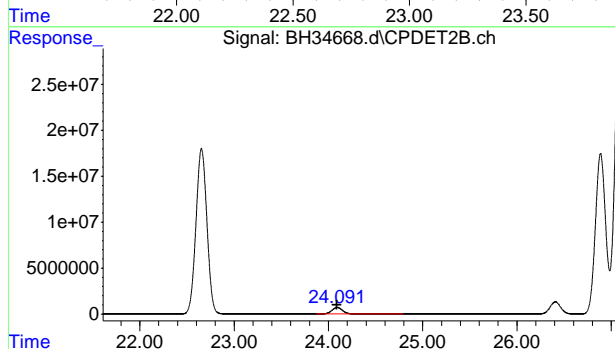
#25 2,3,4-trifluorotoluene #2

          R.T.:   24.090 min
Delta R.T.:   0.000 min
  Response: 55373876
         Conc: 52.14 ppb
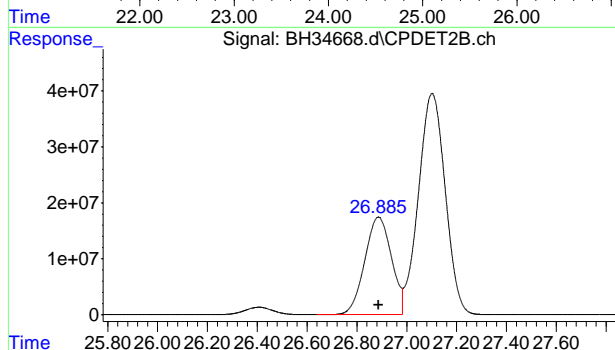
#26 ethylbenzene #2

          R.T.:   26.886 min
Delta R.T.:   0.000 min
  Response: 1299901517
         Conc: 489.73 ppb
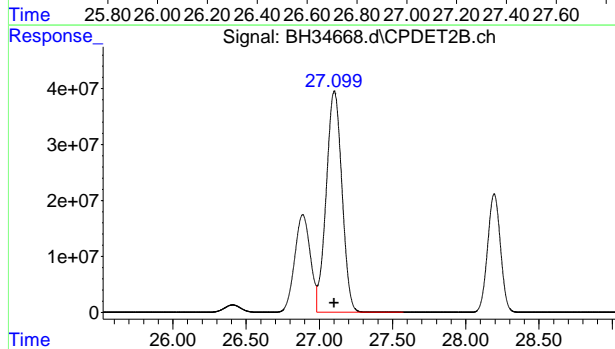
#27 m,p-xylene #2

          R.T.:   27.101 min
Delta R.T.:   0.000 min
  Response: 2955503826
         Conc: 944.63 ppb

7.5.8

7

BH34668.d   MBH1313.M   Wed Sep 28 09:47:59 2022

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SGS

JD53080

BH34668.D: GBH1313-IC1313 Initial Calibration (500)   page 8 of 9

Signal: BH34668.d\CPDET2B.ch
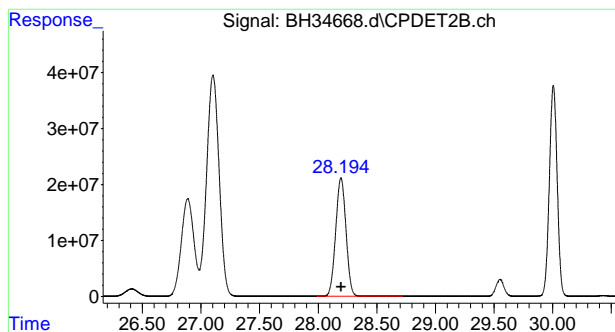
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
   Response: 1294176550
       Conc: 485.74 ppb

28.194

Signal: BH34668.d\CPDET2B.ch
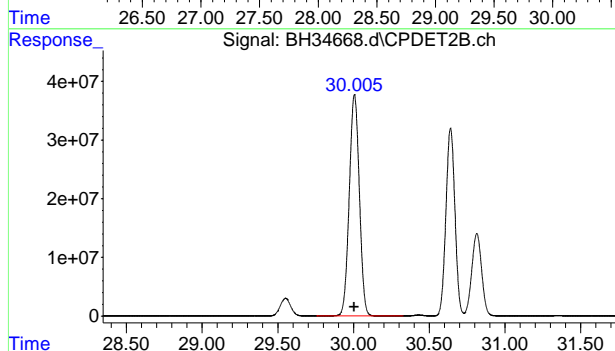
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.006 min
Delta R.T.:   0.000 min
   Response: 1750081964
       Conc: 481.12 ppb

30.005

Signal: BH34668.d\CPDET2B.ch
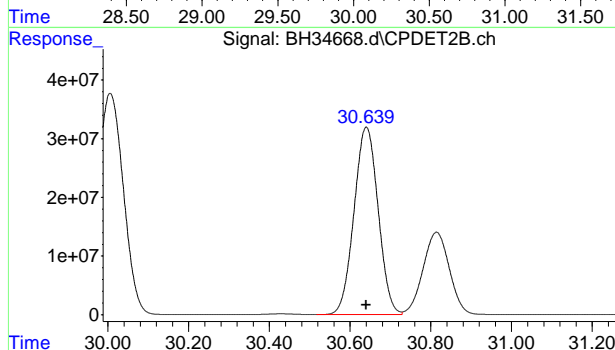
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.640 min
Delta R.T.:   0.000 min
   Response: 1326203257
       Conc: 483.58 ppb

30.639

Signal: BH34668.d\CPDET2B.ch
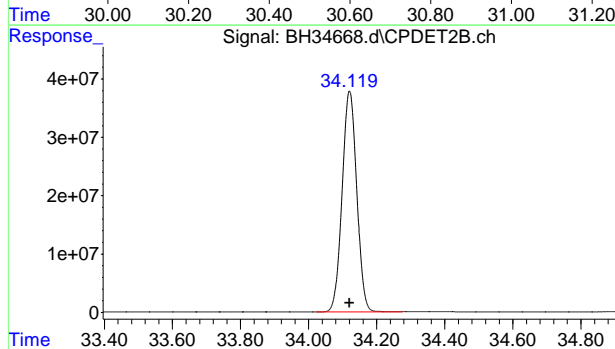
#31 naphthalene #2

          R.T.:   34.120 min
Delta R.T.:   0.000 min
   Response: 1133508042
       Conc: 532.32 ppb

34.119

7.5.8

7

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34669.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 28 Sep 2022  12:28 am
Operator  : johnn
Sample    : ic1313-1000
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 22   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:19:51 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	R.T.	Response	Conc	Units

```
System Monitoring Compounds
 6) s   fluorobenzene          18.058      14369047   54.338 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  108.68%
 8) s   2,3,4-trifluorotoluene  24.092      11303875   52.950 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  105.90%
23) s   fluorobenzene #2       18.056      96478488   53.767 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  107.53%
25) s   2,3,4-trifluorotoluen...  24.090    54270393   51.104 ppb
Spiked Amount     50.000   Range  70 - 130   Recovery  =  102.21%

Target Compounds
 1)     pentane                 6.938     232287490  953.260 ppb
 2)     2-methylpentane        10.052     263303085  953.013 ppb
 3)     Methyl Tert Butyl Ether 11.108    171961438  869.606 ppb
 4)     2,2,4-trimethylpentane  16.510    219130082  779.329 ppb
 5)     benzene                17.452     374274060  988.190 ppb
 7)     toluene                22.656     367580551  989.171 ppb
 9)     nonane                 26.410     336880193 1629.851 ppb
10)     ethylbenzene           26.890     359981136  978.765 ppb
11)     m,p-xylene             27.106     733063322 1952.555 ppb
12)     o-xylene               28.197     382168061  987.897 ppb
14)     1,3,5-trimethylbenzene  30.009    375071310  992.780 ppb
15)     1,2,4-trimethylbenzene  30.643    368685932  992.456 ppb
17)     naphthalene            34.123     235831091 1111.463 ppb
21)     Methyl Tert Butyl Eth...  11.106 1176049789  888.052 ppb
22)     benzene #2             17.450    3094228385  961.887 ppb
24)     toluene #2             22.653    2803242803  948.374 ppb
26)     ethylbenzene #2        26.888    2488761388  937.627 ppb
27) t   m,p-xylene #2          27.104    5527993936 1766.843 ppb
28)     o-xylene #2            28.195    2465341896  925.315 ppb
29)     1,3,5-trimethylbenzen...  30.007 3288106564  903.941 ppb
30)     1,2,4-trimethylbenzen...  30.641 2494680036  909.657 ppb
31)     naphthalene #2         34.121    2140342522 1005.144 ppb
```

(f)=RT Delta > 1/2 Window   (m)=manual int.

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34669.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On   : 28 Sep 2022 12:28 am
Operator : johnn
Sample   : ic1313-1000
Misc   : GC60296,GBH1313,5,,,,1
ALS Vial : 22   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:19:51 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title : vph - master
QLast Update : Wed Sep 28 08:30:54 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :

MBH1313.M Wed Sep 28 09:48:06 2022   Page: 2

Signal: BH34669.d\FID1A.ch

#1 pentane

R.T.: 6.938 min
Delta R.T.: -0.004 min
Response: 232287490
Conc: 953.26 ppb

Signal: BH34669.d\FID1A.ch

#2 2-methylpentane

R.T.: 10.052 min
Delta R.T.: -0.001 min
Response: 263303085
Conc: 953.01 ppb

Signal: BH34669.d\FID1A.ch
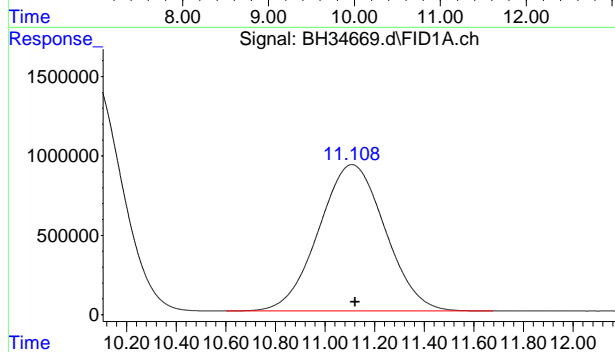
#3 Methyl Tert Butyl Ether

R.T.: 11.108 min
Delta R.T.: -0.012 min
Response: 171961438
Conc: 869.61 ppb

Signal: BH34669.d\FID1A.ch
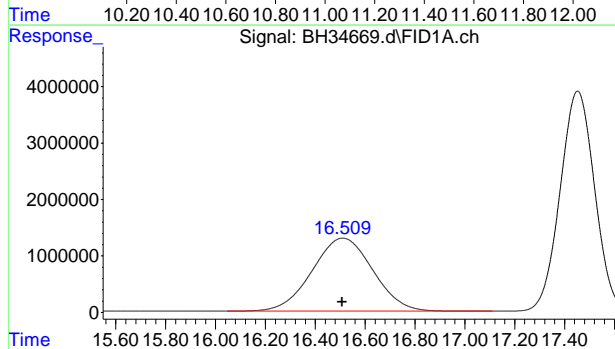
#4 2,2,4-trimethylpentane

R.T.: 16.510 min
Delta R.T.: 0.002 min
Response: 219130082
Conc: 779.33 ppb

7.5.9

7

BH34669.d MBH1313.M Wed Sep 28 09:48:06 2022

JD53080
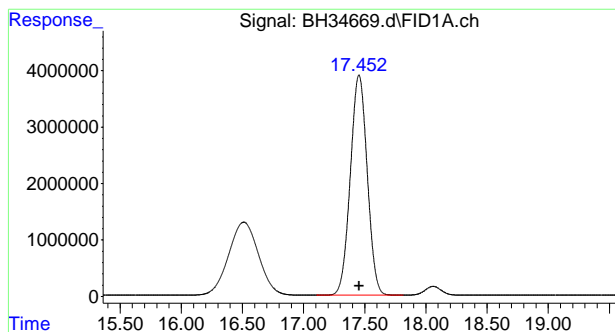
#5 benzene

          R.T.:   17.452 min
Delta R.T.:   0.000 min
   Response: 374274060
       Conc: 988.19 ppb
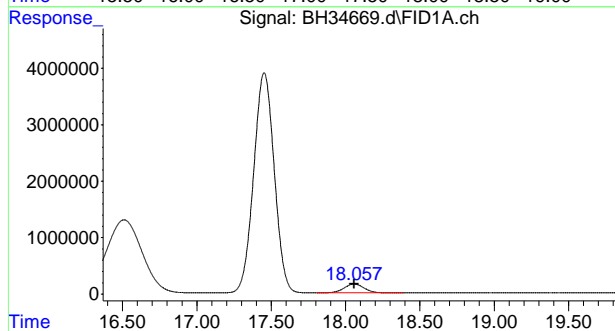
#6 fluorobenzene

          R.T.:   18.058 min
Delta R.T.:   0.000 min
   Response: 14369047
       Conc: 54.34 ppb
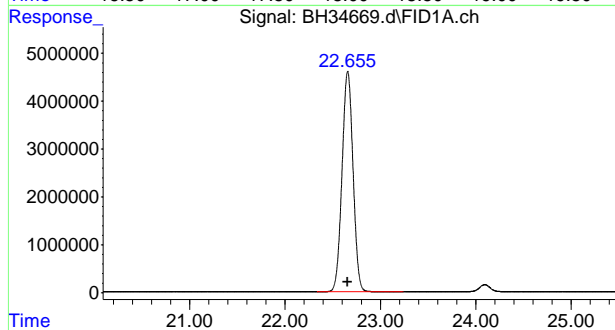
#7 toluene

          R.T.:   22.656 min
Delta R.T.:   0.000 min
   Response: 367580551
       Conc: 989.17 ppb
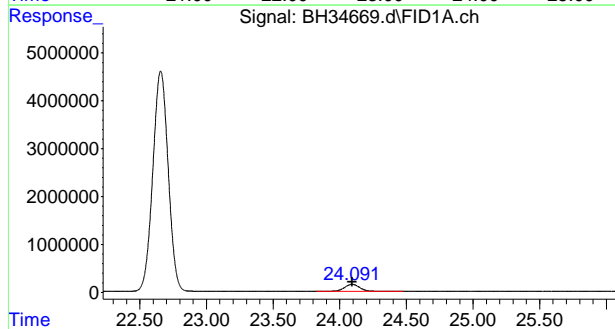
#8 2,3,4-trifluorotoluene

          R.T.:   24.092 min
Delta R.T.:   0.000 min
   Response: 11303875
       Conc: 52.95 ppb

7.5.9

7
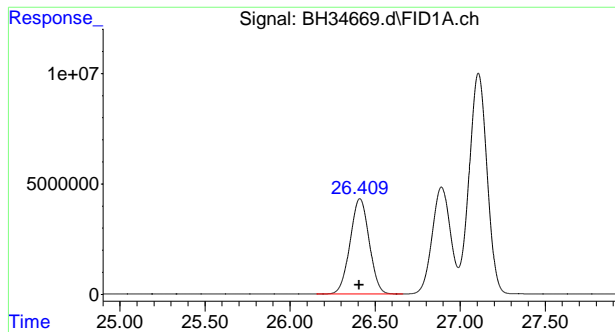
#9 nonane

R.T.: 26.410 min
Delta R.T.: 0.005 min
Response: 336880193
Conc: 1629.85 ppb
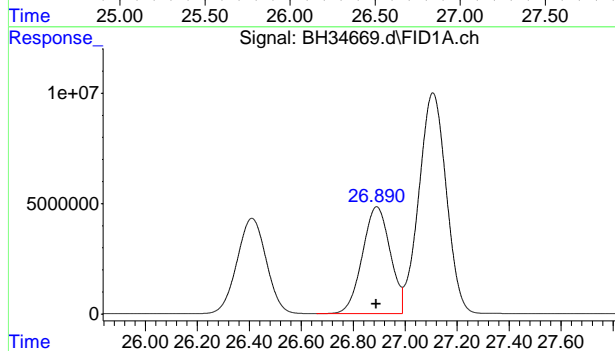
#10 ethylbenzene

R.T.: 26.890 min
Delta R.T.: 0.002 min
Response: 359981136
Conc: 978.76 ppb
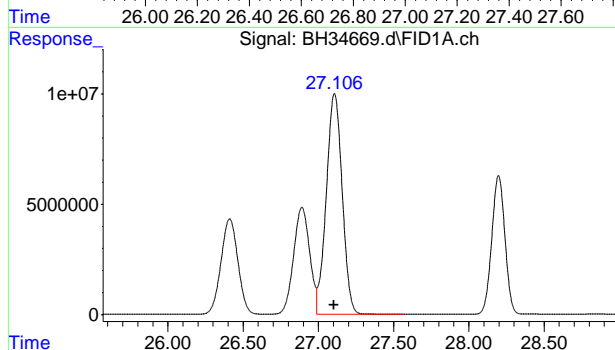
#11 m,p-xylene

R.T.: 27.106 min
Delta R.T.: 0.004 min
Response: 733063322
Conc: 1952.55 ppb
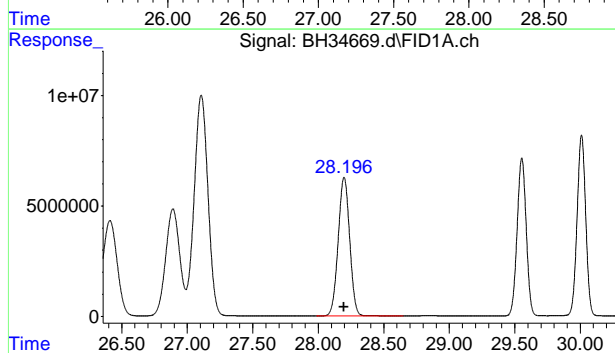
#12 o-xylene

R.T.: 28.197 min
Delta R.T.: 0.001 min
Response: 382168061
Conc: 987.90 ppb

7.5.9

7

BH34669.d MBH1313.M   Wed Sep 28 09:48:07 2022
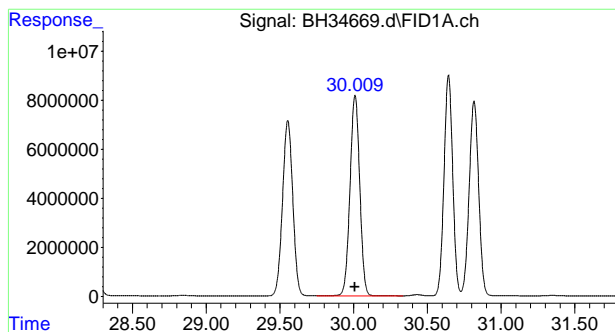
#14 1,3,5-trimethylbenzene

       R.T.:   30.009 min
Delta R.T.:   0.002 min
  Response: 375071310
       Conc: 992.78 ppb
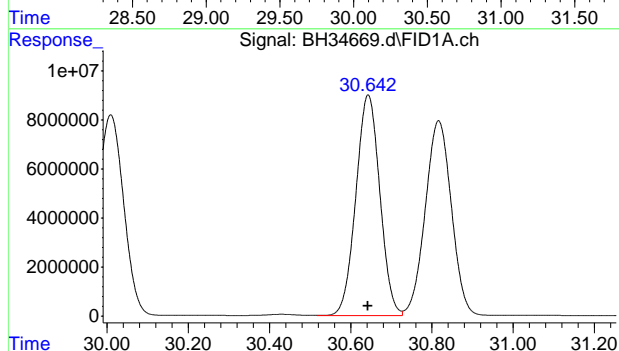
#15 1,2,4-trimethylbenzene

       R.T.:   30.643 min
Delta R.T.:   0.002 min
  Response: 368685932
       Conc: 992.46 ppb
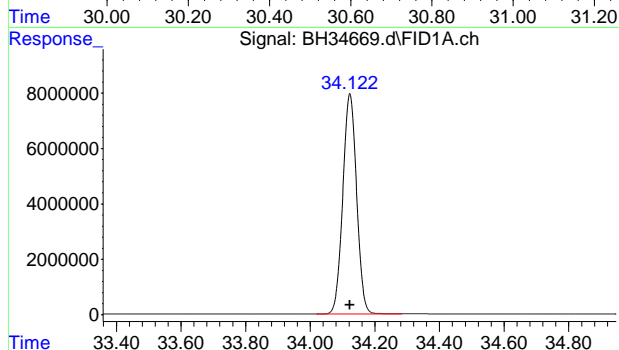
#17 naphthalene

       R.T.:   34.123 min
Delta R.T.:   0.000 min
  Response: 235831091
       Conc: 1111.46 ppb
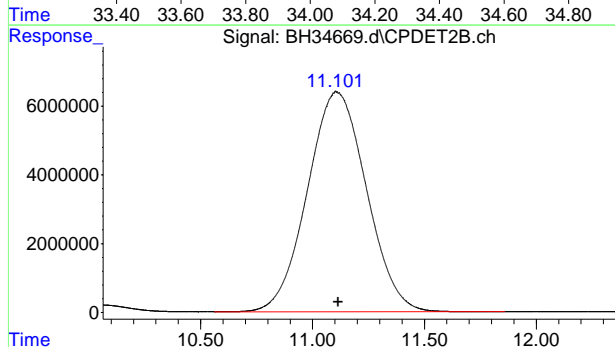
#21 Methyl Tert Butyl Ether #2

       R.T.:   11.106 min
Delta R.T.:   -0.010 min
  Response: 1176049789
       Conc: 888.05 ppb

7.5.9

7

BH34669.d MBH1313.M   Wed Sep 28 09:48:08 2022
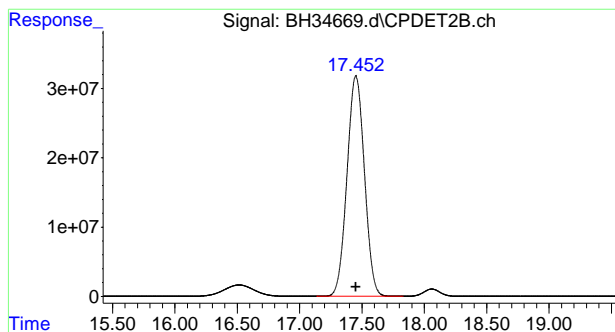
#22   benzene #2

        R.T.:   17.450 min
Delta R.T.:   -0.001 min
  Response: 3094228385
        Conc: 961.89 ppb
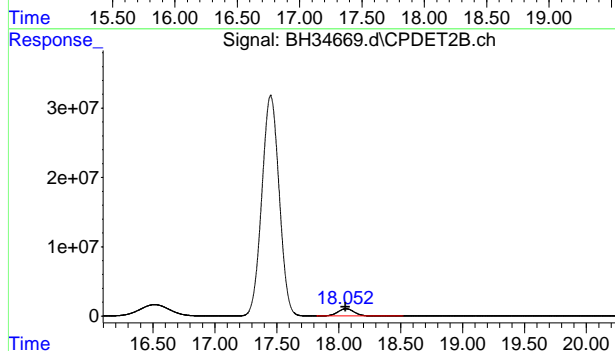
#23   fluorobenzene #2

        R.T.:   18.056 min
Delta R.T.:   0.000 min
  Response: 96478488
        Conc: 53.77 ppb
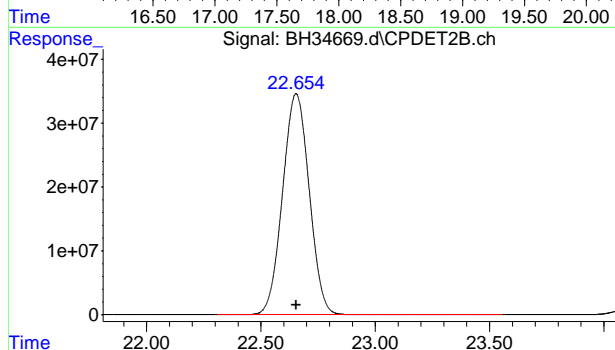
#24   toluene #2

        R.T.:   22.653 min
Delta R.T.:   0.000 min
  Response: 2803242803
        Conc: 948.37 ppb
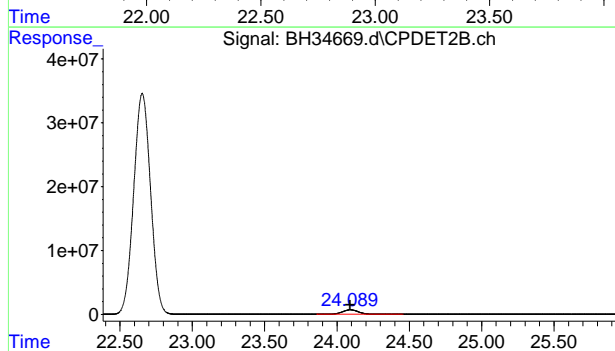
#25   2,3,4-trifluorotoluene #2

        R.T.:   24.090 min
Delta R.T.:   0.000 min
  Response: 54270393
        Conc: 51.10 ppb
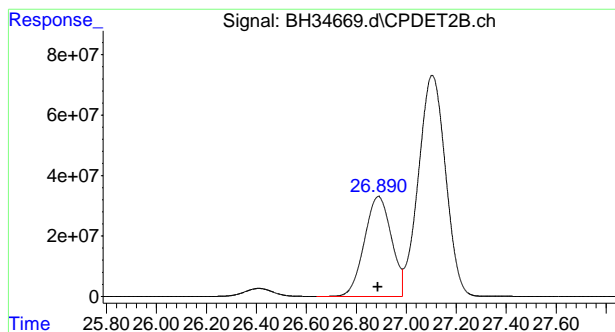
#26 ethylbenzene #2

       R.T.:   26.888 min
Delta R.T.:   0.002 min
  Response: 2488761388
      Conc: 937.63 ppb
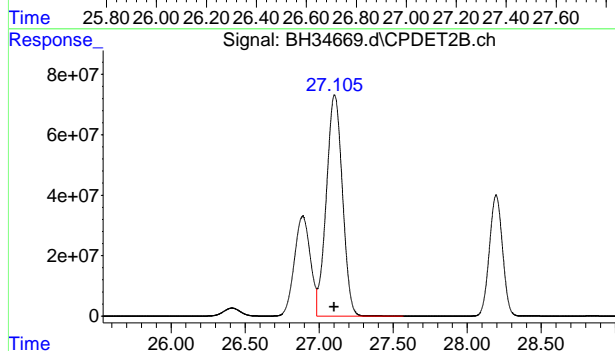
#27 m,p-xylene #2

       R.T.:   27.104 min
Delta R.T.:   0.003 min
  Response: 5527993936
      Conc: 1766.84 ppb
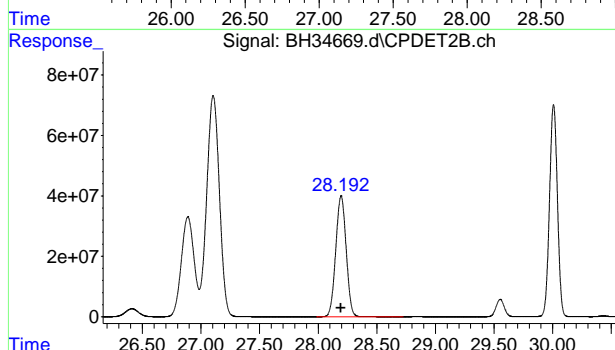
#28 o-xylene #2

       R.T.:   28.195 min
Delta R.T.:   0.001 min
  Response: 2465341896
      Conc: 925.32 ppb
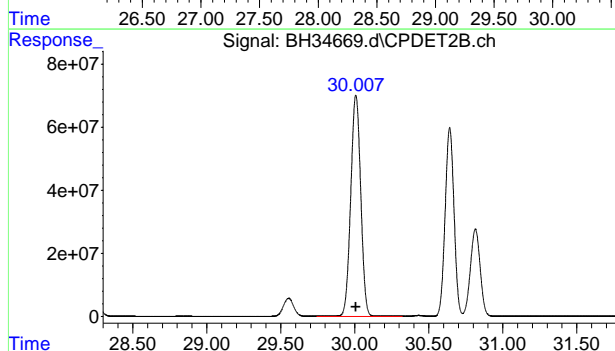
#29 1,3,5-trimethylbenzene #2

       R.T.:   30.007 min
Delta R.T.:   0.002 min
  Response: 3288106564
      Conc: 903.94 ppb

7.5.9

7

BH34669.d MBH1313.M   Wed Sep 28 09:48:08 2022
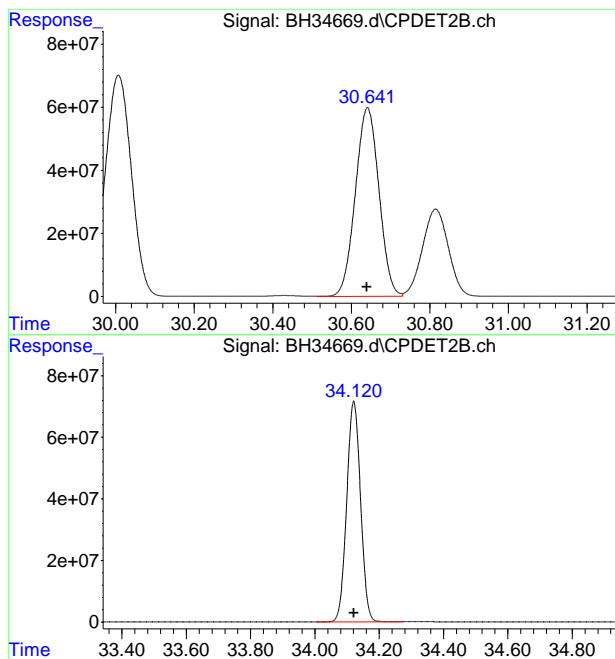
#30 1,2,4-trimethylbenzene #2

```
       R.T.:   30.641 min
Delta R.T.:    0.002 min
  Response: 2494680036
      Conc: 909.66 ppb
```


#31 naphthalene #2

```
       R.T.:   34.121 min
Delta R.T.:    0.000 min
  Response: 2140342522
      Conc: 1005.14 ppb
```

```
                         Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34672.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    : 28 Sep 2022   2:35 am
Operator  : johnn
Sample    : icv1313-50
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 25   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:22:55 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:22:34 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

        Compound                 R.T.     Response    Conc Units
  ----------------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene             18.058    14186512   52.833 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  105.67%
 8) s   2,3,4-trifluorotoluene    24.092    11352877   52.660 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  105.32%
23) s   fluorobenzene #2          18.056    79343843   43.809 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   87.62%
25) s   2,3,4-trifluorotoluen...  24.091    46404388   43.815 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   87.63%

 Target Compounds
 1)     pentane                    6.940    10151958   42.160 ppb
 2)     2-methylpentane           10.054    12119979   43.476 ppb
 3)     Methyl Tert Butyl Ether   11.119     9826255   49.578 ppb
 4)     2,2,4-trimethylpentane    16.508    13222187   47.783 ppb
 5)     benzene                   17.452    18927285   50.166 ppb
 7)     toluene                   22.656    18647417   50.097 ppb
 9)     nonane                    26.406     9361203   38.469 ppb
10)     ethylbenzene              26.888    18506834   49.930 ppb
11)     m,p-xylene                27.102    37355644  100.008 ppb
12)     o-xylene                  28.196    19404940   49.770 ppb
13)     decane                    29.551     8468860   39.892 ppb
14)     1,3,5-trimethylbenzene    30.007    19053766   50.826 ppb
15)     1,2,4-trimethylbenzene    30.641    18408984   49.948 ppb
16)     butylcyclohexane          30.815    10325301   42.962 ppb
17)     naphthalene               34.122    10911539   52.545 ppb
21)     Methyl Tert Butyl Eth...  11.120    53330046   40.345 ppb
22)     benzene #2                17.451   131990681   41.261 ppb
24)     toluene #2                22.655   121672592   41.924 ppb
26)     ethylbenzene #2           26.887   110612553   43.049 ppb
27) t   m,p-xylene #2             27.102   264428335   87.512 ppb
28)     o-xylene #2               28.195   114080226   43.911 ppb
29)     1,3,5-trimethylbenzen...  30.006   159725071   45.549 ppb
30)     1,2,4-trimethylbenzen...  30.640   120594919   45.749 ppb
31)     naphthalene #2            34.121    95570928   47.770 ppb
  ----------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                          (m)=manual int.
```
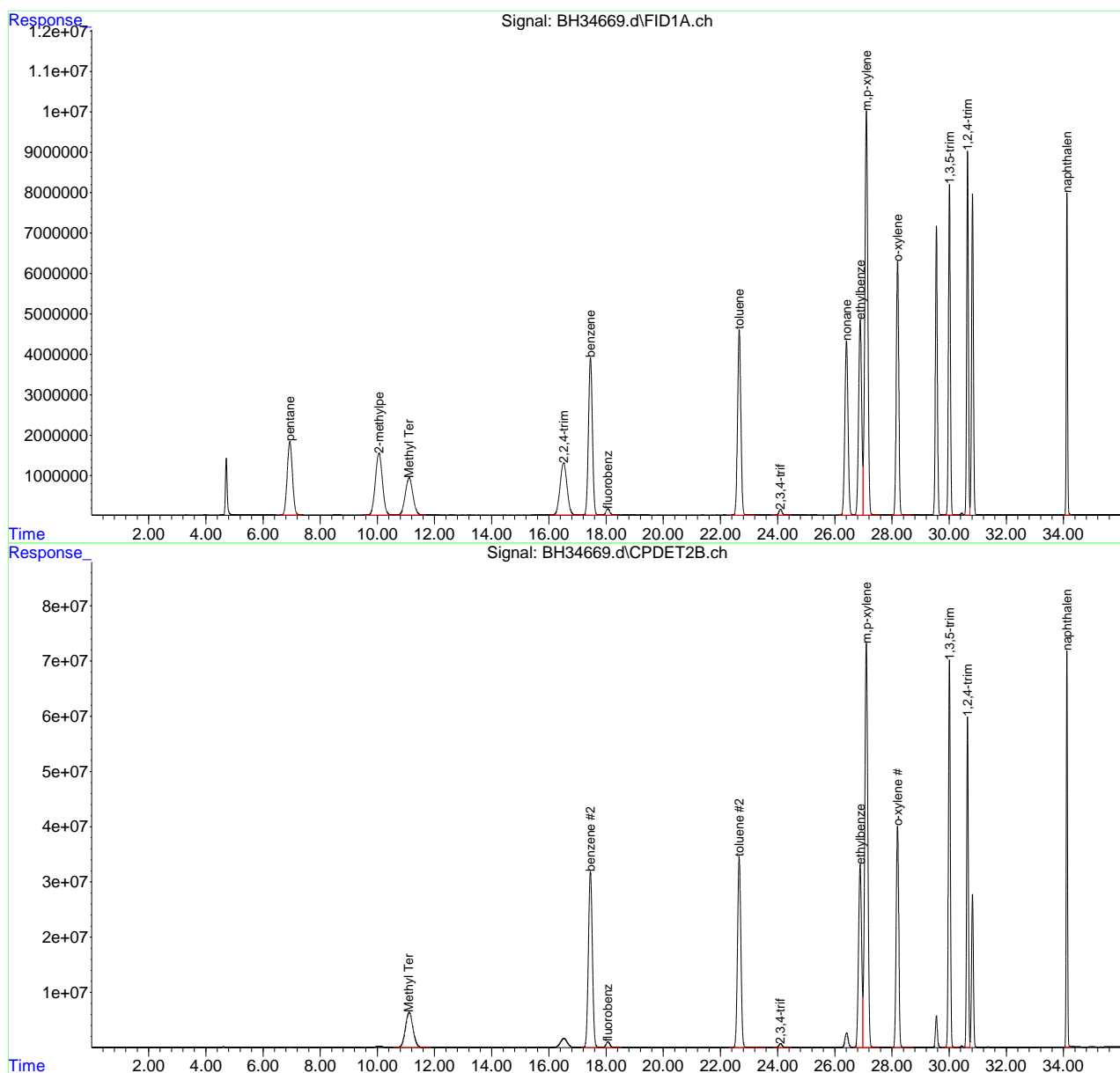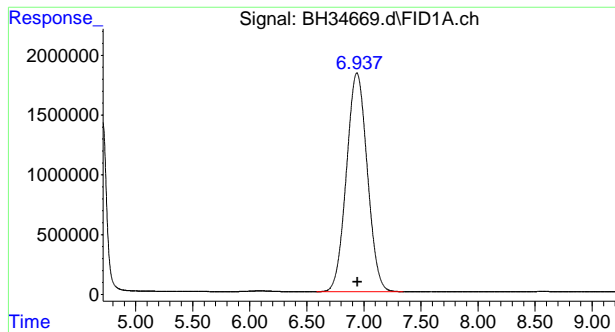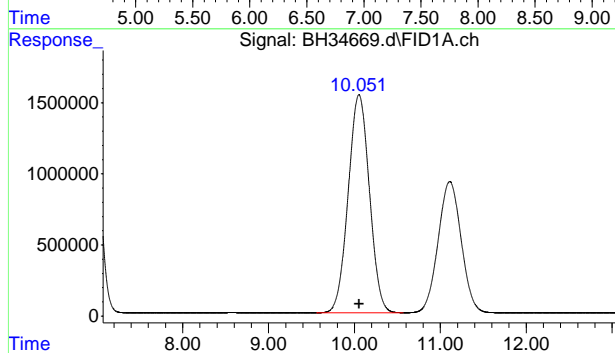
Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1313\
Data File : BH34672.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    : 28 Sep 2022   2:35 am
Operator  : johnn
Sample    : icv1313-50
Misc      : GC60296,GBH1313,5,,,,1
ALS Vial  : 25    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Sep 28 09:22:55 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:22:34 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :
```


MBH1313.M Wed Sep 28 09:49:28 2022   Page: 2

#1 pentane

R.T.:	6.940 min
Delta R.T.:	-0.002 min
Response:	10151958
Conc:	42.16 ppb
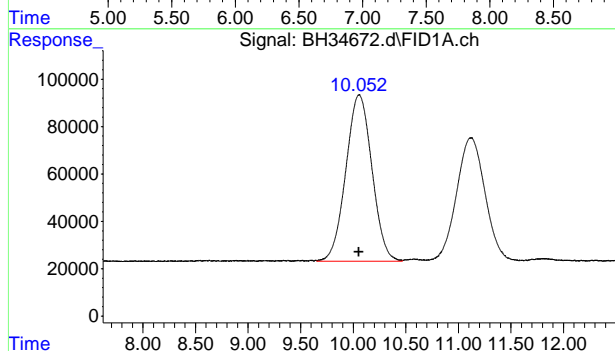
#2 2-methylpentane

R.T.:	10.054 min
Delta R.T.:	0.002 min
Response:	12119979
Conc:	43.48 ppb
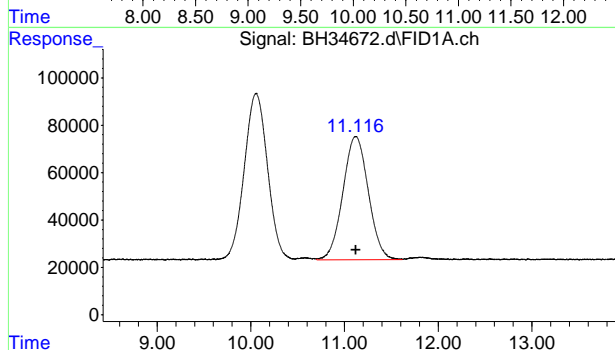
#3 Methyl Tert Butyl Ether

R.T.:	11.119 min
Delta R.T.:	-0.002 min
Response:	9826255
Conc:	49.58 ppb
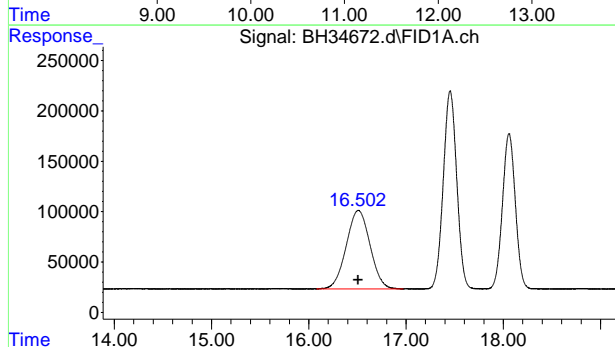
#4 2,2,4-trimethylpentane

R.T.:	16.508 min
Delta R.T.:	0.000 min
Response:	13222187
Conc:	47.78 ppb

BH34672.d MBH1313.M   Wed Sep 28 09:49:29 2022
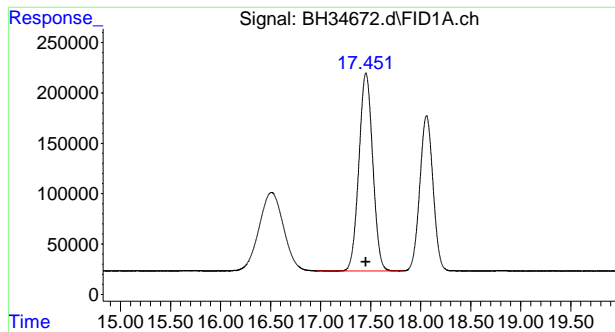
#5 benzene

```
       R.T.:   17.452 min
Delta R.T.:    0.000 min
  Response:  18927285
      Conc:   50.17 ppb
```
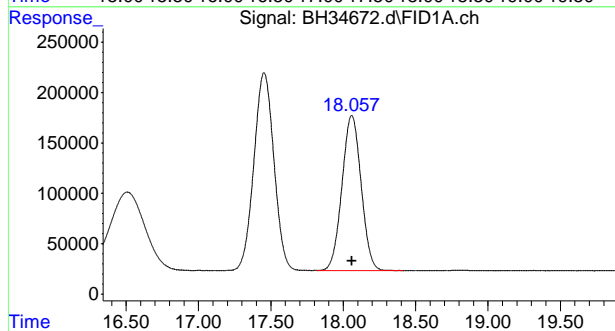
#6 fluorobenzene

```
       R.T.:   18.058 min
Delta R.T.:    0.000 min
  Response:  14186512
      Conc:   52.83 ppb
```
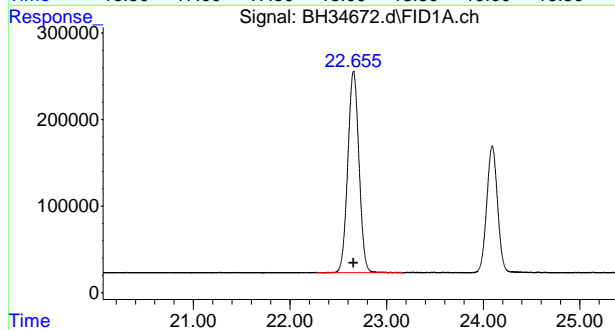
#7 toluene

```
       R.T.:   22.656 min
Delta R.T.:    0.000 min
  Response:  18647417
      Conc:   50.10 ppb
```
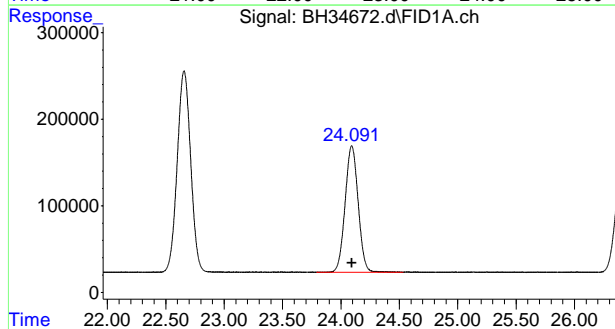
#8 2,3,4-trifluorotoluene

```
       R.T.:   24.092 min
Delta R.T.:    0.000 min
  Response:  11352877
      Conc:   52.66 ppb
```

#9 nonane

        R.T.:   26.406 min
Delta R.T.:   0.000 min
  Response: 9361203
        Conc: 38.47 ppb
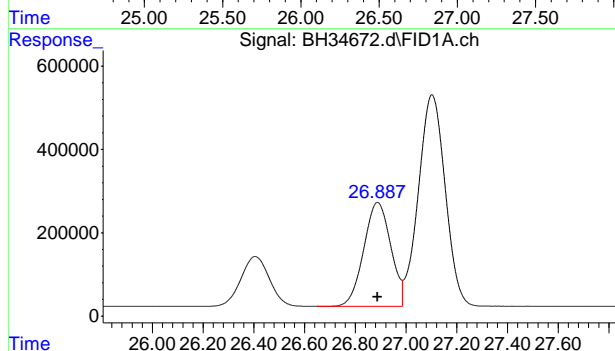
#10 ethylbenzene

        R.T.:   26.888 min
Delta R.T.:   0.000 min
  Response: 18506834
        Conc: 49.93 ppb
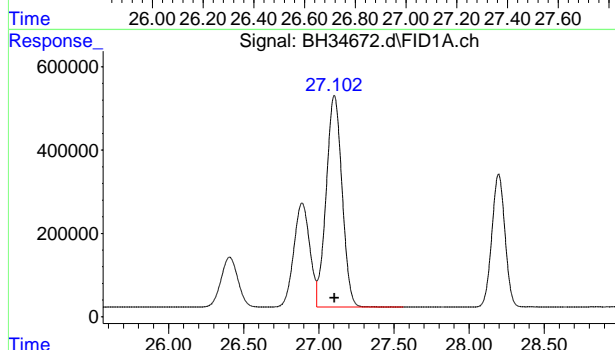
#11 m,p-xylene

        R.T.:   27.102 min
Delta R.T.:   0.000 min
  Response: 37355644
        Conc: 100.01 ppb
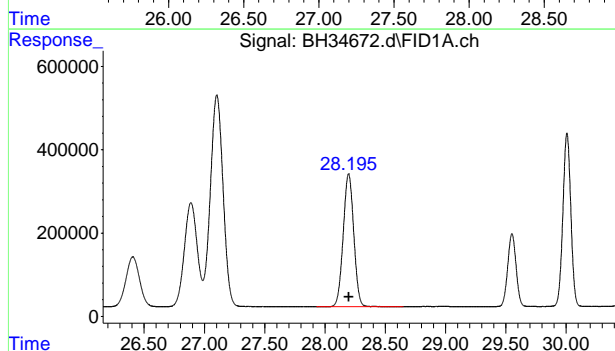
#12 o-xylene

        R.T.:   28.196 min
Delta R.T.:   0.000 min
  Response: 19404940
        Conc: 49.77 ppb

BH34672.d MBH1313.M   Wed Sep 28 09:49:30 2022
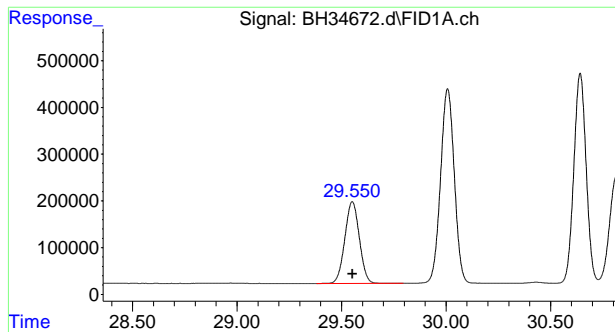
#13 decane

           R.T.:   29.551 min
Delta R.T.:   0.000 min
     Response: 8468860
          Conc: 39.89 ppb
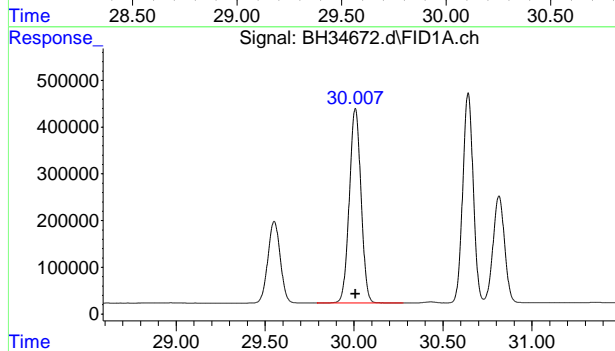
#14 1,3,5-trimethylbenzene

           R.T.:   30.007 min
Delta R.T.:   0.000 min
     Response: 19053766
          Conc: 50.83 ppb
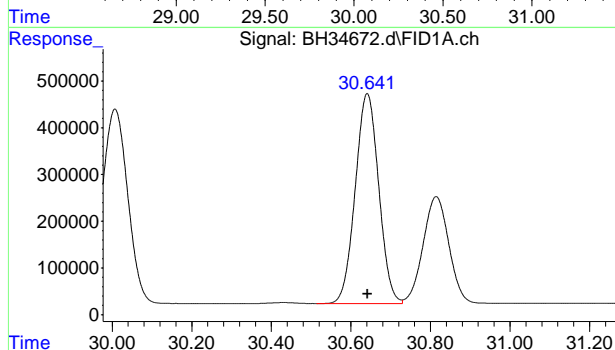
#15 1,2,4-trimethylbenzene

           R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 18408984
          Conc: 49.95 ppb
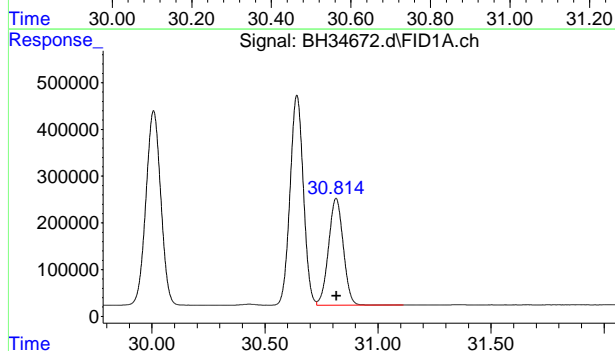
#16 butylcyclohexane

           R.T.:   30.815 min
Delta R.T.:   0.000 min
     Response: 10325301
          Conc: 42.96 ppb

BH34672.d MBH1313.M   Wed Sep 28 09:49:30 2022

Signal: BH34672.d\FID1A.ch

34.121

#17 naphthalene

```
      R.T.:     34.122 min
Delta R.T.:      0.000 min
  Response:   10911539
      Conc:    52.54 ppb
```

Signal: BH34672.d\CPDET2B.ch

11.118
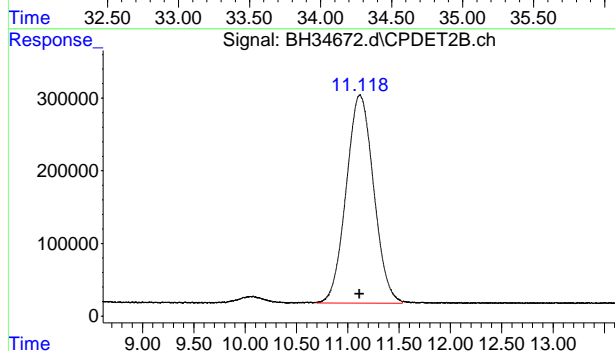
#21 Methyl Tert Butyl Ether #2

```
      R.T.:     11.120 min
Delta R.T.:      0.005 min
  Response:   53330046
      Conc:    40.34 ppb
```

Signal: BH34672.d\CPDET2B.ch

17.449
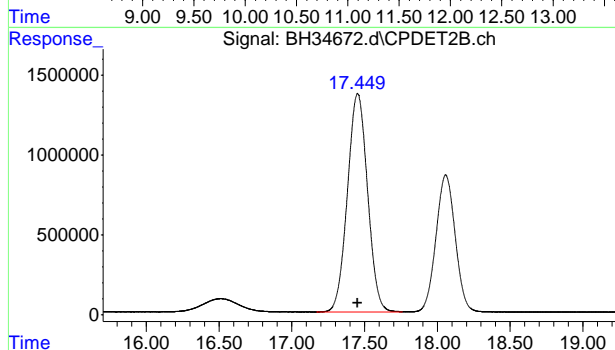
#22 benzene #2

```
      R.T.:     17.451 min
Delta R.T.:      0.000 min
  Response:  131990681
      Conc:    41.26 ppb
```

Signal: BH34672.d\CPDET2B.ch

18.054
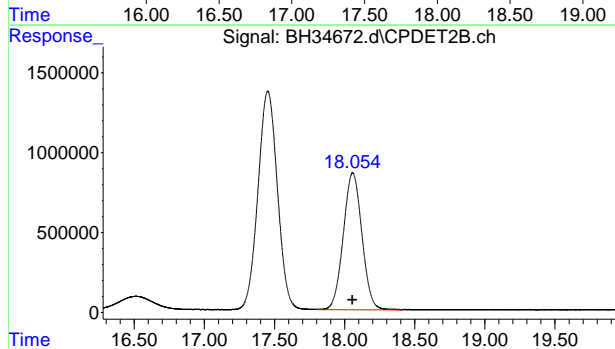
#23 fluorobenzene #2

```
      R.T.:     18.056 min
Delta R.T.:      0.000 min
  Response:   79343843
      Conc:    43.81 ppb
```

7.5.10

7

BH34672.d MBH1313.M   Wed Sep 28 09:49:30 2022
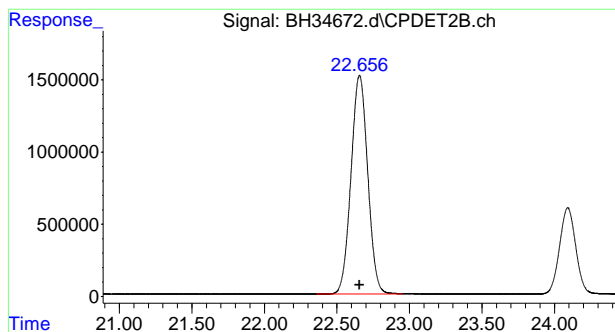
#24 toluene #2

```
         R.T.:    22.655 min
Delta R.T.:     0.000 min
  Response: 121672592
       Conc:  41.92 ppb
```
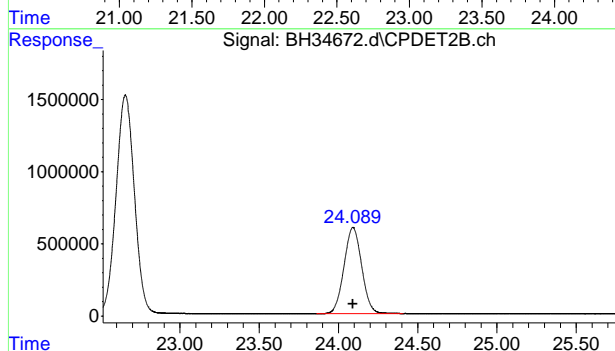
#25 2,3,4-trifluorotoluene #2

```
         R.T.:    24.091 min
Delta R.T.:     0.000 min
  Response: 46404388
       Conc:  43.82 ppb
```
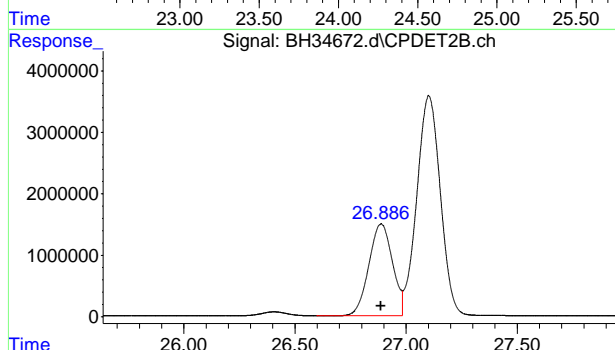
#26 ethylbenzene #2

```
         R.T.:    26.887 min
Delta R.T.:     0.000 min
  Response: 110612553
       Conc:  43.05 ppb
```
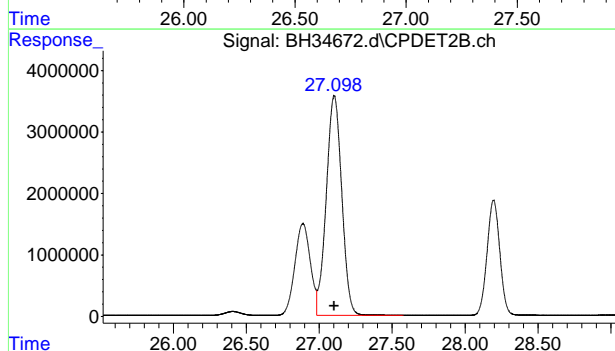
#27 m,p-xylene #2

```
         R.T.:    27.102 min
Delta R.T.:     0.000 min
  Response: 264428335
       Conc:  87.51 ppb
```

7.5.10

7

```
BH34672.d   MBH1313.M      Wed Sep 28 09:49:31 2022
```
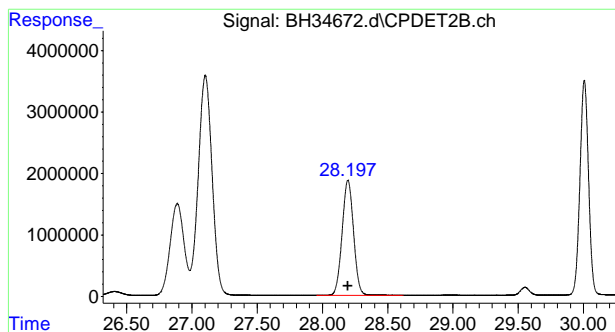
#28 o-xylene #2

```
     R.T.:    28.195 min
Delta R.T.:    0.001 min
  Response: 114080226
     Conc:   43.91 ppb
```
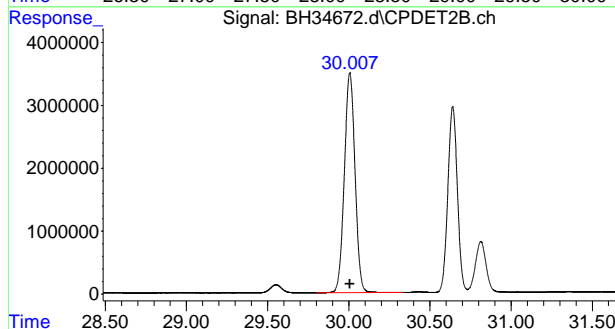
#29 1,3,5-trimethylbenzene #2

```
     R.T.:    30.006 min
Delta R.T.:    0.000 min
  Response: 159725071
     Conc:   45.55 ppb
```
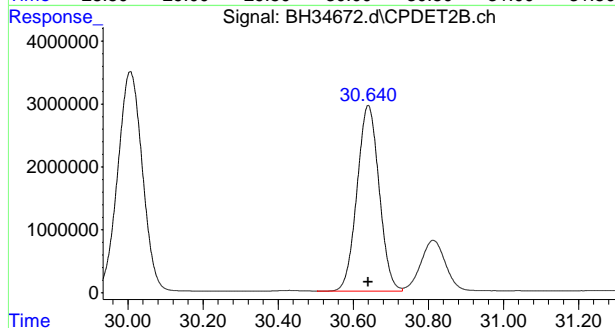
#30 1,2,4-trimethylbenzene #2

```
     R.T.:    30.640 min
Delta R.T.:    0.000 min
  Response: 120594919
     Conc:   45.75 ppb
```
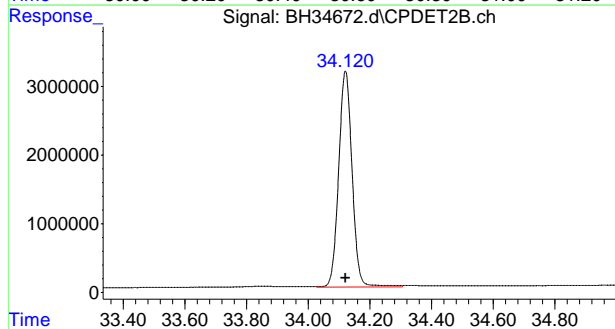
#31 naphthalene #2

```
     R.T.:    34.121 min
Delta R.T.:    0.000 min
  Response:  95570928
     Conc:   47.77 ppb
```

7.5.10

7

Hydrocarbon Range Total Response

	Data File Name	**BH34672.d**
	Date Acquired	**9/28/2022 2:35**
	Sample Name	**icv1313-50**

	Name	**Target Response**	AvgRF	CCRF	%D
1)	pentane	10151958			
2)	2-methylpentane	12119979			
4)	2,2,4-trimethylpentane	13222187			
18)	C5- C8 Aliphatics (Unadj.)	35494124	265426.8769	236627.5	10.9
13)	decane	8468860			
16)	butylcyclohexane	10325301			
19)	C9- C12 Aliphatics (Unadj.)	18794161	226314.616	187941.6	17.0
20)	Signal #2				
30)	1,2,4-trimethylbenzene #2	120594919			
32)	C9- C10 Aromatics (Unadj.)	120594919	2636022.761	2411898	8.5

7.5.11

7

SGS

JD53080

```
                       Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\DATA\GBH1320\
Data File : BH34889.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  11:03 am
Operator  : johnn
Sample    : cc1313-50
Misc      : GC60355,GBH1320,5,,100,5,1
ALS Vial  : 31   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:15:35 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :

         Compound                 R.T.      Response    Conc Units
     ------------------------------------------------------------------------

 System Monitoring Compounds
 6) s   fluorobenzene            18.055     14777403   55.033 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  110.07%
 8) s   2,3,4-trifluorotoluene   24.090     10999908   51.023 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =  102.05%
23) s   fluorobenzene #2         18.054     83907695   46.329 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   92.66%
25) s   2,3,4-trifluorotoluen... 24.089     45806094   43.250 ppb
Spiked Amount      50.000   Range  70 - 130   Recovery  =   86.50%

 Target Compounds
 1)     pentane                   6.935     13098161   54.395 ppb
 2)     2-methylpentane          10.049     14769123   52.979 ppb
 3)     Methyl Tert Butyl Ether  11.112     10140196   51.162 ppb
 4)     2,2,4-trimethylpentane   16.504     14757027   53.330 ppb
 5)     benzene                  17.450     19173999   50.820 ppb
 7)     toluene                  22.654     18751512   50.377 ppb
 9)     nonane                   26.404     11175793   45.926 ppb
10)     ethylbenzene             26.886     18413902   49.679 ppb
11)     m,p-xylene               27.101     37707463  100.950 ppb
12)     o-xylene                 28.194     19410706   49.785 ppb
13)     decane                   29.550     10325834   48.639 ppb
14)     1,3,5-trimethylbenzene   30.006     19058018   50.837 ppb
15)     1,2,4-trimethylbenzene   30.640     18657126   50.622 ppb
16)     butylcyclohexane         30.814     11666131   48.542 ppb
17)     naphthalene              34.122     10421094   50.183 ppb
21)     Methyl Tert Butyl Eth... 11.118     56730725   42.918 ppb
22)     benzene #2               17.450    136227062   42.585 ppb
24)     toluene #2               22.653    124460123   42.885 ppb
26)     ethylbenzene #2          26.885    111755729   43.493 ppb
27) t   m,p-xylene #2            27.099    266277037   88.124 ppb
28)     o-xylene #2              28.193    113579597   43.718 ppb
29)     1,3,5-trimethylbenzen... 30.005    157325533   44.865 ppb
30)     1,2,4-trimethylbenzen... 30.639    119273037   45.247 ppb
31)     naphthalene #2           34.120     90522058   45.246 ppb
     ------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
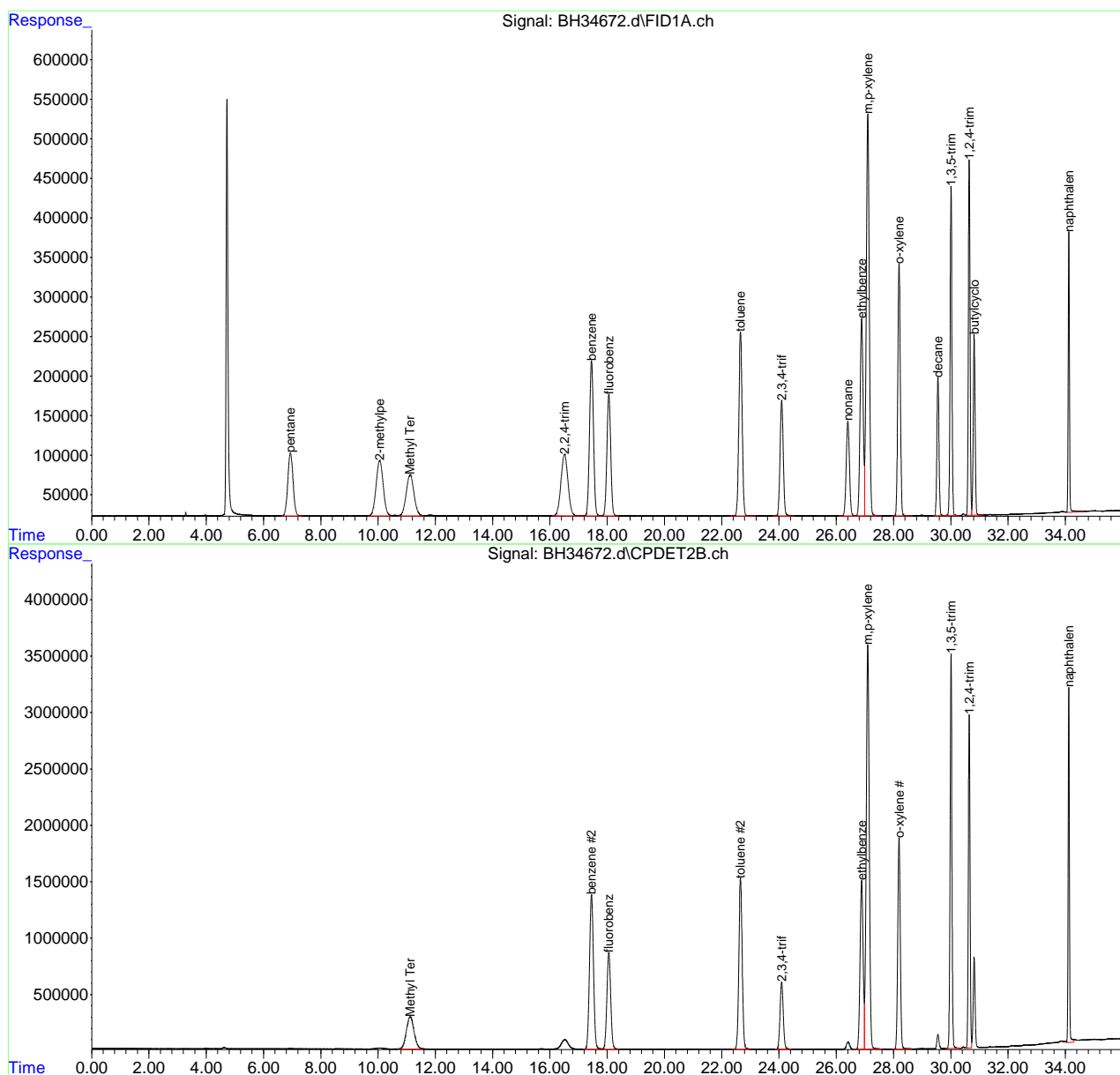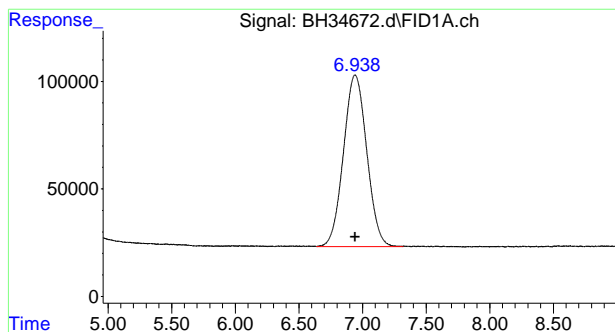
7.5.12

7

MBH1313.M Fri Oct 07 17:24:47 2022   Page: 1

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1320\
Data File : BH34889.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  6 Oct 2022  11:03 am
Operator  : johnn
Sample    : cc1313-50
Misc      : GC60355,GBH1320,5,,100,5,1
ALS Vial  : 31   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:15:35 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

7.5.12

7

Signal: BH34889.d\FID1A.ch

Signal: BH34889.d\CPDET2B.ch

MBH1313.M Fri Oct 07 17:24:48 2022

Page: 2

#1 pentane

          R.T.:   6.935 min
Delta R.T.: -0.007 min
  Response: 13098161
      Conc: 54.40 ppb
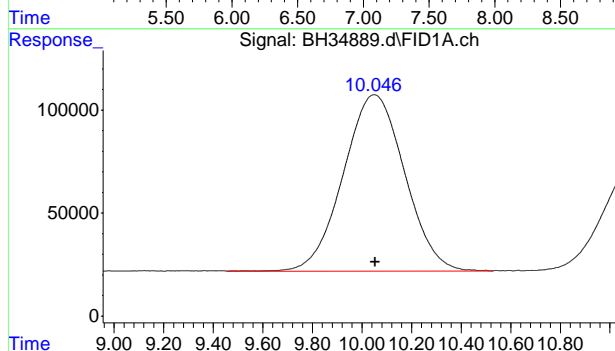
#2 2-methylpentane

          R.T.:   10.049 min
Delta R.T.: -0.004 min
  Response: 14769123
      Conc: 52.98 ppb
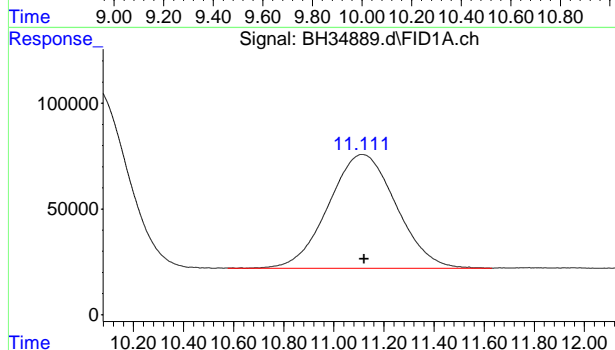
#3 Methyl Tert Butyl Ether

          R.T.:   11.112 min
Delta R.T.: -0.009 min
  Response: 10140196
      Conc: 51.16 ppb
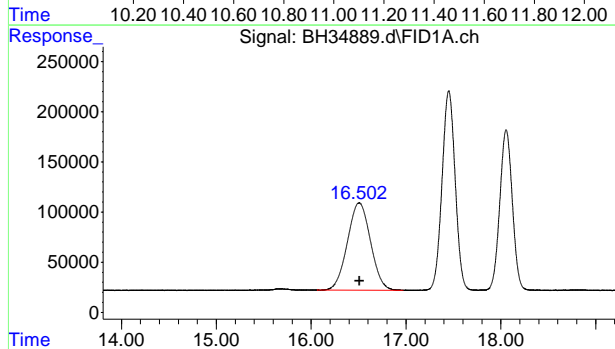
#4 2,2,4-trimethylpentane

          R.T.:   16.504 min
Delta R.T.: -0.003 min
  Response: 14757027
      Conc: 53.33 ppb

7.5.12

7
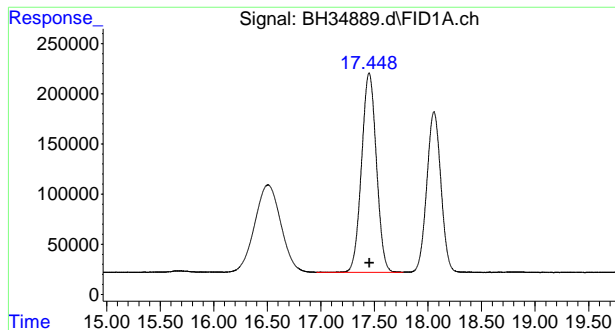
#5   benzene

         R.T.:   17.450 min
Delta R.T.:   -0.002 min
  Response: 19173999
      Conc: 50.82 ppb
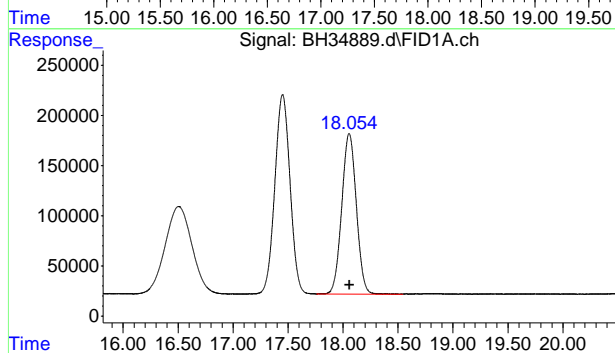
#6   fluorobenzene

         R.T.:   18.055 min
Delta R.T.:   -0.002 min
  Response: 14777403
      Conc: 55.03 ppb
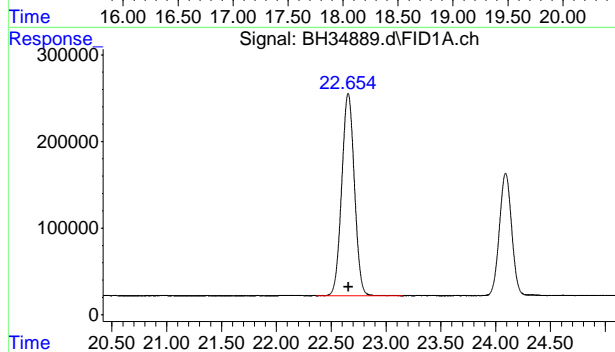
#7   toluene

         R.T.:   22.654 min
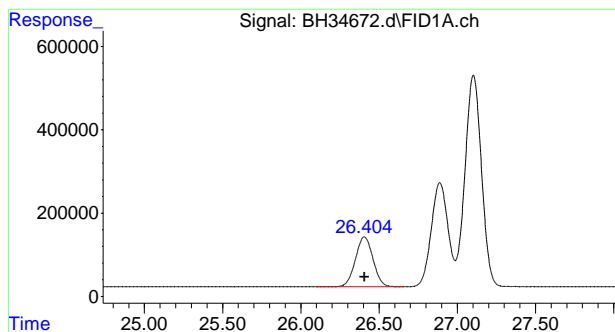Delta R.T.:   -0.002 min
  Response: 18751512
      Conc: 50.38 ppb
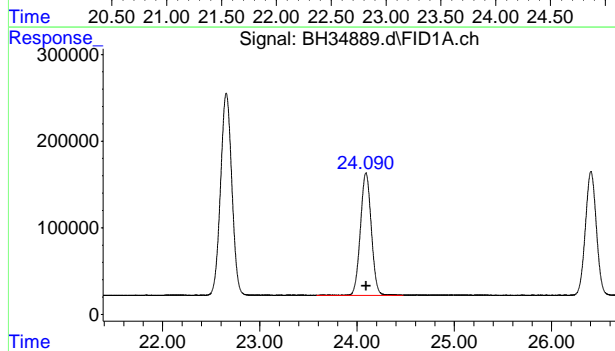
#8   2,3,4-trifluorotoluene

         R.T.:   24.090 min
Delta R.T.:   -0.002 min
  Response: 10999908
      Conc: 51.02 ppb

7.5.12

7
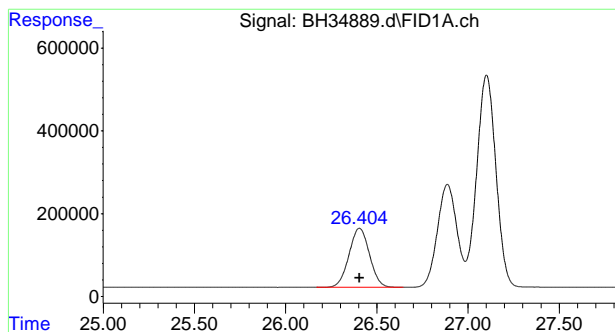
#9   nonane

```
       R.T.:   26.404 min
Delta R.T.:    0.000 min
  Response:  11175793
      Conc:  45.93 ppb
```

#10   ethylbenzene

```
       R.T.:   26.886 min
Delta R.T.:   -0.002 min
  Response:  18413902
      Conc:  49.68 ppb
```

#11   m,p-xylene

```
       R.T.:   27.101 min
Delta R.T.:   -0.002 min
  Response:  37707463
      Conc: 100.95 ppb
```

#12   o-xylene

```
       R.T.:   28.194 min
Delta R.T.:   -0.001 min
  Response:  19410706
      Conc:  49.79 ppb
```

7.5.12

7

BH34889.d   MBH1313.M   Fri Oct 07 17:24:49 2022
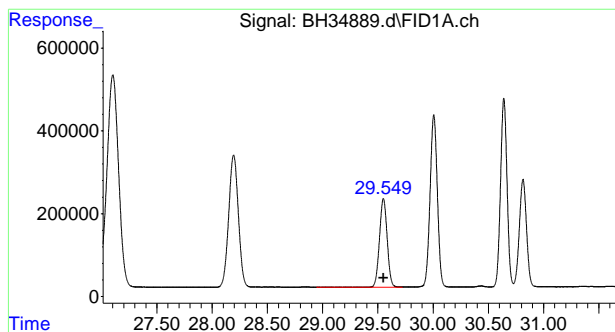
#13 decane

      R.T.:   29.550 min
Delta R.T.:   -0.001 min
  Response: 10325834
      Conc: 48.64 ppb
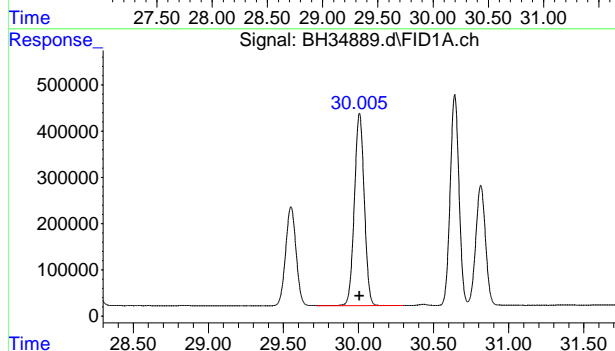
#14 1,3,5-trimethylbenzene

      R.T.:   30.006 min
Delta R.T.:   -0.001 min
  Response: 19058018
      Conc: 50.84 ppb
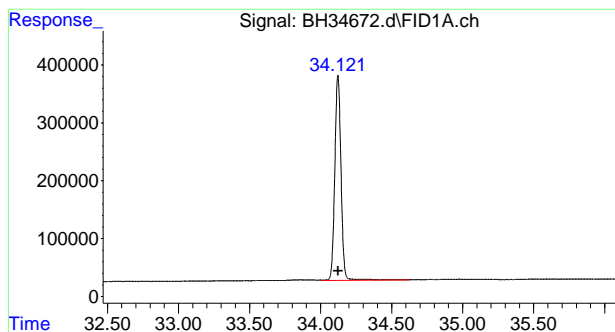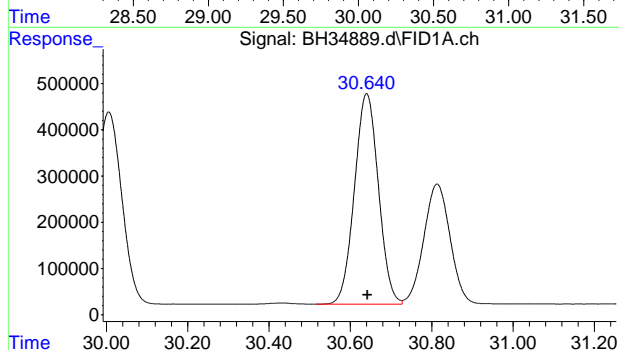
#15 1,2,4-trimethylbenzene

      R.T.:   30.640 min
Delta R.T.:   -0.001 min
 Response: 18657126
      Conc: 50.62 ppb
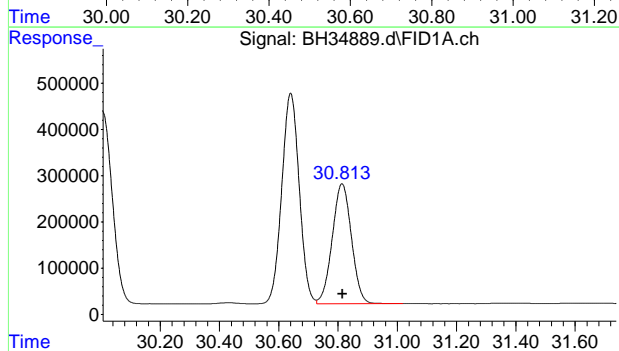
#16 butylcyclohexane

      R.T.:   30.814 min
Delta R.T.:   -0.001 min
  Response: 11666131
      Conc: 48.54 ppb

7.5.12

7

BH34889.d MBH1313.M   Fri Oct 07 17:24:50 2022
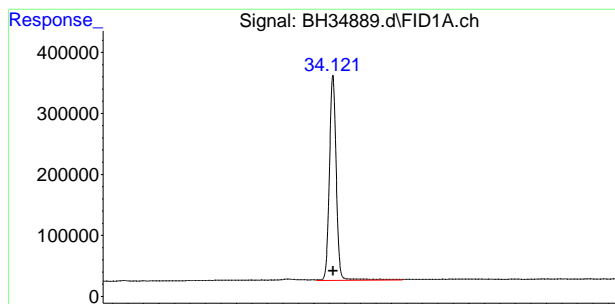
#17 naphthalene

```
        R.T.:    34.122 min
Delta R.T.:     0.000 min
  Response:  10421094
      Conc:   50.18 ppb
```
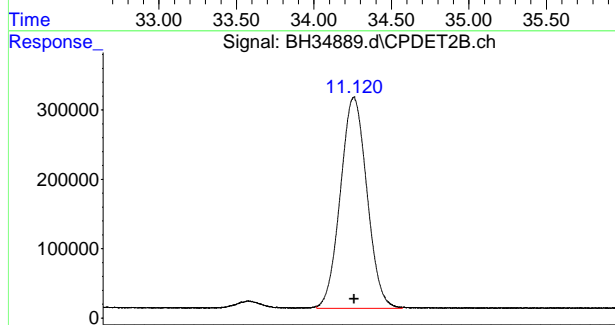
#21 Methyl Tert Butyl Ether #2

```
        R.T.:    11.118 min
Delta R.T.:     0.003 min
  Response:  56730725
      Conc:   42.92 ppb
```
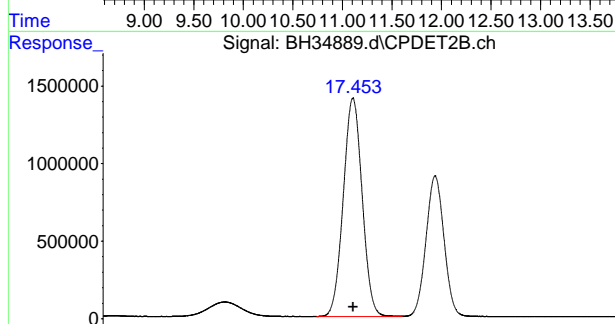
#22 benzene #2

```
        R.T.:    17.450 min
Delta R.T.:     0.000 min
  Response:  136227062
      Conc:   42.59 ppb
```
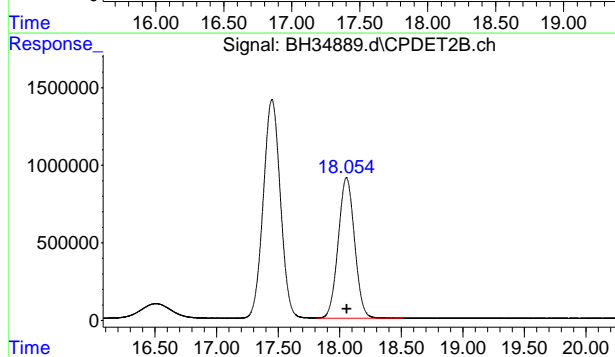
#23 fluorobenzene #2

```
        R.T.:    18.054 min
Delta R.T.:    -0.002 min
  Response:  83907695
      Conc:   46.33 ppb
```

7.5.12

7
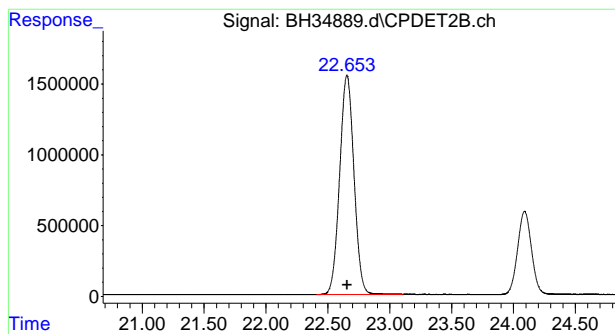
#24 toluene #2

          R.T.:   22.653 min
Delta R.T.:   -0.001 min
   Response: 124460123
       Conc: 42.88 ppb
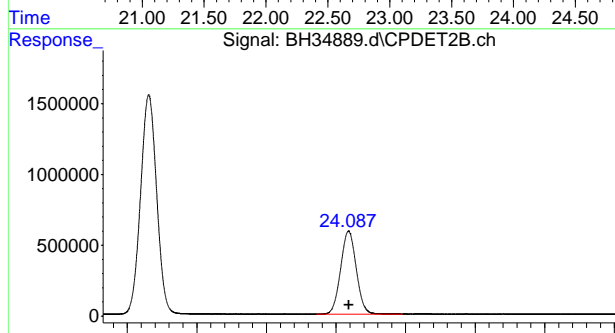
#25 2,3,4-trifluorotoluene #2

          R.T.:   24.089 min
Delta R.T.:   -0.001 min
   Response: 45806094
       Conc: 43.25 ppb
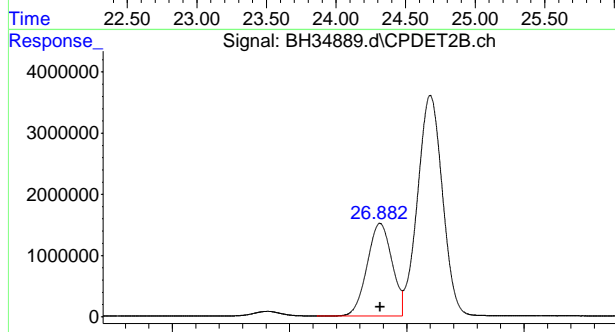
#26 ethylbenzene #2

          R.T.:   26.885 min
Delta R.T.:   -0.001 min
   Response: 111755729
       Conc: 43.49 ppb
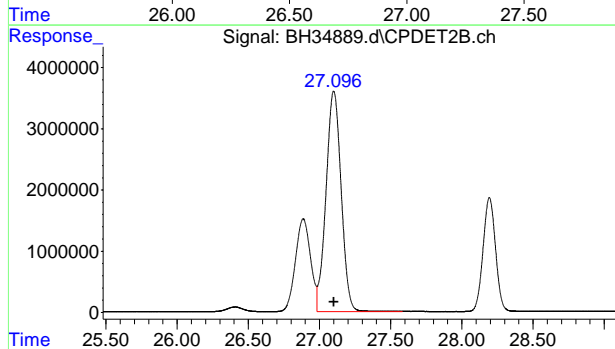
#27 m,p-xylene #2

          R.T.:   27.099 min
Delta R.T.:   -0.002 min
   Response: 266277037
       Conc: 88.12 ppb

7.5.12

7
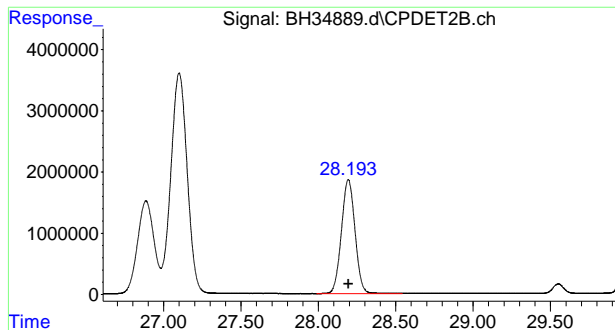
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
   Response: 113579597
       Conc: 43.72 ppb
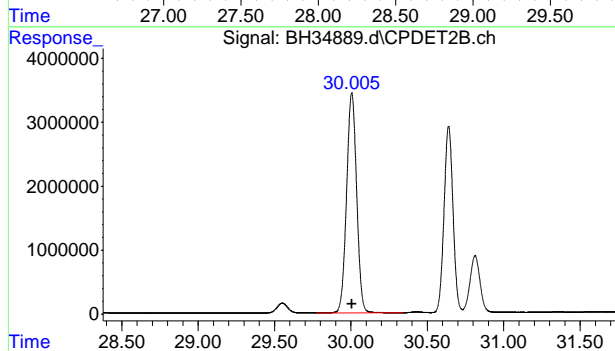
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.005 min
Delta R.T.:   0.000 min
   Response: 157325533
       Conc: 44.86 ppb
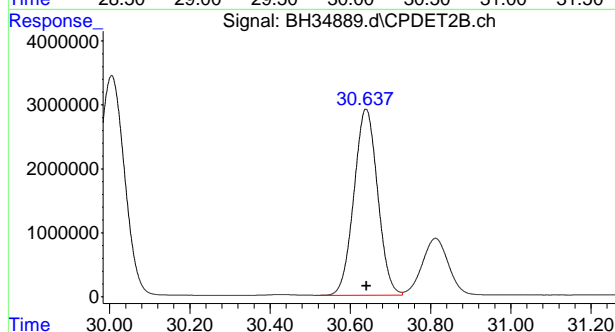
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.639 min
Delta R.T.:   0.000 min
   Response: 119273037
       Conc: 45.25 ppb
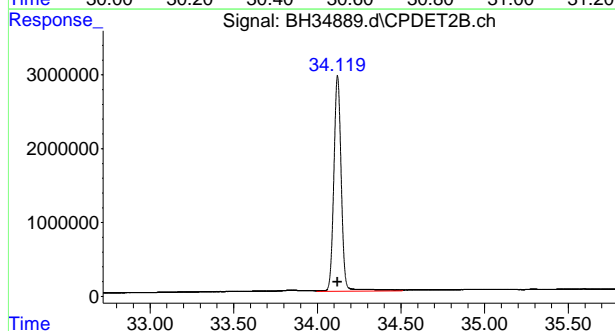
#31 naphthalene #2

          R.T.:   34.120 min
Delta R.T.:   0.000 min
   Response: 90522058
       Conc: 45.25 ppb

7.5.12

7

C:\msdchem\1\DATA\GBH1320\BH34889.d

Hydrocarbon Range Total Response

	Data File Name	**BH34889.d**
	Date Acquired	**10/6/2022 11:03**
	Sample Name	**cc1313-50**

	Name	**Target Response**	AvgRF	CCRF	%D
1)	pentane	13098161			
2)	2-methylpentane	14769123			
4)	2,2,4-trimethylpentane	14757027			
18)	C5- C8 Aliphatics (Unadj.)	42624311	265426.8769	284162.1	-7.1
13)	decane	10325834			
16)	butylcyclohexane	11666131			
19)	C9- C12 Aliphatics (Unadj.)	21991965	226314.616	219919.7	2.8
20)	Signal #2				
30)	1,2,4-trimethylbenzene #2	119273037			
32)	C9- C10 Aromatics (Unadj.)	119273037	2636022.761	2385461	9.5

7.5.13

7

10/7/2022 5:21 PM   **C:\msdchem\custrpt\Njephcc50.crt**   Page 1 of 1

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34917.d
Signal(s) : Signal #1: FID1A.ch  Signal #2: CPDET2B.ch
Acq On    :  7 Oct 2022   9:53 am
Operator  : johnn
Sample    : cc1313-50
Misc      : GC60282,GBH1321,5,,,,1
ALS Vial  : 28   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:52:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :
```

Compound	R.T.	Response	Conc Units

System Monitoring Compounds

	Compound	R.T.	Response	Conc	Units
6) s	fluorobenzene	18.057	13898860	51.762	ppb
Spiked Amount	50.000	Range	70 - 130	Recovery =	103.52%
8) s	2,3,4-trifluorotoluene	24.091	10646668	49.384	ppb
Spiked Amount	50.000	Range	70 - 130	Recovery =	98.77%
23) s	fluorobenzene #2	18.056	97837985	54.020	ppb
Spiked Amount	50.000	Range	70 - 130	Recovery =	108.04%
25) s	2,3,4-trifluorotoluen...	24.090	54818054	51.759	ppb
Spiked Amount	50.000	Range	70 - 130	Recovery =	103.52%

Target Compounds

	Compound	R.T.	Response	Conc	Units
1)	pentane	6.943	12602326	52.336	ppb
2)	2-methylpentane	10.054	14327754	51.396	ppb
3)	Methyl Tert Butyl Ether	11.119	9945236	50.178	ppb
4)	2,2,4-trimethylpentane	16.507	14512312	52.445	ppb
5)	benzene	17.452	18681285	49.514	ppb
7)	toluene	22.655	18433282	49.522	ppb
9)	nonane	26.405	11037469	45.357	ppb
10)	ethylbenzene	26.887	18304595	49.384	ppb
11)	m,p-xylene	27.101	37471230	100.318	ppb
12)	o-xylene	28.195	19329940	49.578	ppb
13)	decane	29.550	10228321	48.179	ppb
14)	1,3,5-trimethylbenzene	30.006	18940066	50.523	ppb
15)	1,2,4-trimethylbenzene	30.641	18694348	50.723	ppb
16)	butylcyclohexane	30.814	11500968	47.854	ppb
17)	naphthalene	34.123	10610332	51.094	ppb
21)	Methyl Tert Butyl Eth...	11.116	65728737	49.725	ppb
22)	benzene #2	17.451	161578798	50.510	ppb
24)	toluene #2	22.654	151281254	52.126	ppb
26)	ethylbenzene #2	26.886	137962328	53.693	ppb
27) t	m,p-xylene #2	27.100	332161476	109.928	ppb
28)	o-xylene #2	28.193	141868111	54.607	ppb
29)	1,3,5-trimethylbenzen...	30.004	195114550	55.641	ppb
30)	1,2,4-trimethylbenzen...	30.639	147811266	56.074	ppb
31)	naphthalene #2	34.121	111883268	55.923	ppb

(f)=RT Delta > 1/2 Window   (m)=manual int.

MBH1313.M Fri Oct 07 17:56:25 2022   Page: 1
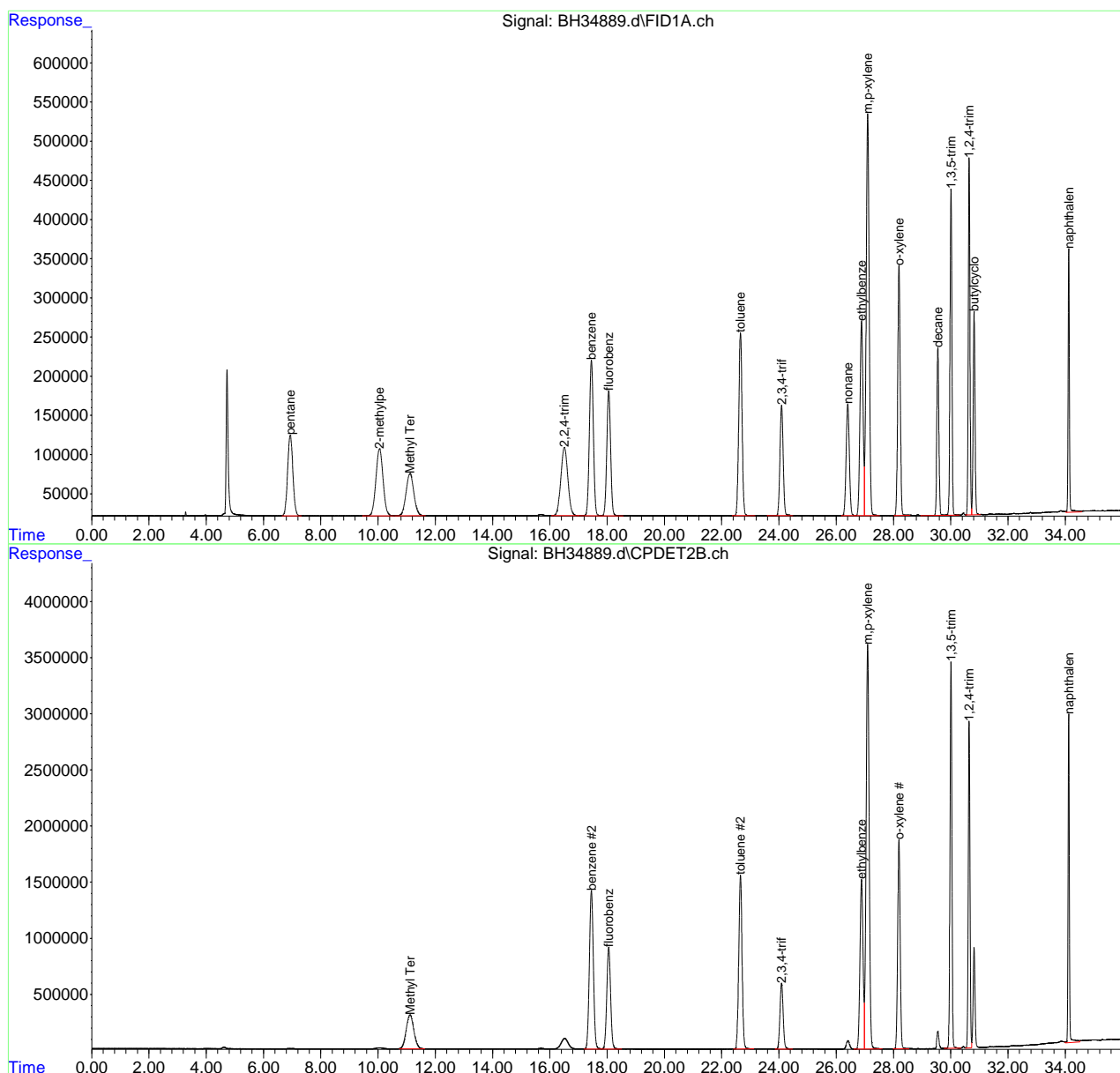
Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\GBH1321\
Data File : BH34917.d
Signal(s) : Signal #1: FID1A.ch   Signal #2: CPDET2B.ch
Acq On    :  7 Oct 2022   9:53 am
Operator  : johnn
Sample    : cc1313-50
Misc      : GC60282,GBH1321,5,,,,1
ALS Vial  : 28   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint1.e
Quant Time: Oct 07 17:52:09 2022
Quant Method : C:\MSDCHEM\1\METHODS\MBH1313.M
Quant Title  : vph - master
QLast Update : Wed Sep 28 09:12:49 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :
```


Signal: BH34917.d\FID1A.ch

Signal: BH34917.d\CPDET2B.ch

MBH1313.M Fri Oct 07 17:56:26 2022   Page: 2

Signal: BH34917.d\FID1A.ch

#1 pentane

```
        R.T.:    6.943 min
Delta R.T.:    0.001 min
  Response:  12602326
      Conc:   52.34 ppb
```

Signal: BH34917.d\FID1A.ch
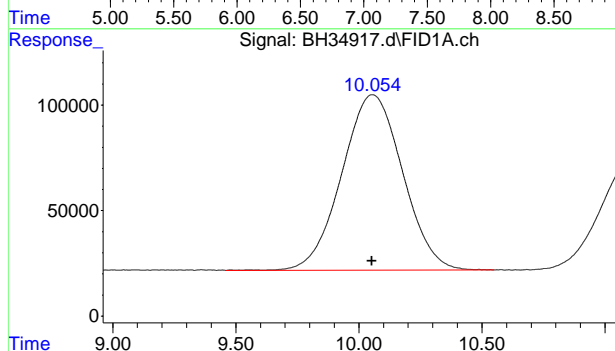
#2 2-methylpentane

```
        R.T.:   10.054 min
Delta R.T.:    0.002 min
  Response:  14327754
      Conc:   51.40 ppb
```

Signal: BH34917.d\FID1A.ch
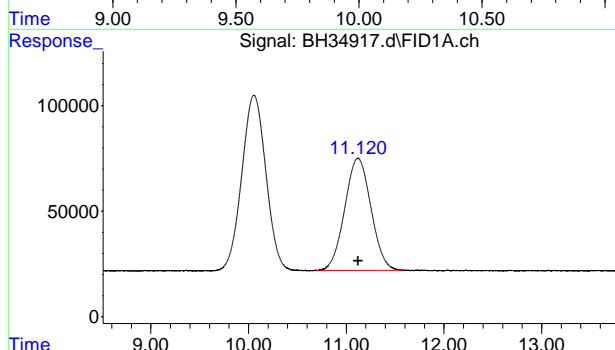
#3 Methyl Tert Butyl Ether

```
        R.T.:   11.119 min
Delta R.T.:   -0.002 min
  Response:   9945236
      Conc:   50.18 ppb
```

Signal: BH34917.d\FID1A.ch
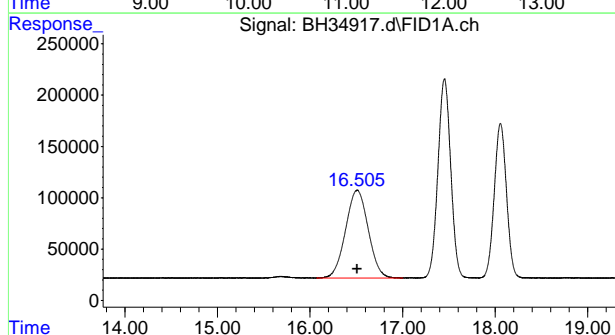
#4 2,2,4-trimethylpentane

```
        R.T.:   16.507 min
Delta R.T.:    0.000 min
  Response:  14512312
      Conc:   52.45 ppb
```

7.5.14

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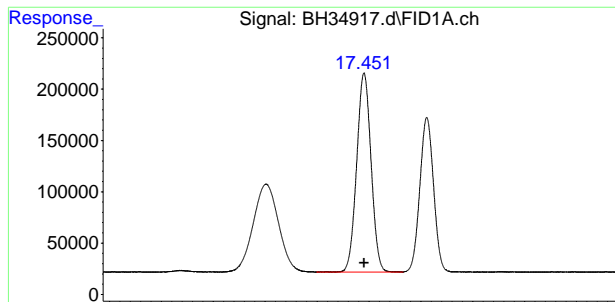
#5 benzene

```
      R.T.:   17.452 min
Delta R.T.:    0.000 min
  Response:  18681285
      Conc:  49.51 ppb
```
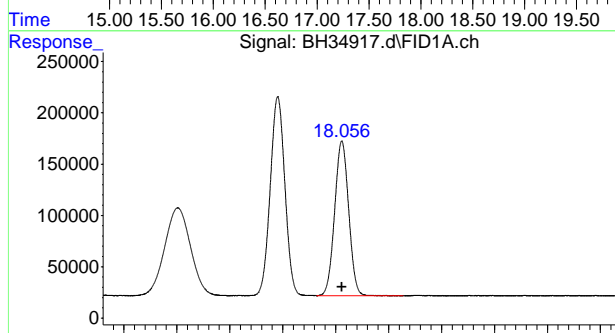
#6 fluorobenzene

```
      R.T.:   18.057 min
Delta R.T.:    0.000 min
  Response:  13898860
      Conc:  51.76 ppb
```
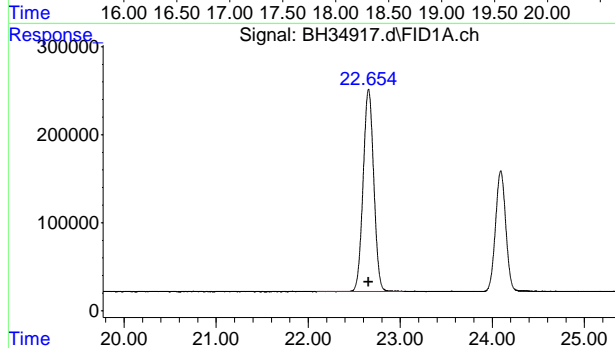
#7 toluene

```
      R.T.:   22.655 min
Delta R.T.:   -0.001 min
  Response:  18433282
      Conc:  49.52 ppb
```
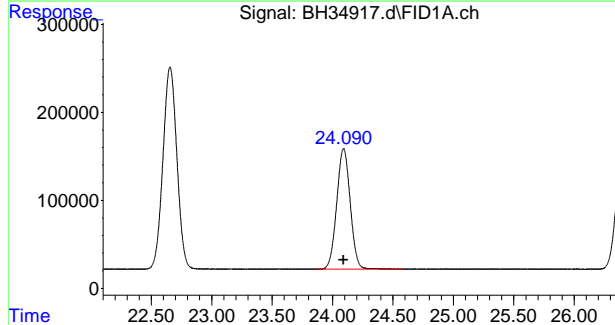
#8 2,3,4-trifluorotoluene

```
      R.T.:   24.091 min
Delta R.T.:   -0.001 min
  Response:  10646668
      Conc:  49.38 ppb
```

7.5.14

7

```
BH34917.d  MBH1313.M     Fri Oct 07 17:56:27 2022
```
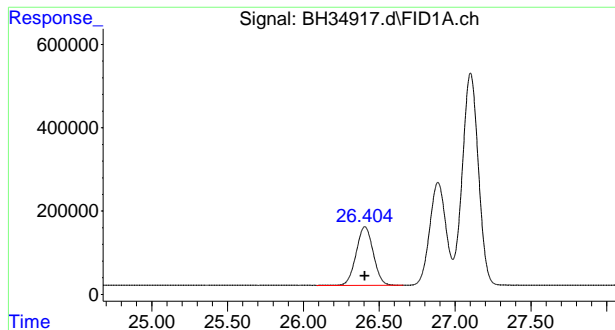
#9 nonane

```
        R.T.:    26.405 min
Delta R.T.:     0.000 min
  Response:  11037469
      Conc:   45.36 ppb
```
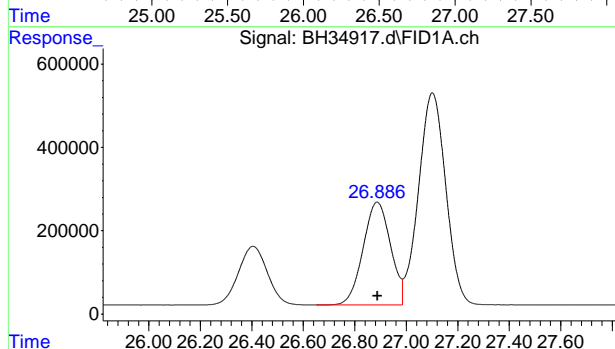
#10 ethylbenzene

```
        R.T.:    26.887 min
Delta R.T.:     0.000 min
  Response:  18304595
      Conc:   49.38 ppb
```
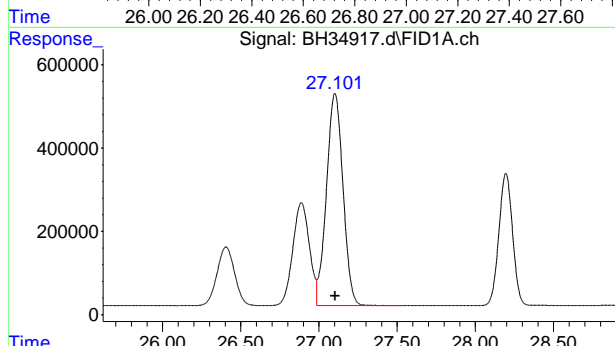
#11 m,p-xylene

```
        R.T.:    27.101 min
Delta R.T.:    -0.001 min
  Response:  37471230
      Conc:  100.32 ppb
```
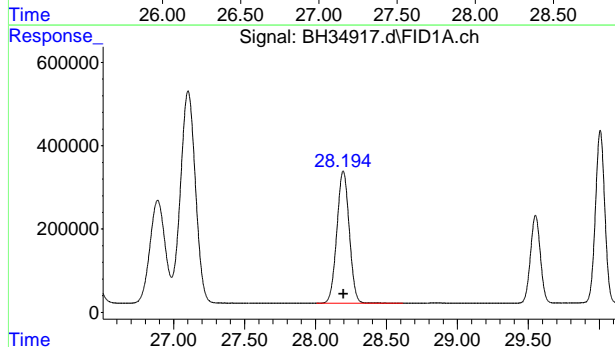
#12 o-xylene

```
        R.T.:    28.195 min
Delta R.T.:     0.000 min
  Response:  19329940
      Conc:   49.58 ppb
```

7.5.14

7

BH34917.d MBH1313.M   Fri Oct 07 17:56:27 2022
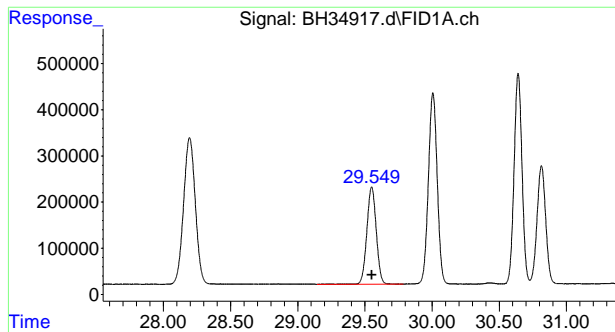
#13   decane

          R.T.:   29.550 min
Delta R.T.:   0.000 min
   Response: 10228321
          Conc: 48.18 ppb
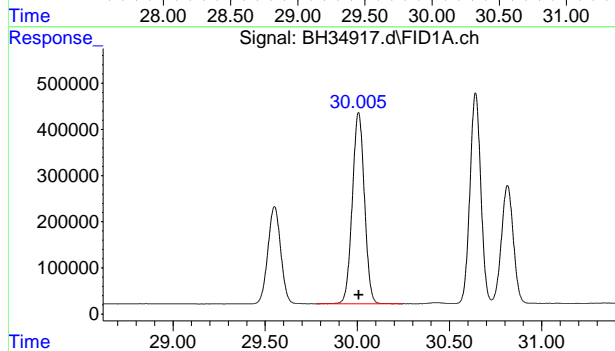
#14   1,3,5-trimethylbenzene

          R.T.:   30.006 min
Delta R.T.:   -0.001 min
   Response: 18940066
          Conc: 50.52 ppb
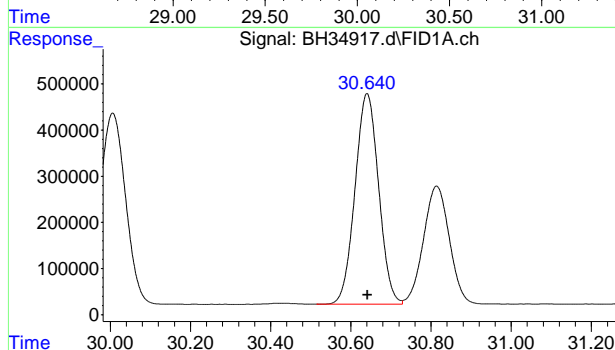
#15   1,2,4-trimethylbenzene

          R.T.:   30.641 min
Delta R.T.:   0.000 min
   Response: 18694348
          Conc: 50.72 ppb
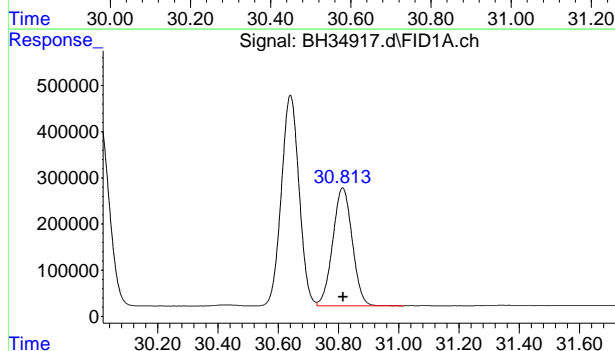
#16   butylcyclohexane

          R.T.:   30.814 min
Delta R.T.:   0.000 min
   Response: 11500968
          Conc: 47.85 ppb

7.5.14

7

BH34917.d   MBH1313.M   Fri Oct 07 17:56:27 2022
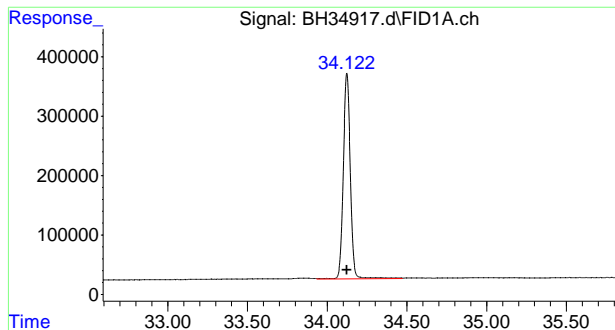
#17 naphthalene

```
        R.T.:    34.123 min
Delta R.T.:    0.000 min
  Response:  10610332
      Conc:  51.09 ppb
```
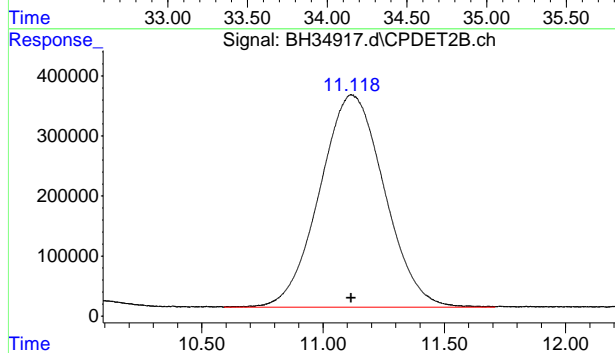
#21 Methyl Tert Butyl Ether #2

```
        R.T.:    11.116 min
Delta R.T.:    0.000 min
  Response:  65728737
      Conc:  49.72 ppb
```
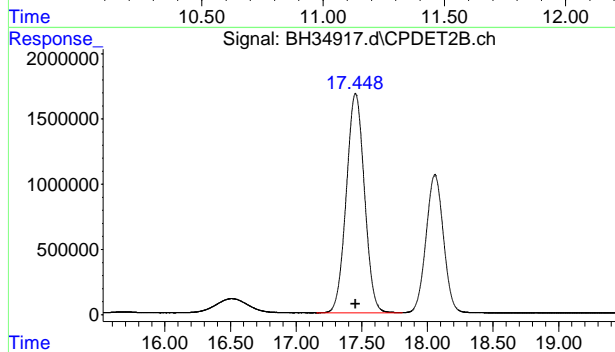
#22 benzene #2

```
        R.T.:    17.451 min
Delta R.T.:    0.000 min
  Response:  161578798
      Conc:  50.51 ppb
```
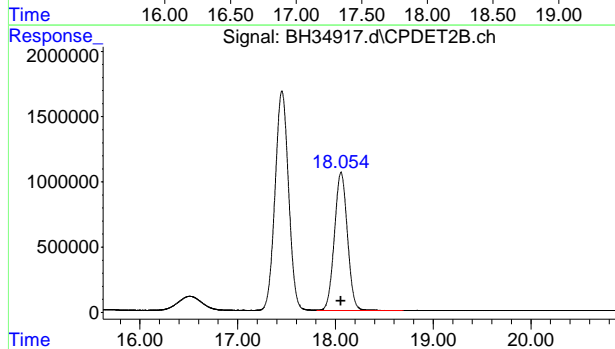
#23 fluorobenzene #2

```
        R.T.:    18.056 min
Delta R.T.:    0.000 min
  Response:  97837985
      Conc:  54.02 ppb
```

7.5.14

7

```
BH34917.d  MBH1313.M     Fri Oct 07 17:56:28 2022
```
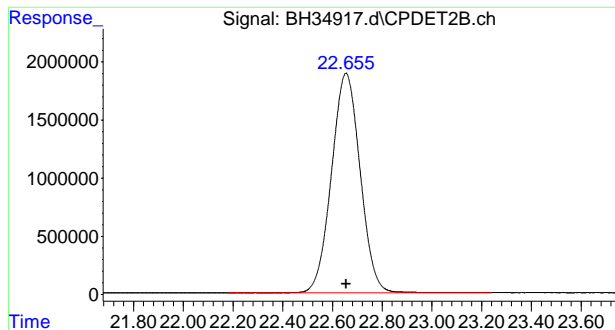
#24 toluene #2

          R.T.:   22.654 min
Delta R.T.:   0.000 min
   Response: 151281254
        Conc: 52.13 ppb
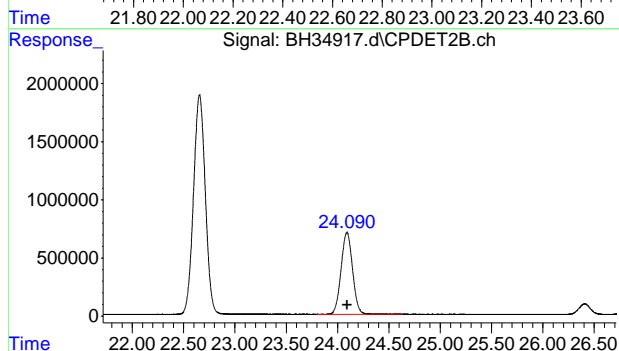
#25 2,3,4-trifluorotoluene #2

          R.T.:   24.090 min
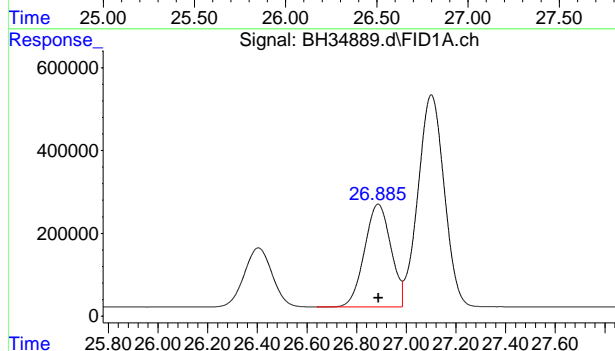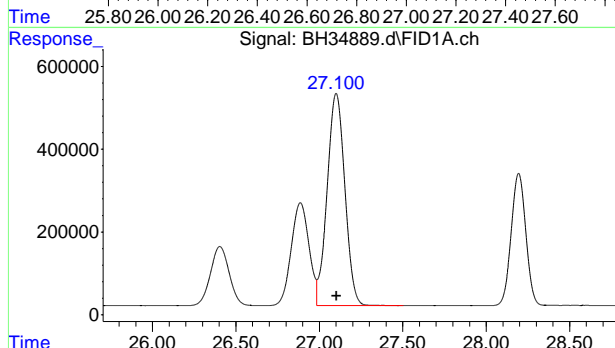Delta R.T.:   0.000 min
   Response: 54818054
        Conc: 51.76 ppb
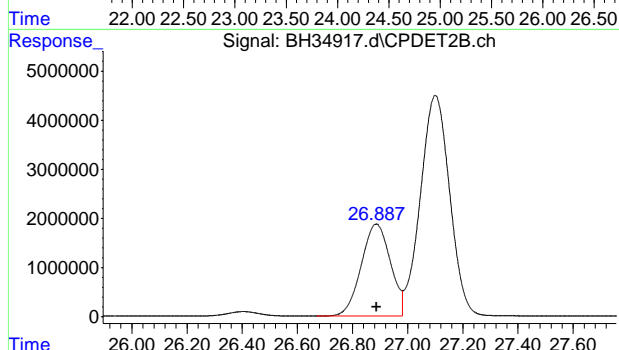
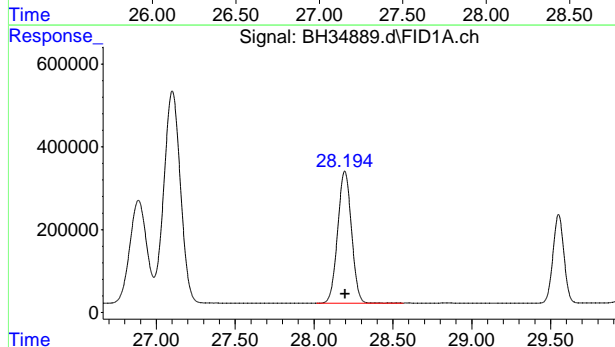#26 ethylbenzene #2

          R.T.:   26.886 min
Delta R.T.:   0.000 min
   Response: 137962328
        Conc: 53.69 ppb
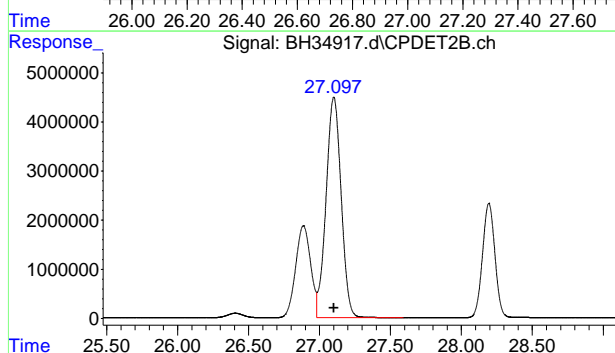
#27 m,p-xylene #2

          R.T.:   27.100 min
Delta R.T.:   0.000 min
   Response: 332161476
        Conc: 109.93 ppb

7.5.14

7

BH34917.d MBH1313.M   Fri Oct 07 17:56:28 2022

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SGS

JD53080
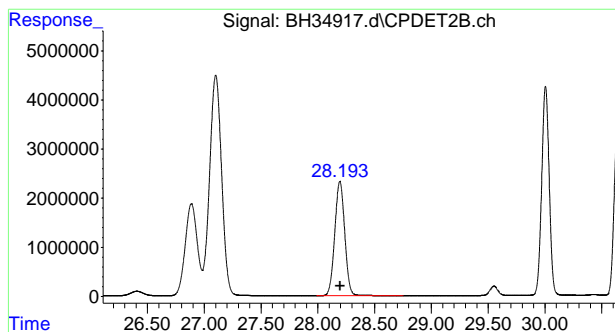
#28 o-xylene #2

          R.T.:   28.193 min
Delta R.T.:   0.000 min
  Response: 141868111
       Conc: 54.61 ppb
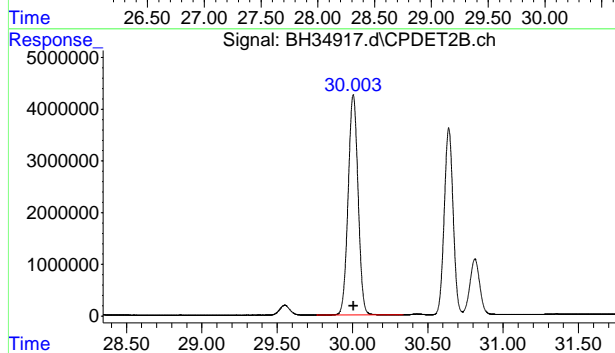
#29 1,3,5-trimethylbenzene #2

          R.T.:   30.004 min
Delta R.T.:   0.000 min
  Response: 195114550
       Conc: 55.64 ppb
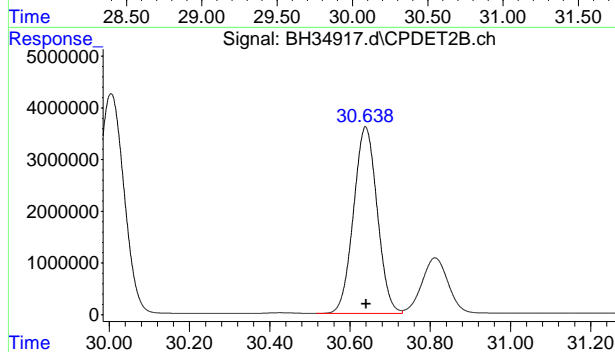
#30 1,2,4-trimethylbenzene #2

          R.T.:   30.639 min
Delta R.T.:   0.000 min
  Response: 147811266
       Conc: 56.07 ppb
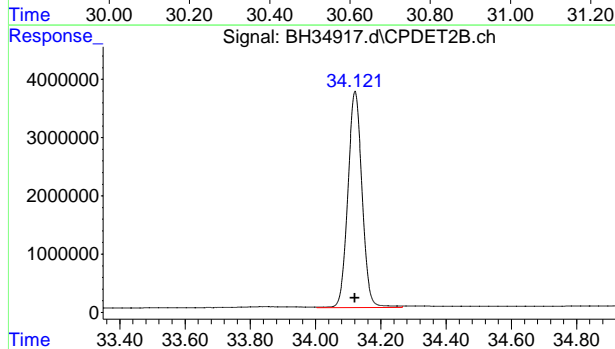
#31 naphthalene #2

          R.T.:   34.121 min
Delta R.T.:   0.000 min
  Response: 111883268
       Conc: 55.92 ppb

7.5.14

7

C:\msdchem\1\DATA\GBH1321\BH34917.d

Hydrocarbon Range Total Response

	Data File Name	**BH34917.d**
	Date Acquired	**10/7/2022 9:53**
	Sample Name	**cc1313-50**

	Name	**Target Response**	AvgRF	CCRF	%D
1)	pentane	12602326			
2)	2-methylpentane	14327754			
4)	2,2,4-trimethylpentane	14512312			
18)	C5- C8 Aliphatics (Unadj.)	41442393	265426.8769	276282.6	-4.1
13)	decane	10228321			
16)	butylcyclohexane	11500968			
19)	C9- C12 Aliphatics (Unadj.)	21729289	226314.616	217292.9	4.0
20)	Signal #2				
30)	1,2,4-trimethylbenzene #2	147811266			
32)	C9- C10 Aromatics (Unadj.)	147811266	2636022.761	2956225	-12.1

JD53080

7.5.15

7

GC Volatile Run Log

Standard / Reagents

		Lot #	
Standard	VPH STD: V022-2749-104	VPH STD(2): V022-2749-105	
Standard Concentrations	200ppm	50ppm	
Expiration Date	10/23/2022	10/27/2022	
Internal/Surrogate	V022-2749-88		
Internal/Surrogate Concentration	250ppm		
Expiration Date	10/6/2022		
pH paper Lot# (wide range):	223120	8/15/2023	Initial Calibration Method MBH1313

Column	Rxi-624(60mx0.25mmx1.4um)		
Method	VMAVPH		
Init Calib Date	1/13/22		
Analysis Date	9/28/2022		
Sequence loaded by	John Nieradka		
Data processed by	John Nieradka		
Batch ID	GBH1313		
Matrix	AQ		
Approved By:	MOHUI		
Approved Date:	10/7/2022 11:00:14 AM		

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	urrogal	pH	ALS #	Status	Comments
BH	34661	IC1313-1		NA		AQ Initial Calibration	5			1	OK	1uL VPH STD/200mL
BH	34662	IC1313-2		NA		AQ Initial Calibration	5			2	OK	2uL VPH STD/200mL
BH	34663	IC1313-5		NA		AQ Initial Calibration	5			3	OK	2.5uL VPH STD/100mL
BH	34664	IC1313-10		NA		AQ Initial Calibration	5			4	OK	5uL VPH STD/100mL
BH	34665	IC1313-20		NA		AQ Initial Calibration	5			5	OK	10uL VPH STD/100mL
BH	34666	ICC1313-50		NA		AQ Initial Calibration	5			6	OK	25uL VPH STD/100mL
BH	34667	IC1313-100		NA		AQ Initial Calibration	5			7	OK	50uL VPH STD/100mL
BH	34668	IC1313-500		NA		AQ Initial Calibration	5			8	OK	125uL VPH STD/50mL
BH	34669	IC1313-1000		NA		AQ Initial Calibration	5			9	OK	250uL VPH STD/50mL; Decane, BCH, and Range 2 No Quant
BH	34670	IB		NA			5			10		

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Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	urrogal	pH	ALS #	Status	Comments
BH	34671	IB		NA			5			11		
BH	34672	ICV1313-50		NA		AQ Initial Calibration	5			12	OK	100uL VPH STD(2)/100mL

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GC Volatile Run Log

Standard / Reagents

		Lot #
Standard	VPH STD: V022-2749-104	VPH STD(2): V022-2749-105
Standard Concentrations		
Expiration Date	10/23/2022	10/27/2022
Internal/Surrogate	VPH STD: V022-2749-109	
Internal/Surrogate Concentrations	250ppm	
Expiration Date	11/3/2022	
	200ppm	50ppm
Initial Calibration Method		

Column		Rxi-624(60mx0.25mmx1.4um)
Method		
Init Calib Date		1/13/22
Analysis Date		10/5/2022
Sequence loaded by		John Nieradka
Data processed by		John Nieradka
Batch ID		GBH1320
Matrix		SO
Approved By:		MOHUI
Approved Date:		10/16/2022 8:03:38 PM

Data File	Sample ID	Bot #	Dil	Workgroup #	Test	Smpl Amt (g)	MeOH/ DI FV (ml)	MeOH Purge (uL)	ALS #	Status	Comments
BH 34858	CC1313-50		NA						1	OK	25uL VPH STD/100mL
BH 34859	IB		NA						2		
BH 34860	MB		NA						3	OK	
BH 34861	BS		NA						4	OK	100uL VPH STD(2)/100mL
BH 34862	BSD		NA						5	OK	100uL VPH STD(2)/100mL
BH 34863	IB		NA						6		
BH 34864	JD53019-1	4	NA	GC60355	VMAVPH	10.67	10	100	7	ok/RR	Dil x5
BH 34865	JD53019-2	3	NA	GC60355	VMAVPH	12.23	10	100	8	RR	c/o?
BH 34866	JD53019-3	3	NA	GC60355	VMAVPH	10.80	10	100	9	OK	
BH 34867	JD53019-4	3	NA	GC60355	VMAVPH	10.35	10	100	10	OK	

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Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Smpl Amt (g)	MeOH DI FV (ml)	MeOH/ MeOH Purge (uL)	ALS #	Status	Comments
BH	34868	JD53019-5	3	NA	GC60355	VMAVPH	10.43	10	100	11	OK	
BH	34869	JD53019-6	3	NA	GC60355	VMAVPH	10.82	10	100	12	OK	
BH	34870	JD53019-7	3	NA	GC60355	VMAVPH	10.37	10	100	13	ok/RR	Surr High
BH	34871	JD53019-8	4	NA	GC60355	VMAVPH	9.96	10	100	14	OK	
BH	34872	JD53019-8DUP	4	NA	GC60355	VMAVPH	9.96	10	100	15	OK	
BH	34873	IB		NA						16		
BH	34874	IB		NA						17		
BH	34875	JD53019-9	3	NA	GC60355	VMAVPH	10.32	10	100	18	ok/RR	Dil x5
BH	34876	JD53019-10	3	NA	GC60355	VMAVPH	10.29	10	100	19	RR	c/o?
BH	34877	JD53019-11	3	NA	GC60355	VMAVPH	10.25	10	100	20	ok/RR	Surr High
BH	34878	JD53019-12	3	NA	GC60355	VMAVPH	10.38	10	100	21	RR	c/o?
BH	34879	JD53019-13	3	NA	GC60355	VMAVPH	10.65	10	100	22	OK	
BH	34880	JD53019-14	3	NA	GC60355	VMAVPH	10.31	10	100	23	OK	
BH	34881	JD53019-15	3	NA	GC60355	VMAVPH	10.75	10	100	24	ok/RR	Surr High
BH	34882	JD53019-16	3	NA	GC60355	VMAVPH	10.33	10	100	25	RR	c/o?
BH	34883	JD53019-17	3	NA	GC60355	VMAVPH	10.30	10	100	26	ok/RR	Surr High
BH	34884	JD53019-18	4	NA	GC60355	VMAVPH	10.93	10	100	27	OK	
BH	34885	JD53019-19	3	NA	GC60355	VMAVPH	12.32	10	100	28	ok/RR	dil x5
BH	34886	JD53019-20	4	NA	GC60355	VMAVPH	10.91	10	100	29	RR	c/o?

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	Data File	Sample ID	Bot #	Dil	Workgroup #	Test	Smpl Amt (g)	MeOH/ DI FV (ml)	MeOH Purge (uL)	ALS #	Status	Comments
BH	34887	IB		NA						30		
BH	34888	IB		NA						31		
BH	34889	CC1313-50		NA						32	OK	25uL VPH STD/100mL

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GC Volatile Run Log

Standard / Reagents

		Lot #			Column	Rxi-624(60mx0.25mmx1.4um)
Standard	VPH STD: V022-2749-104	VPH STD(2): V022-2749-105			Method	VMAVPH
Standard Concentrations	200ppm	50ppm			Init Calib Date	1/13/22
Expiration Date	10/23/2022	10/27/2022				
Internal/Surrogate	V022-2749-109					
Internal/Surrogate Concentration	250ppm				Analysis Date	10/6/2022
Expiration Date	11/3/2022				Sequence loaded by	John Nieradka
					Data processed by	John Nieradka
					Batch ID	GBH1321
					Matrix	AQ
					Approved By:	MOHUI
pH paper Lot# (wide range):	223120	8/15/2023	Initial Calibration Method	MBH1313	Approved Date:	10/11/2022 8:48:57 PM

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	urrogat	pH	ALS #	Status	Comments
BH	34889	CC1313-50		NA			5			1	OK	25uL VPH STD/100mL
BH	34890	IB		NA			5			2		
BH	34891	MB		NA			5			3	OK	
BH	34892	BS		NA			5			4	OK	100uL VPH STD(2)/100mL
BH	34893	BSD		NA			5			5	OK	100uL VPH STD(2)/100mL
BH	34894	IB		NA			5			6		
BH	34895	JD53021-1	1	NA	GC60354	VMAVPH	5		1	7	OK	
BH	34896	JD53021-2	1	NA	GC60354	VMAVPH	5		1	8	OK	
BH	34897	JD53016-6	1	NA	GC60353	VMAVPH	5		1	9	OK	Confirmation Run
BH	34898	JD53080-1	1	NA	GC60364	VMAVPH	5		1	10	OK	

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JD53080

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Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	urrogat	pH	ALS #	Status	Comments
BH	34899	JD53080-2	2	NA	GC60364	VMAVPH	5		1	11	OK	
BH	34900	JD53080-3	2	NA	GC60364	VMAVPH	5		1	12	OK	
BH	34901	JD53080-4	3	NA	GC60364	VMAVPH	5		1	13	OK	
BH	34902	JD53080-5	3	NA	GC60364	VMAVPH	5		1	14	OK	
BH	34903	JD53080-6	1	NA	GC60364	VMAVPH	5		1	15	OK	
BH	34904	JD53080-7	3	NA	GC60364	VMAVPH	5		1	16	OK	
BH	34905	JD53080-8	11	NA	GC60364	VMAVPH	5		1	17	OK	
BH	34906	JD53080-8MS	7	NA	GC60364	VMAVPH	5		1	18	OK	44uL VPH STD(2)/40mL
BH	34907	JD53080-8MSD	8	NA	GC60364	VMAVPH	5		1	19	OK	44uL VPH STD(2)/40mL
BH	34908	IB		NA			5			20		
BH	34909	IB		NA			5			21		
BH	34910	JD53080-9	3	NA	GC60364	VMAVPH	5		1	22	OK	
BH	34911	JD53080-10	1	NA	GC60364	VMAVPH	5		1	23	OK	
BH	34912	JD52100-6	3	NA	GC60282	VMAVPH	5		1	24	OK	Confirmation Run
BH	34913	IB		NA			5			25		
BH	34914	IB		NA			5			26		
BH	34915	IB		NA			5			27		
BH	34916	IB		NA			5			28		
BH	34917	CC1313-50		NA			5			29	OK	25uL VPH STD/100mL

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GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

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Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP42283-MB1	3Y85981.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363

The QC reported here applies to the following samples: **Method:** MADEP EPH REV 2.1

JD53080-8, JD53080-9

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	2.0	0.55	ug/l	
208-96-8	Acenaphthylene	ND	2.0	0.89	ug/l	
120-12-7	Anthracene	ND	2.0	0.78	ug/l	
56-55-3	Benzo(a)anthracene	ND	2.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	2.0	0.87	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	2.0	0.97	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	0.70	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	2.0	0.69	ug/l	
218-01-9	Chrysene	ND	2.0	0.82	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	0.78	ug/l	
206-44-0	Fluoranthene	ND	4.0	3.3	ug/l	
86-73-7	Fluorene	ND	2.0	0.83	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.0	0.95	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	0.63	ug/l	
91-20-3	Naphthalene	ND	2.0	0.55	ug/l	
85-01-8	Phenanthrene	ND	2.0	0.90	ug/l	
129-00-0	Pyrene	ND	2.0	0.83	ug/l	
	C11-C22 Aromatics (Unadj.)	ND	100	13	ug/l	
	C11-C22 Aromatics	ND	100	13	ug/l	
	C9-C18 Aliphatics	ND	100	7.7	ug/l	
	C19-C36 Aliphatics	ND	100	12	ug/l	

CAS No.	Surrogate Recoveries		Limits
3386-33-2	1-Chlorooctadecane	12% * [a]	40-140%
84-15-1	o-Terphenyl	16% * [a]	40-140%
321-60-8	2-Fluorobiphenyl	41%	40-140%

(a) Outside of in house control limits.

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP42283-BS1	3Y85982.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363
OP42283-BSD	3Y85983.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363

The QC reported here applies to the following samples: **Method:** MADEP EPH REV 2.1

JD53080-8, JD53080-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	50	5.4	11* [a]	9.5	19* [a]	55* [b]	40-140/30
208-96-8	Acenaphthylene	50	4.9	10* [a]	8.3	17* [a]	52* [b]	40-140/30
120-12-7	Anthracene	50	6.9	14* [a]	12.0	24* [a]	54* [b]	40-140/30
56-55-3	Benzo(a)anthracene	50	7.4	15* [a]	13.0	26* [a]	55* [b]	40-140/30
50-32-8	Benzo(a)pyrene	50	7.1	14* [a]	12.4	25* [a]	54* [b]	40-140/30
205-99-2	Benzo(b)fluoranthene	50	7.6	15* [a]	13.4	27* [a]	55* [b]	40-140/30
191-24-2	Benzo(g,h,i)perylene	50	7.9	16* [a]	13.8	28* [a]	54* [b]	40-140/30
207-08-9	Benzo(k)fluoranthene	50	8.1	16* [a]	14.1	28* [a]	54* [b]	40-140/30
218-01-9	Chrysene	50	7.4	15* [a]	13.0	26* [a]	55* [b]	40-140/30
53-70-3	Dibenzo(a,h)anthracene	50	8.1	16* [a]	14.1	28* [a]	54* [b]	40-140/30
206-44-0	Fluoranthene	50	7.3	15* [a]	12.9	26* [a]	55* [b]	40-140/30
86-73-7	Fluorene	50	6.0	12* [a]	10.6	21* [a]	55* [b]	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	50	7.5	15* [a]	13.3	27* [a]	56* [b]	40-140/30
91-57-6	2-Methylnaphthalene	50	5.0	10* [a]	7.9	16* [a]	45* [b]	40-140/30
91-20-3	Naphthalene	50	4.4	9* [a]	6.2	12* [a]	34* [b]	40-140/30
85-01-8	Phenanthrene	50	6.6	13* [a]	11.9	24* [a]	57* [b]	40-140/30
129-00-0	Pyrene	50	7.2	14* [a]	12.8	26* [a]	56* [b]	40-140/30
	C11-C22 Aromatics (Unadj.)	850	181	21* [a]	268	32* [a]	39* [b]	50-150/30 [c]
	C9-C18 Aliphatics	300	92.1	31* [a]	104	35* [a]	12	40-140/30
	C19-C36 Aliphatics	550	172	31* [a]	240	44	33* [b]	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
3386-33-2	1-Chlorooctadecane	6% * [a]	11% * [a]	40-140%
84-15-1	o-Terphenyl	11% * [a]	19% * [a]	40-140%
321-60-8	2-Fluorobiphenyl	38% * [a]	37% * [a]	40-140%

Sample	Compound	Col #1	Col #2	Breakthrough	Limit
OP42283-BS1	2-Methylnaphthalene	5.0	ND	0.0%	5.0
OP42283-BS1	Naphthalene	4.4	ND	0.0%	5.0
OP42283-BSD	2-Methylnaphthalene	7.9	ND	0.0%	5.0
OP42283-BSD	Naphthalene	6.2	ND	0.0%	5.0

(a) Outside of in house control limits.

* = Outside of Control Limits.

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Blank Spike/Blank Spike Duplicate Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP42283-BS1	3Y85982.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363
OP42283-BSD	3Y85983.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363

The QC reported here applies to the following samples: **Method:** MADEP EPH REV 2.1

JD53080-8, JD53080-9

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(b) Analytical precision exceeds in-house control limits.
(c) Advisory control limits.

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* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP42283-MS	3Y85985.D	1	10/27/22	TL	10/07/22	OP42283	G3Y3363
OP42283-MSD	3Y85986.D	1	10/27/22	TL	10/07/22	OP42283	G3Y3363
JD53080-8 [a]	3Y85984.D	1	10/26/22	TL	10/07/22	OP42283	G3Y3363

The QC reported here applies to the following samples: **Method:** MADEP EPH REV 2.1

JD53080-8, JD53080-9

CAS No.	Compound	JD53080-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		48.5	6.8	14* [b]	50	6.3	13* [b]	8	40-140/50
208-96-8	Acenaphthylene	ND		48.5	6.1	13* [b]	50	5.7	11* [b]	7	40-140/50
120-12-7	Anthracene	ND		48.5	9.5	20* [b]	50	8.3	17* [b]	13	40-140/50
56-55-3	Benzo(a)anthracene	ND		48.5	10.5	22* [b]	50	8.7	17* [b]	19	40-140/50
50-32-8	Benzo(a)pyrene	ND		48.5	10.1	21* [b]	50	8.2	16* [b]	21	40-140/50
205-99-2	Benzo(b)fluoranthene	ND		48.5	10.9	22* [b]	50	8.9	18* [b]	20	40-140/50
191-24-2	Benzo(g,h,i)perylene	ND		48.5	11.0	23* [b]	50	9.2	18* [b]	18	40-140/50
207-08-9	Benzo(k)fluoranthene	ND		48.5	11.4	23* [b]	50	9.4	19* [b]	19	40-140/50
218-01-9	Chrysene	ND		48.5	10.5	22* [b]	50	8.7	17* [b]	19	40-140/50
53-70-3	Dibenzo(a,h)anthracene	ND		48.5	11.4	23* [b]	50	9.3	19* [b]	20	40-140/50
206-44-0	Fluoranthene	ND		48.5	10.4	21* [b]	50	8.8	18* [b]	17	40-140/50
86-73-7	Fluorene	ND		48.5	8.0	16* [b]	50	7.3	15* [b]	9	40-140/50
193-39-5	Indeno(1,2,3-cd)pyrene	ND		48.5	10.6	22* [b]	50	8.9	18* [b]	17	40-140/50
91-57-6	2-Methylnaphthalene	ND		48.5	5.3	11* [b]	50	4.9	10* [b]	8	40-140/50
91-20-3	Naphthalene	ND		48.5	4.2	9* [b]	50	3.9	8* [b]	7	40-140/50
85-01-8	Phenanthrene	ND		48.5	9.2	19* [b]	50	8.3	17* [b]	10	40-140/50
129-00-0	Pyrene	ND		48.5	10.1	21* [b]	50	8.6	17* [b]	16	40-140/50
	C11-C22 Aromatics (Unadj.)	ND		825	240	29* [b]	850	189	22* [b]	24	50-150/30 [c]
	C9-C18 Aliphatics	ND		291	80.7	28* [b]	300	84.3	28* [b]	4	40-140/50
	C19-C36 Aliphatics	ND		534	211	40	550	193	35* [b]	9	40-140/50

CAS No.	Surrogate Recoveries	MS	MSD	JD53080-8	Limits
3386-33-2	1-Chlorooctadecane	8% * [b]	8% * [b]	11% * [b]	40-140%
84-15-1	o-Terphenyl	17% * [b]	14% * [b]	10% * [b]	40-140%
321-60-8	2-Fluorobiphenyl	39% * [b]	41%	87%	40-140%

(a) Associated blank spike outside control limits biased low. Unable to re-extract sample due to expired hold time.
(b) Outside of in house control limits.
(c) Advisory control limits.

* = Outside of Control Limits.

Surrogate Recovery Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Method: MADEP EPH REV 2.1		Matrix: AQ	

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S2 [b]	S3 [b]
JD53080-8	3Y85984.D	11* [c]	10* [c]	87
JD53080-9	3Y85987.D	10* [c]	16* [c]	43
OP42283-BS1	3Y85982.D	6* [c]	11* [c]	38* [c]
OP42283-BSD	3Y85983.D	11* [c]	19* [c]	37* [c]
OP42283-MB1	3Y85981.D	12* [c]	16* [c]	41
OP42283-MS	3Y85985.D	8* [c]	17* [c]	39* [c]
OP42283-MSD	3Y85986.D	8* [c]	14* [c]	41

Surrogate Compounds		Recovery Limits
S1 =	1-Chlorooctadecane	40-140%
S2 =	o-Terphenyl	40-140%
S3 =	2-Fluorobiphenyl	40-140%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

(c) Outside of in house control limits.

8.4.1

8

GC Surrogate Retention Time Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Check Std:	G3Y3363-CC3347		**Injection Date:**	10/26/22	
Lab File ID:	3Y85977.D		**Injection Time:**	18:10	
Instrument ID:	GC3Y		**Method:**	MADEP EPH REV 2.1	

	S1 [a] RT	S2 [b] RT	S3 [b] RT
Check Std	13.60	12.47	8.20

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S2 [b] RT	S3 [b] RT
OP42283-MB1	3Y85981.D	10/26/22	21:43	13.61	12.46	8.19
OP42283-BS1	3Y85982.D	10/26/22	22:19	13.61	12.46	8.19
OP42283-BSD	3Y85983.D	10/26/22	22:56	13.61	12.46	8.19
JD53080-8	3Y85984.D	10/26/22	23:33	13.61	12.46	8.19
OP42283-MS	3Y85985.D	10/27/22	00:10	13.61	12.46	8.19
OP42283-MSD	3Y85986.D	10/27/22	00:47	13.61	12.46	8.19
JD53080-9	3Y85987.D	10/27/22	01:23	13.61	12.46	8.19
OP42418-MB1	3Y85988.D	10/27/22	02:00	13.61	12.46	8.19
OP42418-BS1	3Y85989.D	10/27/22	02:37	13.61	12.46	8.19
OP42418-BSD	3Y85990.D	10/27/22	03:14	13.61	12.46	8.19
ZZZZZZ	3Y85991.D	10/27/22	03:51	13.61	12.46	8.19
ZZZZZZ	3Y85992.D	10/27/22	04:28	13.61	12.46	8.19
ZZZZZZ	3Y85993.D	10/27/22	05:04	13.61	12.46	8.19
ZZZZZZ	3Y85994.D	10/27/22	05:41	13.61	12.46	8.19
ZZZZZZ	3Y85995.D	10/27/22	06:18	13.61	12.46	8.19
ZZZZZZ	3Y85996.D	10/27/22	06:55	13.61	12.46	8.19
ZZZZZZ	3Y85997.D	10/27/22	07:31	13.61	12.46	8.19
ZZZZZZ	3Y85998.D	10/27/22	08:08	13.61	12.46	8.19

Surrogate Compounds

S1 = 1-Chlorooctadecane
S2 = o-Terphenyl
S3 = 2-Fluorobiphenyl

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

8.5.1

8

Initial Calibration Summary

Page 1 of 2

Job Number:	JD53080	**Sample:**	G3Y3347-ICC3347
Account:	TTCOD Tetra Tech	**Lab FileID:**	3Y85354.D
Project:	R8 START: Bridger Train Derailment, Bridger, MT		

```
                     Response Factor Report   GC3Y3Z


 Method        : C:\MSDCHEM\1\METHODS\EPH3Y3347.M (ChemStation Integrator)
 Title         : NJDEP Extractable Petroleum Hydrocarbons
 Last Update   : Sun Sep 25 16:53:06 2022
 Response via  : Initial Calibration


 Calibration Files
 5   =3y85351.d   100 =3y85355.d   50  =3y85354.d   20  =3y85353.d
 10  =3y85352.d   2   =3y85350.d   1   =3y85349.d

     Compound           5      100    50     20     10     2      1      Avg     %RSD
 ------------------------------------------------------------------------------------
  1)T 1,2,3-Trimethylbe 6.913  6.454  6.775  6.762  6.254  7.006  6.146  6.616 E5    5.03
  2)T Naphthalene       7.181  6.766  7.082  6.997  6.503  7.228  6.431  6.884 E5    4.68
  3)H C10-C12 Aromatics 7.047  6.610  6.929  6.880  6.378  7.117  6.289  6.750 E5    4.85
  4)T 2-Methylnaphthale 7.052  6.618  6.933  6.801  6.397  7.029  6.444  6.753 E5    4.01
  5)T Acenaphthylene    6.730  6.352  6.671  6.441  6.173  6.962  6.773  6.586 E5    4.16
  6)T Acenaphthene      7.257  6.848  7.187  6.960  6.673  7.358  6.856  7.020 E5    3.58
  7)H C12-C16 Aromatics 7.013  6.606  6.930  6.734  6.414  7.116  6.691  6.786 E5    3.63
  8)T Fluorene          6.752  6.493  6.793  6.543  6.330  6.929  6.541  6.626 E5    3.11
  9)T Phenanthrene      6.441  6.381  6.590  6.289  6.250  6.732  6.396  6.440 E5    2.63
 10)T Anthracene        6.412  6.376  6.561  6.257  6.248  6.667  6.341  6.409 E5    2.42
 11)T Fluoranthene      6.156  6.283  6.332  6.005  6.129  6.506  6.255  6.238 E5    2.58
 12)T Pyrene            6.332  6.460  6.475  6.146  6.300  6.651  6.445  6.401 E5    2.50
 13)H C16-C21 Aromatics 6.419  6.399  6.550  6.248  6.251  6.697  6.396  6.423 E5    2.49
 14)T Benzo(a)Anthracen 6.009  6.346  6.065  5.891  6.186  6.371  6.493  6.194 E5    3.53
 15)T Chrysene          6.031  6.364  6.072  5.911  6.217  6.340  6.288  6.175 E5    2.79
 16)T Benzo(b)Fluoranth 5.902  6.271  5.899  5.787  6.104  6.161  6.100  6.032 E5    2.86
 17)T Benzo(k)Fluoranth 5.718  6.037  5.699  5.600  5.905  6.017  5.980  5.851 E5    3.01
 18)T Benzo(a)Pyrene    5.740  6.085  5.759  5.652  5.926  5.955  5.896  5.859 E5    2.55
 19)T Indeno(1,2,3-cd)P 5.671  6.191  5.776  5.663  5.794  5.796  5.694  5.798 E5    3.15
 20)T Dibenzo(ah)Anthra 6.226  6.300  6.147  6.114  6.247  6.432  6.280  6.249 E5    1.68
 21)T Benzo(ghi)Perylen 5.707  6.029  5.731  5.656  5.825  5.831  5.748  5.790 E5    2.11
 22)H C21-C36 Aromatics 5.876  6.203  5.893  5.784  6.026  6.113  6.060  5.994 E5    2.47
 23)H C11-C22 Aromatics 6.313  6.365  6.340  6.160  6.189  6.527  6.292  6.312 E5    1.93
 24)S 2-Fluorobiphenyl  6.053  5.708  5.995  5.814  5.531  6.120  5.667  5.841 E5    3.77
 25)S 2-Bromonaphthalen 4.176  3.970  4.154  4.014  3.858  4.268  3.929  4.053 E5    3.68
 26)S o-Terphenyl  (S)  6.366  6.323  6.555  6.180  6.193  6.643  6.369  6.375 E5    2.70

Signal #2

 28)T C9                6.125  5.853  6.087  6.380  6.231  6.156  4.400  5.890 E5   11.48
 29)T C10               6.273  5.923  6.142  6.510  6.355  6.308  4.527  6.005 E5   11.28
 30)T C12               6.424  5.989  6.191  6.595  6.420  6.569  4.679  6.124 E5   10.97
 31)H C9-C12 Aliphatics 6.274  5.922  6.140  6.495  6.336  6.344  4.535  6.007 E5   11.21
 32)T C14               6.430  6.036  6.236  6.649  6.473  6.459  4.716  6.143 E5   10.73
 33)T C16               6.510  6.051  6.268  6.680  6.524  6.579  4.836  6.207 E5   10.32
 34)H C12-C16 Aliphatic 6.470  6.044  6.252  6.664  6.499  6.519  4.776  6.175 E5   10.52
 35)T C18               6.551  6.052  6.277  6.677  6.541  6.784  4.870  6.250 E5   10.51
 36)T C19               6.646  6.136  6.374  6.755  6.618  6.762  4.879  6.310 E5   10.61
 37)T C20               6.560  6.025  6.257  6.632  6.510  6.665  4.852  6.214 E5   10.34
 38)T C21               6.489  5.989  6.210  6.573  6.427  6.657  4.815  6.166 E5   10.34
 39)H C16-C21 Aliphatic 6.533  6.022  6.248  6.627  6.493  6.702  4.846  6.210 E5   10.39
 40)T C22               6.508  5.945  6.159  6.511  6.376  6.673  4.917  6.155 E5    9.71
 41)T C24               6.313  5.868  6.051  6.380  6.247  6.464  4.656  5.997 E5   10.43
 42)T C26               6.141  5.738  5.889  6.199  6.066  6.342  4.597  5.853 E5   10.06
 43)T C28               5.910  5.687  5.773  6.036  5.892  6.008  4.253  5.651 E5   11.12
 44)T C30               5.767  5.691  5.739  5.934  5.782  5.854  4.112  5.554 E5   11.54
 45)T C32               5.645  5.676  5.705  5.850  5.669  5.723  3.976  5.463 E5   12.07
```

8.6.1

8

Initial Calibration Summary

Page 2 of 2

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: G3Y3347-ICC3347
Lab FileID: 3Y85354.D

```
46)T C34              5.386 5.501 5.512 5.641 5.435 5.439 3.781 5.242 E5  12.39
47)T C36              5.357 5.515 5.524 5.636 5.435 5.458 3.785 5.244 E5  12.38
48)T C38              5.233 5.391 5.384 5.497 5.295 5.352 3.846 5.143 E5  11.23
49)T C40              5.360 5.541 5.471 5.623 5.413 5.406 3.880 5.242 E5  11.58
50)H C21-C40 Aliphatic 5.762 5.655 5.721 5.931 5.761 5.872 4.180 5.555 E5 11.03
51)H C9-C18 Aliphatics 6.385 5.984 6.200 6.582 6.424 6.476 4.671 6.103 E5 10.84
52)H C19-C36 Aliphatic 6.150 5.826 5.971 6.260 6.116 6.278 4.506 5.872 E5 10.61
53)S Naphthalene (S)  6.691 6.467 6.669 7.029 6.831 6.717 4.648 6.436 E5  12.53
54)S 2-Methylnaphthale 6.811 6.589 6.775 7.199 6.987 6.612 4.755 6.533 E5  12.43
55)S 1-Chlorooctadecan 5.520 5.149 5.333 5.629 5.502 5.667 4.039 5.263 E5  10.79
-------------------------------------------------------------------------------
(#) = Out of Range

        EPH3Y3347.M        Sun Sep 25 16:56:32 2022
```

8.6.1

8

Initial Calibration Verification

Job Number: JD53080	**Sample:** G3Y3347-ICV3347
Account: TTCOD Tetra Tech	**Lab FileID:** 3Y85356.D
Project: R8 START: Bridger Train Derailment, Bridger, MT	

```
                Evaluate Continuing Calibration Report

  Signal #1 : C:\msdchem\1\data\g3y3347\3y85356.d\FID1B.ch Vial: 13
  Signal #2 : C:\msdchem\1\data\g3y3347\3y85356.d\FID2A.ch
  Acq On    : 22 Sep 2022   9:12 pm                   Operator: thomasl
  Sample    : icv3347-50                              Inst    : GC3Y3Z
  Misc      : op40644,g3y3347,15.0,,,2,1              Multiplr: 1.00
  IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e


  Method       : C:\MSDCHEM\1\METHODS\EPH3Y3347.M (ChemStation Integrator)
  Title        : NJDEP Extractable Petroleum Hydrocarbons
  Last Update  : Sun Sep 25 16:53:06 2022
  Response via : Multiple Level Calibration


  Min. RRF    :   0.500  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%


        Compound              AvgRF   CCRF      %Dev Area% Dev(min)RT Window
  ------------------------------------------------------------------------------
  1 T   1,2,3-Trimethylbenzene 661.575 672.280 E3  -1.6   99   0.00    4.60- 4.66
  2 T   Naphthalene           688.404 696.924 E3  -1.2   98   0.00    6.43- 6.49
  3 H   C10-C12 Aromatics     674.990 684.602 E3  -1.4   99   0.00    4.52- 6.58
  4 T   2-Methylnaphthalene   675.349 697.416 E3  -3.3  101   0.00    7.56- 7.62
  5 T   Acenaphthylene        658.593 606.288 E3   7.9   91   0.00    9.02- 9.08
  6 T   Acenaphthene          701.980 661.135 E3   5.8   92   0.00    9.32- 9.38
  7 H   C12-C16 Aromatics     678.640 654.947 E3   3.5   95   0.00    6.58- 9.46
  8 T   Fluorene              662.592 649.873 E3   1.9   96   0.00   10.19-10.25
  9 T   Phenanthrene          643.983 630.366 E3   2.1   96   0.00   11.77-11.84
 10 T   Anthracene            640.898 622.042 E3   2.9   95   0.00   11.87-11.93
 11 T   Fluoranthene          623.817 602.856 E3   3.4   95   0.00   13.82-13.88
 12 T   Pyrene                640.135 595.267 E3   7.0   92   0.00   14.20-14.26
 13 H   C16-C21 Aromatics     642.285 620.081 E3   3.5   95   0.00    9.46-14.34
 14 T   Benzo(a)Anthracene    619.446 562.763 E3   9.2   93   0.00   16.45-16.51
 15 T   Chrysene              617.479 570.904 E3   7.5   94   0.00   16.52-16.58
 16 T   Benzo(b)Fluoranthene  603.217 561.311 E3   6.9   95   0.00   18.38-18.44
 17 T   Benzo(k)Fluoranthene  585.094 563.641 E3   3.7   99   0.00   18.42-18.50
 18 T   Benzo(a)Pyrene        585.903 556.068 E3   5.1   97   0.00   18.90-18.96
 19 T   Indeno(1,2,3-cd)Pyrene 579.774 562.373 E3   3.0   97   0.00   20.59-20.69
 20 T   Dibenzo(ah)Anthracene 624.936 580.263 E3   7.1   94   0.00   20.65-20.75
 21 T   Benzo(ghi)Perylene    578.954 573.438 E3   1.0  100   0.00   20.95-21.05
 22 H   C21-C36 Aromatics     599.350 566.345 E3   5.5   96   0.00   14.34-22.00
 23 H   C11-C22 Aromatics (Una 631.209 605.466 E3   4.1   96   0.00    6.34-21.10


 *****   Signal #2    *****


 28 T   C9                    589.026 631.752 E3  -7.3  104   0.00    3.02- 3.08
 29 T   C10                   600.534 643.423 E3  -7.1  105   0.00    4.12- 4.18
 30 T   C12                   612.401 653.836 E3  -6.8  106   0.00    6.30- 6.36
 31 H   C9-C12 Aliphatics     600.654 643.004 E3  -7.1  105   0.00    2.94- 6.44
 32 T   C14                   614.255 671.087 E3  -9.3  108   0.00    8.25- 8.31
 33 T   C16                   620.691 664.879 E3  -7.1  106   0.00   10.00-10.06
 34 H   C12-C16 Aliphatics    617.473 667.983 E3  -8.2  107   0.00    6.44-10.14
 35 T   C18                   625.042 672.634 E3  -7.6  107   0.00   11.58-11.64
 36 T   C19                           ----------NA----------
 37 T   C20                   621.426 664.068 E3  -6.9  106   0.00   13.02-13.08
 38 T   C21                   616.559 658.747 E3  -6.8  106   0.00   13.71-13.77
 39 H   C16-C21 Aliphatics    621.009 665.150 E3  -7.1  106   0.00   10.14-13.86
 40 T   C22                   615.545 654.107 E3  -6.3  106   0.00   14.39-14.47
 41 T   C24                   599.689 639.692 E3  -6.7  106   0.00   15.73-15.80
```

```
42 T  C26                  585.324 616.548 E3  -5.3  105  0.00  17.00-17.06
43 T  C28                  565.129 600.627 E3  -6.3  104  0.00  18.17-18.26
44 T  C30                  555.399 582.206 E3  -4.8  101  0.00  19.30-19.37
45 T  C32                  546.341 566.007 E3  -3.6   99  0.00  20.36-20.43
46 T  C34                  524.215 561.271 E3  -7.1  102  0.00  21.35-21.42
47 T  C36                  524.426 546.710 E3  -4.2   99  0.00  22.39-22.45
48 T  C38                  514.267 541.903 E3  -5.4  101  0.00  23.72-23.82
49 T  C40                  524.191 543.712 E3  -3.7   99  0.00  25.58-25.68
50 H  C21-C40 Aliphatics   555.453 585.278 E3  -5.4  102  0.00  13.86-25.86
51 H  C9-C18 Aliphatics    610.325 656.269 E3  -7.5  106  0.00   2.94-12.22
52 H  C19-C36 Aliphatics   587.242 614.851 E3  -4.7  104  0.00  12.22-22.54


 -----------------------------------------------------------------------------
 -----------------------------------------------------------------------------

    (#) = Out of Range          SPCC's out = 0  CCC's out = 0
     3y85354.d  EPH3Y3347.M     Sun Sep 25 16:57:18 2022
```

8.6.2

8

Initial Calibration Verification

Job Number: JD53080	**Sample:** G3Y3347-ICV3347
Account: TTCOD Tetra Tech	**Lab FileID:** 3Y85357.D
Project: R8 START: Bridger Train Derailment, Bridger, MT	

```
                    Evaluate Continuing Calibration Report

  Signal #1 : C:\msdchem\1\data\g3y3347\3y85357.d\FID1B.ch Vial: 14
  Signal #2 : C:\msdchem\1\data\g3y3347\3y85357.d\FID2A.ch
  Acq On    : 22 Sep 2022   9:49 pm                    Operator: thomasl
  Sample    : icv3347-50                               Inst    : GC3Y3Z
  Misc      : op40644,g3y3347,15.0,,,2,1               Multiplr: 1.00
  IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e


  Method       : C:\MSDCHEM\1\METHODS\EPH3Y3347.M (ChemStation Integrator)
  Title        : NJDEP Extractable Petroleum Hydrocarbons
  Last Update  : Sun Sep 25 16:53:06 2022
  Response via : Multiple Level Calibration


  Min. RRF    :   0.500  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%


          Compound                 AvgRF   CCRF     %Dev Area% Dev(min)RT Window
  -----------------------------------------------------------------------------
 1 T   1,2,3-Trimethylbenzene               ----------NA----------
 2 T   Naphthalene                          ----------NA----------
 3 H   C10-C12 Aromatics                    ----------NA----------
 4 T   2-Methylnaphthalene                  ----------NA----------
 5 T   Acenaphthylene                       ----------NA----------
 6 T   Acenaphthene                         ----------NA----------
 7 H   C12-C16 Aromatics                    ----------NA----------
 8 T   Fluorene                             ----------NA----------
 9 T   Phenanthrene                         ----------NA----------
10 T   Anthracene                           ----------NA----------
11 T   Fluoranthene                         ----------NA----------
12 T   Pyrene                               ----------NA----------
13 H   C16-C21 Aromatics                    ----------NA----------
14 T   Benzo(a)Anthracene                   ----------NA----------
15 T   Chrysene                             ----------NA----------
16 T   Benzo(b)Fluoranthene                 ----------NA----------
17 T   Benzo(k)Fluoranthene                 ----------NA----------
18 T   Benzo(a)Pyrene                       ----------NA----------
19 T   Indeno(1,2,3-cd)Pyrene               ----------NA----------
20 T   Dibenzo(ah)Anthracene                ----------NA----------
21 T   Benzo(ghi)Perylene                   ----------NA----------
22 H   C21-C36 Aromatics                    ----------NA----------
23 H   C11-C22 Aromatics (Unadj.            ----------NA----------
24 S   2-Fluorobiphenyl (S)                 ----------NA----------
25 S   2-Bromonaphthalene (S)               ----------NA----------
26 S   o-Terphenyl  (S)                     ----------NA----------

*****  Signal #2   *****

28 T   C9                                   ----------NA----------
29 T   C10                                  ----------NA----------
30 T   C12                                  ----------NA----------
31 H   C9-C12 Aliphatics                    ----------NA----------
32 T   C14                                  ----------NA----------
33 T   C16                                  ----------NA----------
34 H   C12-C16 Aliphatics                   ----------NA----------
35 T   C18                                  ----------NA----------
36 T   C19                      630.993 634.588 E3  -0.6  100   0.00   12.29-12.39
37 T   C20                                  ----------NA----------
38 T   C21                                  ----------NA----------
39 H   C16-C21 Aliphatics                   ----------NA----------
```

Initial Calibration Verification

Job Number: JD53080   **Sample:** G3Y3347-ICV3347
Account: TTCOD Tetra Tech   **Lab FileID:** 3Y85357.D
Project: R8 START: Bridger Train Derailment, Bridger, MT

```
40 T  C22                        ----------NA----------
41 T  C24                        ----------NA----------
42 T  C26                        ----------NA----------
43 T  C28                        ----------NA----------
44 T  C30                        ----------NA----------
45 T  C32                        ----------NA----------
46 T  C34                        ----------NA----------
47 T  C36                        ----------NA----------
48 T  C38                        ----------NA----------
49 T  C40                        ----------NA----------
50 H  C21-C40 Aliphatics         ----------NA----------
51 H  C9-C18 Aliphatics          ----------NA----------
52 H  C19-C36 Aliphatics         ----------NA----------
53 S  Naphthalene (S)            ----------NA----------
54 S  2-Methylnaphthalene (S)    ----------NA----------
55 S  1-Chlorooctadecane (S)     ----------NA----------
------------------------------------------------------------------------
------------------------------------------------------------------------
```

```
(#) = Out of Range           SPCC's out = 0  CCC's out = 0
 3y85354.d  EPH3Y3347.M       Sun Sep 25 17:09:00 2022
```

8.6.3

8

Continuing Calibration Summary

Job Number: JD53080   **Sample:** G3Y3363-CC3347
Account: TTCOD Tetra Tech   **Lab FileID:** 3Y85977.D
Project: R8 START: Bridger Train Derailment, Bridger, MT

```
                   Evaluate Continuing Calibration Report

  Signal #1 : C:\msdchem\1\data\ma...63\3y85977.d\FID1B.ch Vial: 3
  Signal #2 : C:\msdchem\1\data\maryan...3y3363\3y85977.d\FID2A.ch
  Acq On    : 26 Oct 2022   6:10 pm                  Operator: thomasl
  Sample    : cc3347-50                              Inst    : GC3Y3Z
  Misc      : op42602,g3y3363,16.5,,,2,1             Multiplr: 1.00
  IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e


  Method        : C:\msdchem\1\dat...3363\EPH3Y3347.M (ChemStation Integrator)
  Title         : NJDEP Extractable Petroleum Hydrocarbons
  Last Update   : Fri Oct 28 06:38:11 2022
  Response via  : Multiple Level Calibration


  Min. RRF    :   0.500  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%


        Compound              AvgRF   CCRF      %Dev Area% Dev(min)RT Window
  -----------------------------------------------------------------------------
  1 T   1,2,3-Trimethylbenzene 661.575 684.091 E3  -3.4  101   0.00    4.57- 4.63
  2 T   Naphthalene            688.404 737.889 E3  -7.2  104   0.00    6.39- 6.45
  3 H   C10-C12 Aromatics      674.990 710.990 E3  -5.3  104   0.00    4.52- 6.58
  4 T   2-Methylnaphthalene    675.349 738.316 E3  -9.3  106   0.00    7.52- 7.58
  5 T   Acenaphthylene         658.593 724.293 E3 -10.0  109   0.00    8.98- 9.04
  6 T   Acenaphthene           701.980 787.663 E3 -12.2  110   0.00    9.28- 9.34
  7 H   C12-C16 Aromatics      678.640 750.091 E3 -10.5  110   0.00    6.58- 9.46
  8 T   Fluorene               662.592 749.628 E3 -13.1  110   0.00   10.15-10.21
  9 T   Phenanthrene           643.983 735.111 E3 -14.2  112   0.00   11.73-11.80
 10 T   Anthracene             640.898 724.569 E3 -13.1  110   0.00   11.83-11.89
 11 T   Fluoranthene           623.817 715.415 E3 -14.7  113   0.00   13.77-13.83
 12 T   Pyrene                 640.135 730.681 E3 -14.1  113   0.00   14.16-14.22
 13 H   C16-C21 Aromatics      642.285 731.081 E3 -13.8  113   0.00    9.46-14.34
 14 T   Benzo(a)Anthracene     619.446 683.361 E3 -10.3  113   0.00   16.40-16.46
 15 T   Chrysene               617.479 685.159 E3 -11.0  113   0.00   16.47-16.53
 16 T   Benzo(b)Fluoranthene   603.217 657.953 E3  -9.1  112   0.00   18.33-18.39
 17 T   Benzo(k)Fluoranthene   585.094 636.008 E3  -8.7  112   0.00   18.37-18.45
 18 T   Benzo(a)Pyrene         585.903 640.367 E3  -9.3  111   0.00   18.85-18.91
 19 T   Indeno(1,2,3-cd)Pyrene 579.774 643.029 E3 -10.9  111   0.00   20.55-20.65
 20 T   Dibenzo(ah)Anthracene  624.936 691.893 E3 -10.7  113   0.00   20.60-20.70
 21 T   Benzo(ghi)Perylene     578.954 647.662 E3 -11.9  113   0.00   20.90-21.00
 22 H   C21-C36 Aromatics      599.350 660.679 E3 -10.2  113   0.00   14.34-22.00
 23 H   C11-C22 Aromatics (Una 631.209 701.706 E3 -11.2  113   0.00    6.34-21.10
 24 S   2-Fluorobiphenyl (S)   584.102 646.469 E3 -10.7  108   0.00    8.17- 8.23
 25 S   2-Bromonaphthalene (S) 405.280 455.837 E3 -12.5  110   0.00    9.21- 9.27
 26 S   o-Terphenyl  (S)       637.536 728.746 E3 -14.3  111   0.00   12.44-12.50


 *****   Signal #2    *****


 28 T   C9                     589.026 602.927 E3  -2.4   99   0.00    2.98- 3.04
 29 T   C10                    600.534 618.998 E3  -3.1  101   0.00    4.08- 4.14
 30 T   C12                    612.401 674.027 E3 -10.1  109   0.00    6.25- 6.31
 31 H   C9-C12 Aliphatics      600.654 631.984 E3  -5.2  109   0.00    2.94- 6.44
 32 T   C14                    614.255 642.361 E3  -4.6  103   0.00    8.20- 8.26
 33 T   C16                    620.691 635.671 E3  -2.4  101   0.00    9.95-10.01
 34 H   C12-C16 Aliphatics     617.473 639.016 E3  -3.5  101   0.00    6.44-10.14
 35 T   C18                    625.042 628.273 E3  -0.5  100   0.00   11.52-11.58
 36 T   C19                    630.993 635.820 E3  -0.8  100   0.00   12.23-12.33
 37 T   C20                    621.426 621.366 E3   0.0   99   0.00   12.96-13.02
 38 T   C21                    616.559 618.484 E3  -0.3  100   0.00   13.66-13.72
 39 H   C16-C21 Aliphatics     621.009 622.708 E3  -0.3  100   0.00   10.14-13.86
```

8.6.4

8

Continuing Calibration Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: G3Y3363-CC3347
Lab FileID: 3Y85977.D

```
40 T  C22                      615.545 612.189 E3   0.5   99  0.00  14.33-14.41
41 T  C24                      599.689 601.997 E3  -0.4   99  0.00  15.66-15.73
42 T  C26                      585.324 589.124 E3  -0.6  100  0.00  16.93-16.99
43 T  C28                      565.129 581.901 E3  -3.0  101  0.00  18.10-18.19
44 T  C30                      555.399 580.112 E3  -4.4  101  0.00  19.23-19.30
45 T  C32                      546.341 575.891 E3  -5.4  101  0.00  20.28-20.35
46 T  C34                      524.215 561.560 E3  -7.1  102  0.00  21.28-21.35
47 T  C36                      524.426 569.898 E3  -8.7  103  0.00  22.30-22.36
48 T  C38                      514.267 563.501 E3  -9.6  105  0.00  23.59-23.70
49 T  C40                      524.191 578.607 E3 -10.4  106  0.00  25.41-25.51
50 H  C21-C40 Aliphatics       555.453 581.478 E3  -4.7  106  0.00  13.86-25.86
51 H  C9-C18 Aliphatics        610.325 633.709 E3  -3.8  106  0.00   2.94-12.22
52 H  C19-C36 Aliphatics       587.242 599.051 E3  -2.0  106  0.00  12.22-22.54
53 S  Naphthalene (S)          643.607 605.188 E3   6.0   91  0.00   6.16- 6.22
54 S  2-Methylnaphthalene (S   653.258 703.456 E3  -7.7  104  0.00   7.29- 7.35
55 S  1-Chlorooctadecane (S)   526.282 531.263 E3  -0.9  100  0.00  13.57-13.63
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------

   (#) = Out of Range           SPCC's out = 0  CCC's out = 0
    3y85977.d  EPH3Y3347.M      Fri Oct 28 06:42:24 2022
```

8.6.4

8

JD53080

Continuing Calibration Summary

Job Number: JD53080   **Sample:** G3Y3363-CC3347
Account: TTCOD Tetra Tech   **Lab FileID:** 3Y86001.D
Project: R8 START: Bridger Train Derailment, Bridger, MT

```
                   Evaluate Continuing Calibration Report

  Signal #1 : C:\msdchem\1\data\ma...63\3y86001.d\FID1B.ch Vial: 2
  Signal #2 : C:\msdchem\1\data\maryan...3y3363\3y86001.d\FID2A.ch
  Acq On    : 27 Oct 2022   9:57 am                   Operator: thomasl
  Sample    : cc3347-20                               Inst    : GC3Y3Z
  Misc      : op42418,g3y3363,1000,,,2,1              Multiplr: 1.00
  IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e


  Method        : C:\msdchem\1\dat...3363\EPH3Y3347.M (ChemStation Integrator)
  Title         : NJDEP Extractable Petroleum Hydrocarbons
  Last Update   : Fri Oct 28 06:38:11 2022
  Response via  : Multiple Level Calibration


  Min. RRF    :   0.500  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%


        Compound               AvgRF   CCRF      %Dev Area% Dev(min)RT Window
  ------------------------------------------------------------------------------
  1 T   1,2,3-Trimethylbenzene 661.575 629.538 E3   4.8   93   0.00   4.56- 4.62
  2 T   Naphthalene            688.404 663.217 E3   3.7   95   0.00   6.39- 6.45
  3 H   C10-C12 Aromatics      674.990 646.378 E3   4.2   95   0.00   4.52- 6.58
  4 T   2-Methylnaphthalene    675.349 657.232 E3   2.7   97   0.00   7.52- 7.58
  5 T   Acenaphthylene         658.593 642.543 E3   2.4  100   0.00   8.97- 9.03
  6 T   Acenaphthene           701.980 700.096 E3   0.3  101   0.00   9.27- 9.33
  7 H   C12-C16 Aromatics      678.640 666.624 E3   1.8  101   0.00   6.58- 9.46
  8 T   Fluorene               662.592 665.874 E3  -0.5  102   0.00  10.14-10.20
  9 T   Phenanthrene           643.983 663.842 E3  -3.1  106   0.00  11.73-11.80
 10 T   Anthracene             640.898 654.272 E3  -2.1  105   0.00  11.82-11.88
 11 T   Fluoranthene           623.817 664.600 E3  -6.5  111   0.00  13.77-13.83
 12 T   Pyrene                 640.135 685.973 E3  -7.2  112  -0.01  14.15-14.21
 13 H   C16-C21 Aromatics      642.285 666.912 E3  -3.8  112   0.00   9.46-14.34
 14 T   Benzo(a)Anthracene     619.446 679.754 E3  -9.7  115  -0.01  16.39-16.45
 15 T   Chrysene               617.479 686.367 E3 -11.2  116  -0.01  16.46-16.52
 16 T   Benzo(b)Fluoranthene   603.217 676.834 E3 -12.2  117  -0.01  18.32-18.38
 17 T   Benzo(k)Fluoranthene   585.094 655.159 E3 -12.0  117  -0.01  18.36-18.43
 18 T   Benzo(a)Pyrene         585.903 658.844 E3 -12.4  117  -0.02  18.84-18.90
 19 T   Indeno(1,2,3-cd)Pyrene 579.774 643.154 E3 -10.9  114  -0.02  20.53-20.63
 20 T   Dibenzo(ah)Anthracene  624.936 718.493 E3 -15.0  118  -0.02  20.58-20.68
 21 T   Benzo(ghi)Perylene     578.954 657.269 E3 -13.5  116  -0.02  20.88-20.98
 22 H   C21-C36 Aromatics      599.350 671.984 E3 -12.1  116   0.00  14.34-22.00
 23 H   C11-C22 Aromatics (Una 631.209 669.031 E3  -6.0  116   0.00   6.34-21.10
 24 S   2-Fluorobiphenyl (S)   584.102 571.047 E3   2.2   98   0.00   8.16- 8.22
 25 S   2-Bromonaphthalene (S) 405.280 398.972 E3   1.6   99   0.00   9.21- 9.27
 26 S   o-Terphenyl  (S)       637.536 662.080 E3  -3.8  107   0.00  12.43-12.49


 *****  Signal #2   *****


 28 T   C9                     589.026 653.448 E3 -10.9  102   0.00   2.99- 3.05
 29 T   C10                    600.534 674.902 E3 -12.4  104   0.00   4.08- 4.14
 30 T   C12                    612.401 786.065 E3 -28.4  119   0.00   6.25- 6.31
 31 H   C9-C12 Aliphatics      600.654 704.805 E3 -17.3  119   0.00   2.94- 6.44
 32 T   C14                    614.255 698.898 E3 -13.8  105   0.00   8.20- 8.26
 33 T   C16                    620.691 698.686 E3 -12.6  105   0.00   9.95-10.01
 34 H   C12-C16 Aliphatics     617.473 698.792 E3 -13.2  105   0.00   6.44-10.14
 35 T   C18                    625.042 693.292 E3 -10.9  104   0.00  11.52-11.58
 36 T   C19                    630.993 699.736 E3 -10.9  104   0.00  12.23-12.33
 37 T   C20                    621.426 687.297 E3 -10.6  104   0.00  12.96-13.02
 38 T   C21                    616.559 683.162 E3 -10.8  104   0.00  13.65-13.71
 39 H   C16-C21 Aliphatics     621.009 687.917 E3 -10.8  104   0.00  10.14-13.86
```

Continuing Calibration Summary

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Sample: G3Y3363-CC3347
Lab FileID: 3Y86001.D

```
40 T  C22                      615.545 673.366 E3  -9.4  103   0.00   14.33-14.40
41 T  C24                      599.689 661.165 E3 -10.3  104   0.00   15.66-15.73
42 T  C26                      585.324 644.533 E3 -10.1  104   0.00   16.93-16.99
43 T  C28                      565.129 633.366 E3 -12.1  105   0.00   18.10-18.19
44 T  C30                      555.399 623.157 E3 -12.2  105   0.00   19.23-19.30
45 T  C32                      546.341 613.530 E3 -12.3  105   0.00   20.28-20.35
46 T  C34                      524.215 588.068 E3 -12.2  104   0.00   21.27-21.34
47 T  C36                      524.426 587.722 E3 -12.1  104   0.00   22.29-22.35
48 T  C38                      514.267 569.714 E3 -10.8  104   0.00   23.59-23.69
49 T  C40                      524.191 582.992 E3 -11.2  104  -0.01   25.40-25.50
50 H  C21-C40 Aliphatics       555.453 617.761 E3 -11.2  104   0.00   13.86-25.86
51 H  C9-C18 Aliphatics        610.325 700.882 E3 -14.8  104   0.00    2.94-12.22
52 H  C19-C36 Aliphatics       587.242 651.293 E3 -10.9  104   0.00   12.22-22.54
53 S  Naphthalene (S)          643.607 519.529 E3  19.3   74   0.02    6.18- 6.24
54 S  2-Methylnaphthalene (S   653.258 743.803 E3 -13.9  103   0.02    7.31- 7.37
55 S  1-Chlorooctadecane (S)   526.282 578.637 E3  -9.9  103   0.00   13.57-13.63
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------

   (#) = Out of Range          SPCC's out = 0  CCC's out = 0
    3y85815.d  EPH3Y3347.M     Fri Oct 28 08:23:56 2022
```

8.6.5

8

Run Sequence Report

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

Run ID: G3Y3347	**Method:** MADEP EPH REV 2.1	**Instrument ID:** GC3Y

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
G3Y3347-IC3347	3Y85349.D	09/22/22 16:44	n/a	Initial cal 1
G3Y3347-IC3347	3Y85350.D	09/22/22 17:40	n/a	Initial cal 2
G3Y3347-IC3347	3Y85351.D	09/22/22 18:17	n/a	Initial cal 5
G3Y3347-IC3347	3Y85352.D	09/22/22 18:53	n/a	Initial cal 10
G3Y3347-IC3347	3Y85353.D	09/22/22 19:30	n/a	Initial cal 20
G3Y3347-ICC3347	3Y85354.D	09/22/22 20:07	n/a	Initial cal 50
G3Y3347-IC3347	3Y85355.D	09/22/22 20:35	n/a	Initial cal 100
G3Y3347-ICV3347	3Y85356.D	09/22/22 21:12	n/a	Initial cal verification 50
G3Y3347-ICV3347	3Y85357.D	09/22/22 21:49	n/a	Initial cal verification 50

8.7.1

8

Run Sequence Report

Page 1 of 1

Job Number: JD53080
Account: TTCOD Tetra Tech
Project: R8 START: Bridger Train Derailment, Bridger, MT

| **Run ID:** G3Y3363 | | **Method:** MADEP EPH REV 2.1 | **Instrument ID:** GC3Y | |

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
G3Y3363-CC3347	3Y85977.D	10/26/22 18:10	n/a	Continuing cal 50
OP42283-MB1	3Y85981.D	10/26/22 21:43	OP42283	Method Blank
OP42283-BS1	3Y85982.D	10/26/22 22:19	OP42283	Blank Spike
OP42283-BSD	3Y85983.D	10/26/22 22:56	OP42283	Blank Spike Duplicate
JD53080-8	3Y85984.D	10/26/22 23:33	OP42283	BTD-GW01-20221002
OP42283-MS	3Y85985.D	10/27/22 00:10	OP42283	Matrix Spike
OP42283-MSD	3Y85986.D	10/27/22 00:47	OP42283	Matrix Spike Duplicate
JD53080-9	3Y85987.D	10/27/22 01:23	OP42283	BTD-GW02-20221002
OP42418-MB1	3Y85988.D	10/27/22 02:00	OP42418	Method Blank
OP42418-BS1	3Y85989.D	10/27/22 02:37	OP42418	Blank Spike
OP42418-BSD	3Y85990.D	10/27/22 03:14	OP42418	Blank Spike Duplicate
ZZZZZZ	3Y85991.D	10/27/22 03:51	OP42418	(unrelated sample)
ZZZZZZ	3Y85992.D	10/27/22 04:28	OP42418	(unrelated sample)
ZZZZZZ	3Y85993.D	10/27/22 05:04	OP42418	(unrelated sample)
ZZZZZZ	3Y85994.D	10/27/22 05:41	OP42418	(unrelated sample)
ZZZZZZ	3Y85995.D	10/27/22 06:18	OP42418	(unrelated sample)
ZZZZZZ	3Y85996.D	10/27/22 06:55	OP42418	(unrelated sample)
ZZZZZZ	3Y85997.D	10/27/22 07:31	OP42418	(unrelated sample)
ZZZZZZ	3Y85998.D	10/27/22 08:08	OP42418	(unrelated sample)
G3Y3363-CC3347	3Y86001.D	10/27/22 09:57	n/a	Continuing cal 20

8.7.2

8

GC/LC Semi-volatiles

Raw Data

```
                     Quantitation Report      (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85984.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  11:33 pm
Operator  : thomasl
Sample    : jd53080-8
Misc      : op42283,g3y3363,900,,,2,1
ALS Vial  : 15    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:38:57 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

         Compound                  R.T.      Response    Conc Units
  -----------------------------------------------------------------------

 System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.194      25373147   43.440 ug/L
26) S   o-Terphenyl  (S)          12.463       1243318    1.950 ug/L
55) S   1-Chlorooctadecane (S)    13.608       1145504    2.177 ug/L

 Target Compounds
  -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
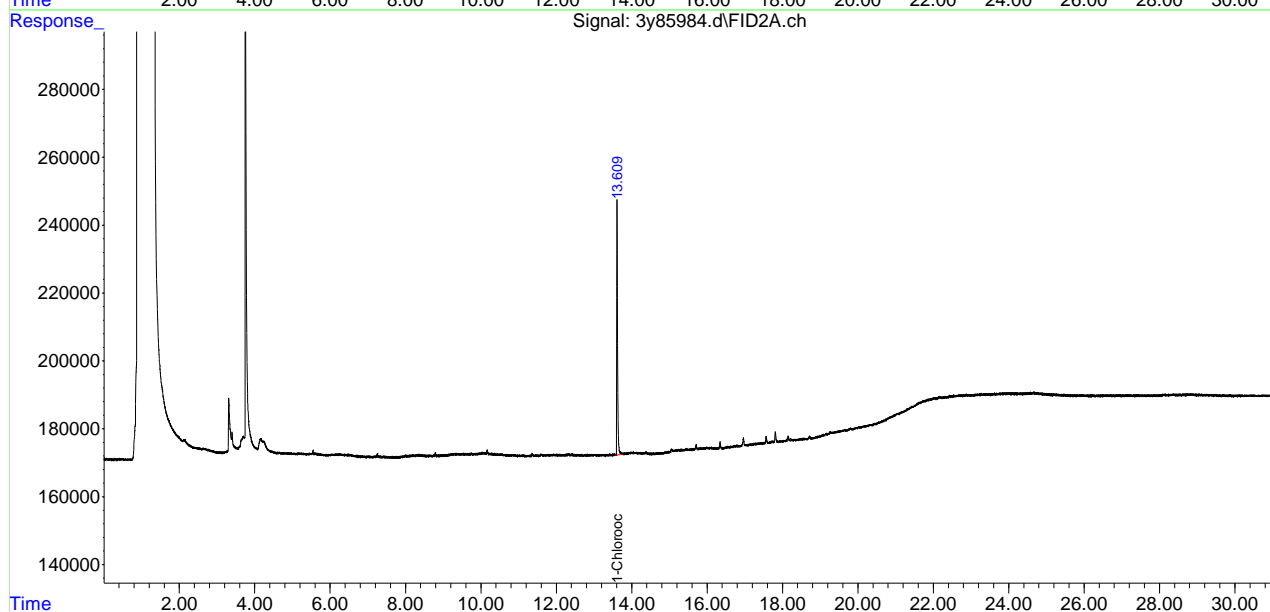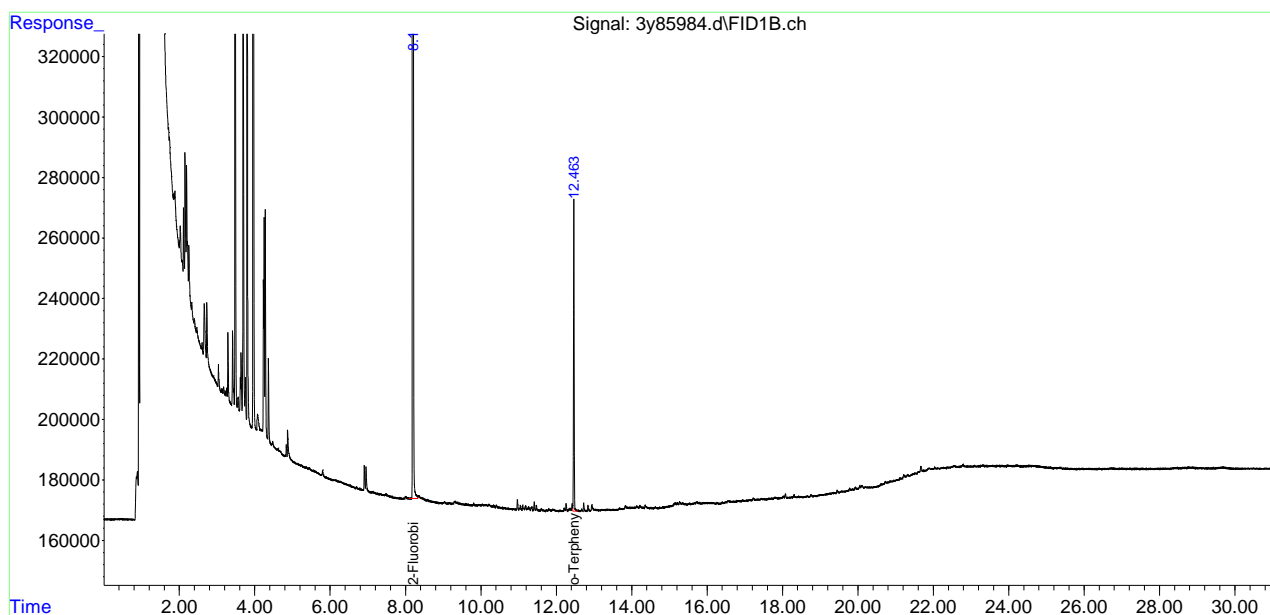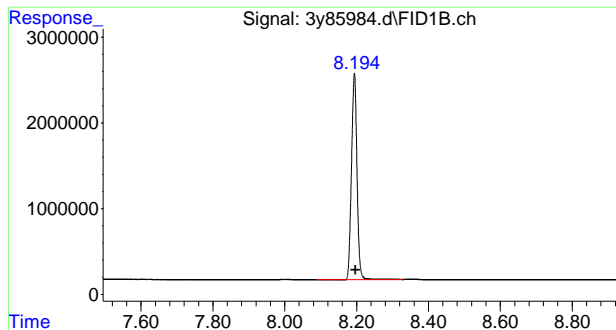
Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85984.d
Signal(s) : Signal #1: FID1B.ch Signal #2: FID2A.ch
Acq On   : 26 Oct 2022 11:33 pm
Operator : thomasl
Sample   : jd53080-8
Misc   : op42283,g3y3363,900,,,2,1
ALS Vial : 15   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:38:57 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5   Signal #2 Phase: HP5
Signal #1 Info : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

EPH3Y3347.M Fri Oct 28 08:37:01 2022   Page: 2

#24 2-Fluorobiphenyl (S)

```
       R.T.:     8.194 min
Delta R.T.:    -0.002 min
  Response:  25373147
      Conc:   43.44 ug/L
```
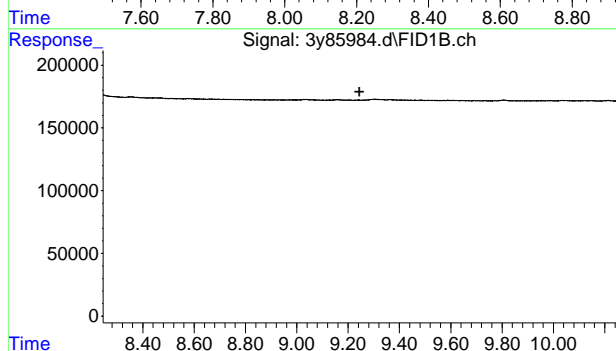
#25 2-Bromonaphthalene (S)

```
       R.T.:     0.000 min
Exp R.T.  :     9.245 min
  Response:         0
      Conc:    N.D.
```

#26 o-Terphenyl (S)

```
       R.T.:    12.463 min
Delta R.T.:    -0.006 min
  Response:   1243318
      Conc:    1.95 ug/L
```

#53 Naphthalene (S)
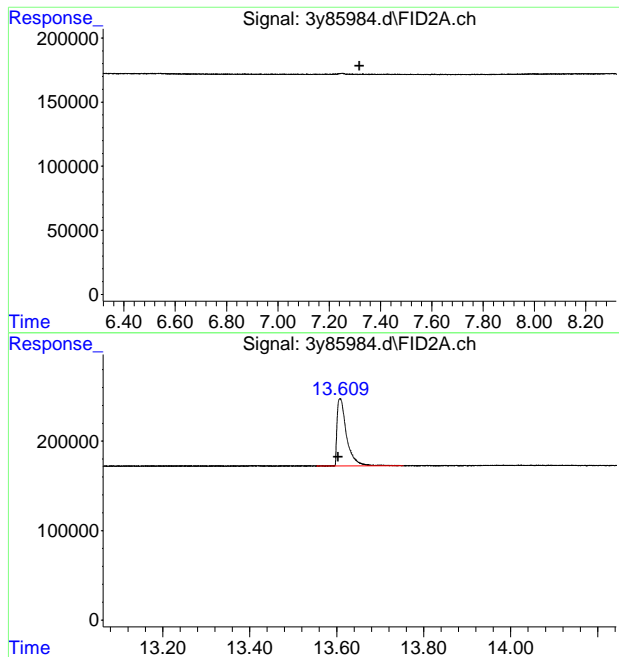
```
       R.T.:     0.000 min
Exp R.T.  :     6.190 min
  Response:         0
      Conc:    N.D.
```

Signal: 3y85984.d\FID2A.ch

#54 2-Methylnaphthalene (S)

R.T.:   0.000 min
Exp R.T. :   7.318 min
Response: 0
Conc: N.D.

Signal: 3y85984.d\FID2A.ch

13.609

#55 1-Chlorooctadecane (S)

R.T.:   13.608 min
Delta R.T.:   0.006 min
Response: 1145504
Conc: 2.18 ug/L

9.1.1

9

```
                    Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85987.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 27 Oct 2022   1:23 am
Operator  : thomasl
Sample    : jd53080-9
Misc      : op42283,g3y3363,1040,,,2,1
ALS Vial  : 18   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:47:03 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5            Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

          Compound                R.T.      Response    Conc Units
  ----------------------------------------------------------------------

 System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.193      12519612   21.434 ug/L
26) S   o-Terphenyl  (S)          12.462       1988234    3.119 ug/L
55) S   1-Chlorooctadecane (S)    13.609       1101595    2.093 ug/L

 Target Compounds
  ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                      (m)=manual int.
```
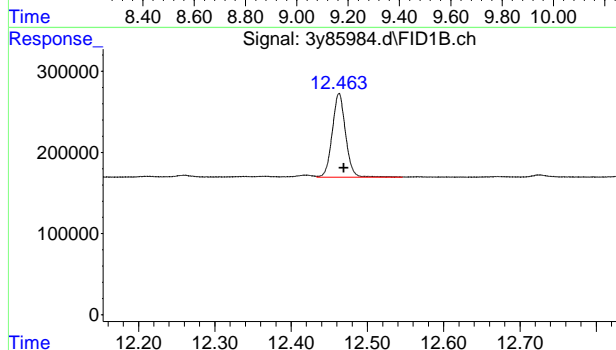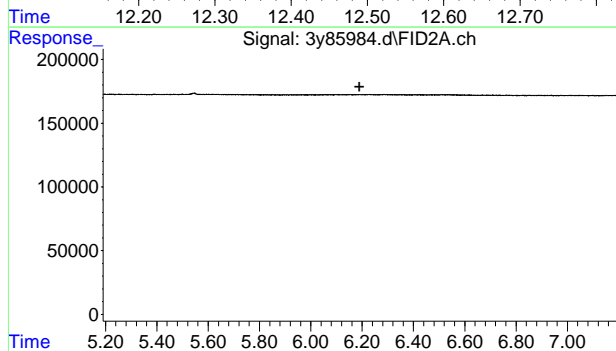
9.1.2

9

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85987.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 27 Oct 2022   1:23 am
Operator  : thomasl
Sample    : jd53080-9
Misc      : op42283,g3y3363,1040,,,2,1
ALS Vial  : 18    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:47:03 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```



```
EPH3Y3347.M Fri Oct 28 08:37:15 2022                           Page:  2
```

#24 2-Fluorobiphenyl (S)

```
        R.T.:     8.193 min
Delta R.T.:    -0.003 min
  Response:   12519612
      Conc:    21.43 ug/L
```


#25 2-Bromonaphthalene (S)

```
        R.T.:     0.000 min
Exp R.T. :     9.245 min
  Response:          0
      Conc:    N.D.
```


#26 o-Terphenyl (S)

```
        R.T.:    12.462 min
Delta R.T.:    -0.007 min
  Response:    1988234
      Conc:     3.12 ug/L
```
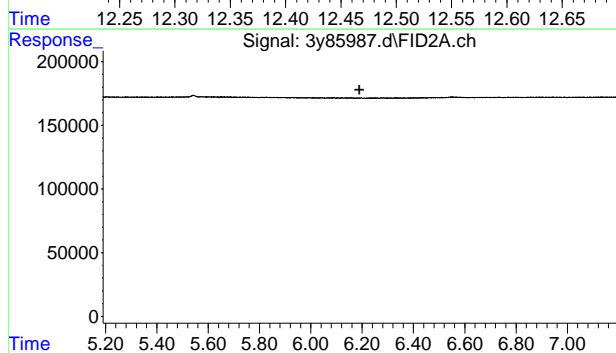

#53 Naphthalene (S)
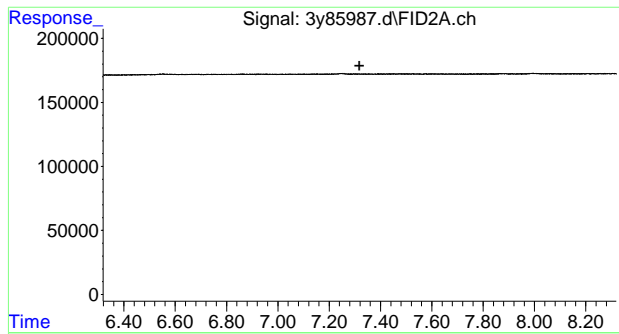
```
        R.T.:     0.000 min
Exp R.T. :     6.190 min
  Response:          0
      Conc:    N.D.
```

9.1.2

9

```
3y85987.d  EPH3Y3347.M     Fri Oct 28 08:37:16 2022
```

#54 2-Methylnaphthalene (S)

```
     R.T.:      0.000 min
Exp R.T.  :     7.318 min
  Response:           0
     Conc:   N.D.
```
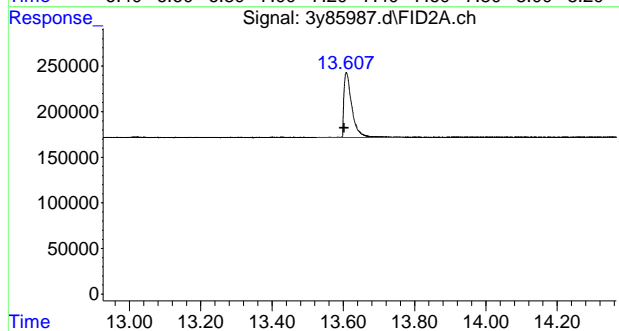
#55 1-Chlorooctadecane (S)

```
     R.T.:     13.609 min
Delta R.T.:     0.007 min
  Response:    1101595
     Conc:    2.09 ug/L
```
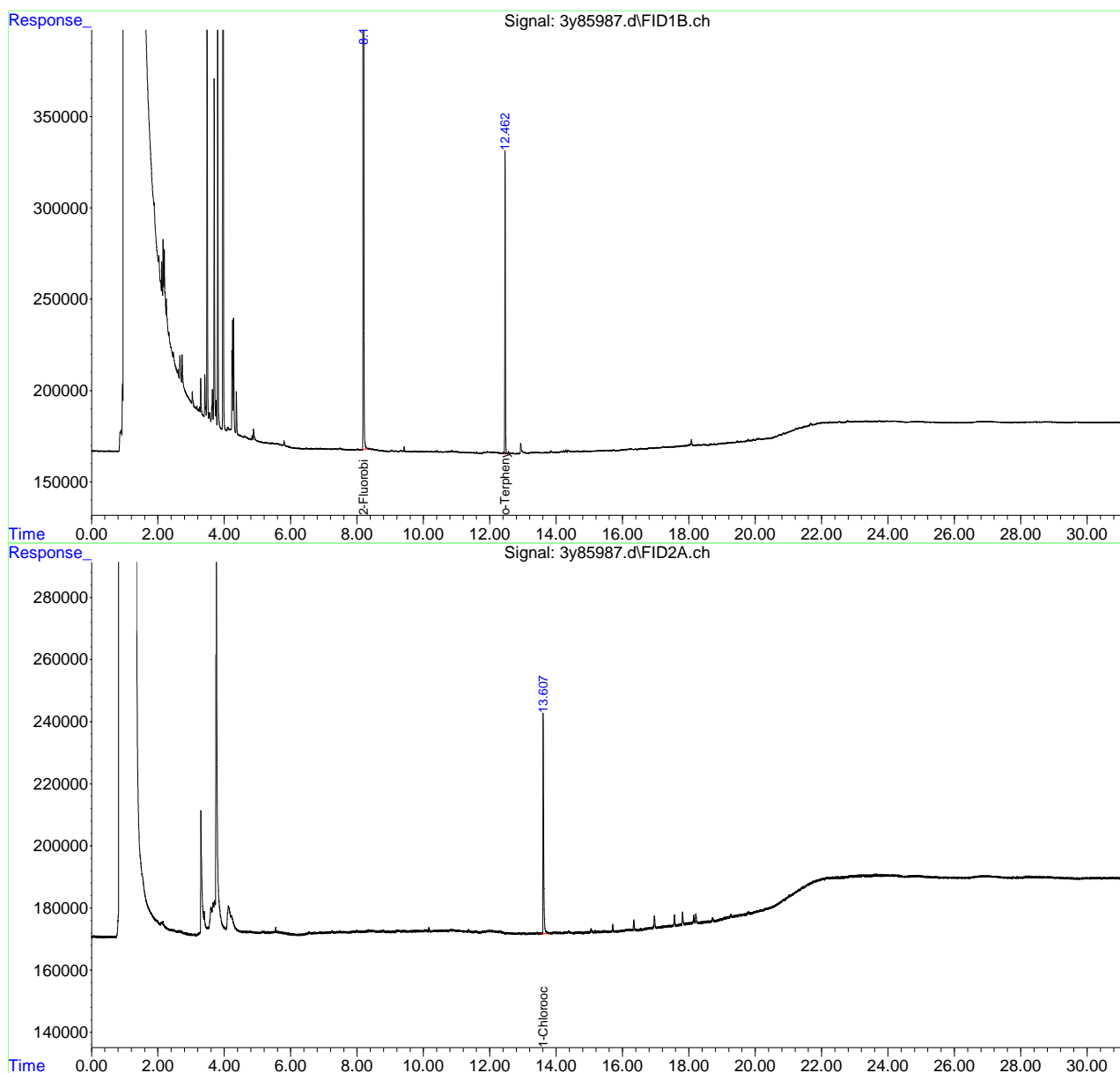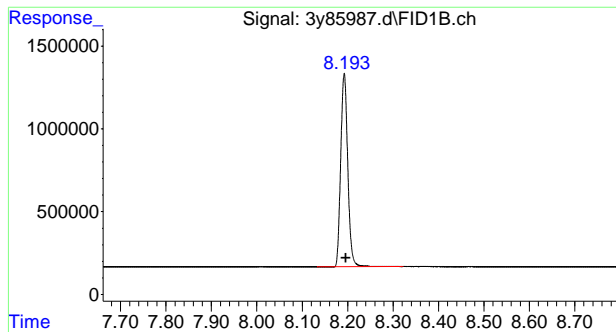
```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85981.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022   9:43 pm
Operator  : thomasl
Sample    : op42283-mb1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:14:27 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

          Compound                 R.T.      Response   Conc Units
  -----------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.193     11830099   20.253 ug/L
26) S   o-Terphenyl  (S)          12.464      2024386    3.175 ug/L
55) S   1-Chlorooctadecane (S)    13.608      1313286    2.495 ug/L

  Target Compounds
  -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
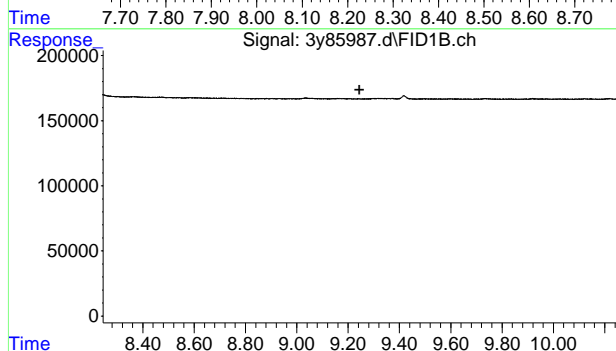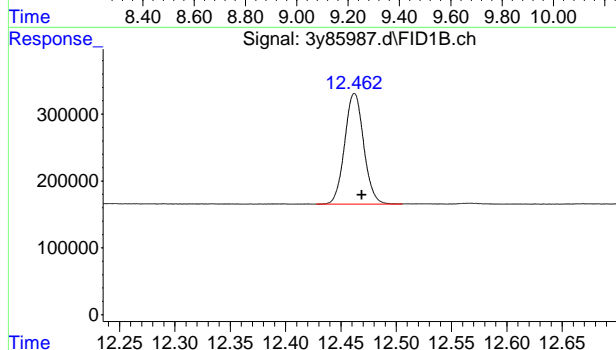
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Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85981.d
Signal(s) : Signal #1: FID1B.ch Signal #2: FID2A.ch
Acq On   : 26 Oct 2022   9:43 pm
Operator : thomasl
Sample   : op42283-mb1
Misc   : op42283,g3y3363,1000,,,2,1
ALS Vial : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:14:27 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5   Signal #2 Phase: HP5
Signal #1 Info : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

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#24 2-Fluorobiphenyl (S)

```
        R.T.:     8.193 min
Delta R.T.:    -0.004 min
  Response:  11830099
      Conc:   20.25 ug/L
```


#25 2-Bromonaphthalene (S)

```
        R.T.:     0.000 min
Exp R.T. :     9.245 min
  Response:         0
      Conc:   N.D.
```


#26 o-Terphenyl (S)

```
        R.T.:    12.464 min
Delta R.T.:    -0.005 min
  Response:   2024386
      Conc:    3.18 ug/L
```
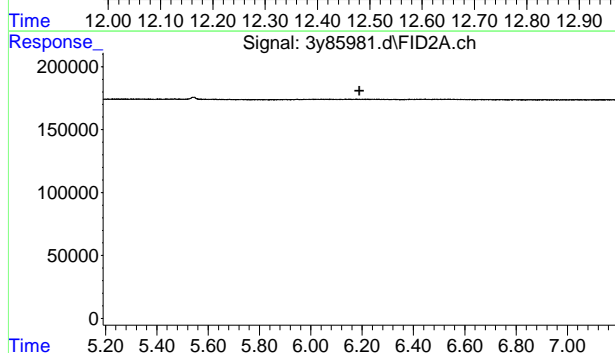

#53 Naphthalene (S)
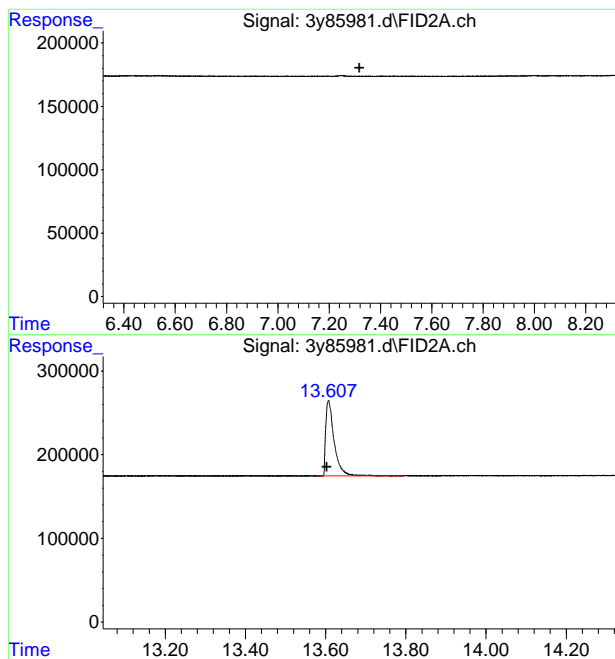
```
        R.T.:     0.000 min
Exp R.T. :     6.190 min
  Response:         0
      Conc:   N.D.
```

9.2.1

9

3y85981.d EPH3Y3347.M   Fri Oct 28 08:36:45 2022

#54 2-Methylnaphthalene (S)

```
         R.T.:     0.000 min
Exp R.T.  :       7.318 min
   Response:           0
       Conc:   N.D.
```

#55 1-Chlorooctadecane (S)

```
         R.T.:    13.608 min
Delta R.T.:       0.005 min
   Response:    1313286
       Conc:    2.50 ug/L
```
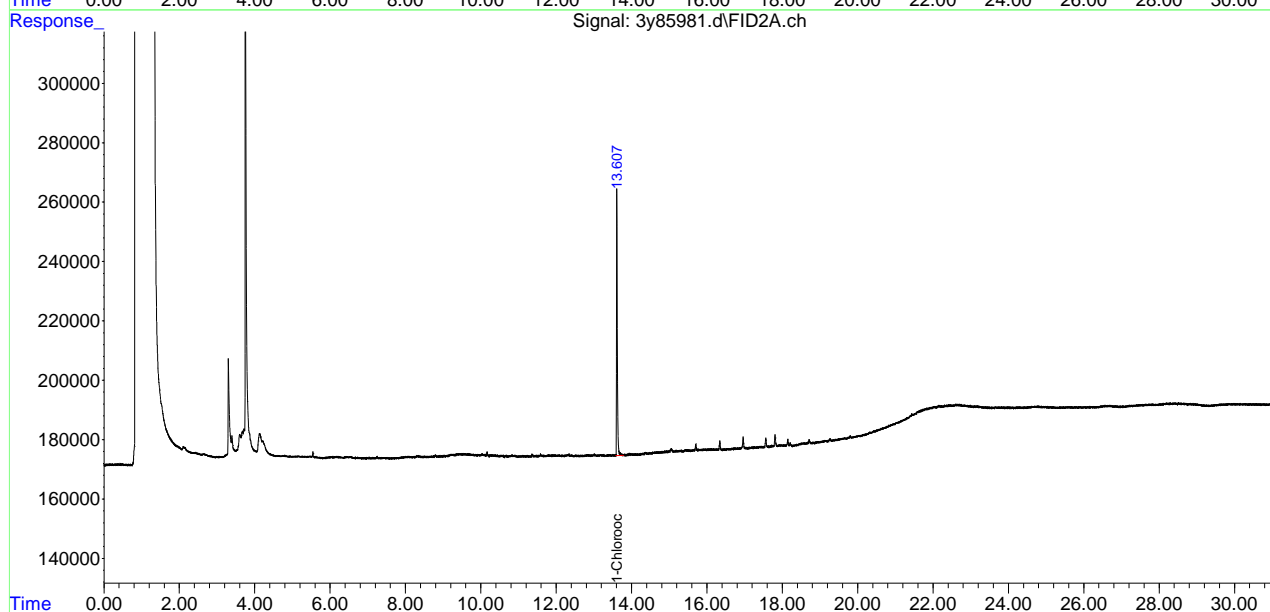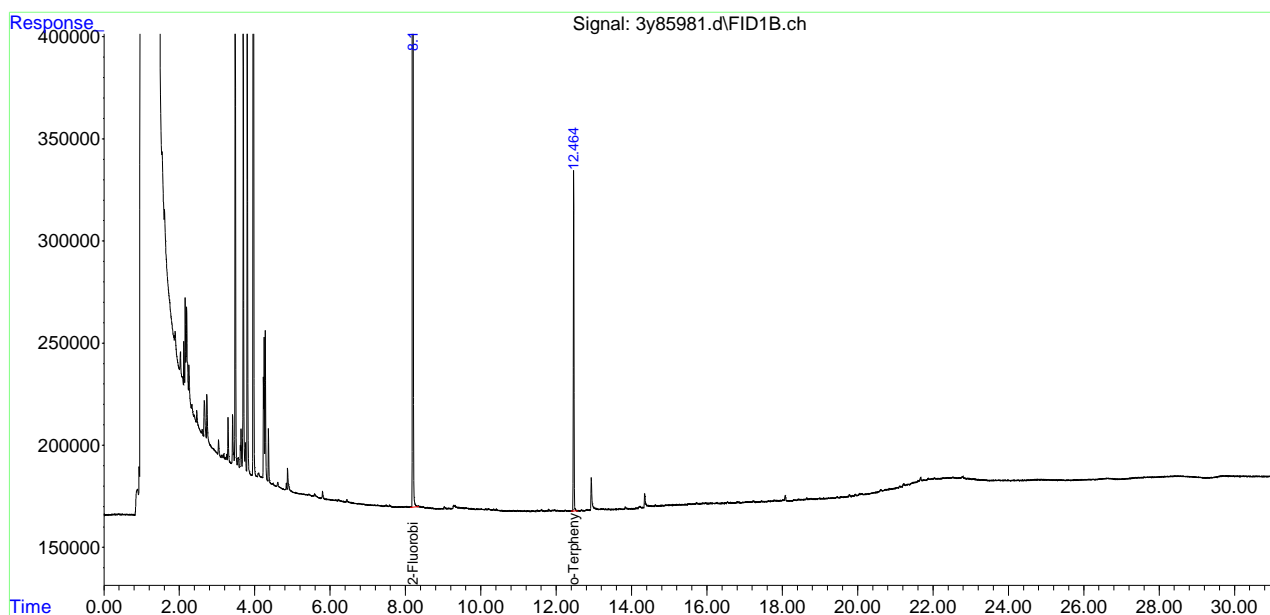
9.2.1
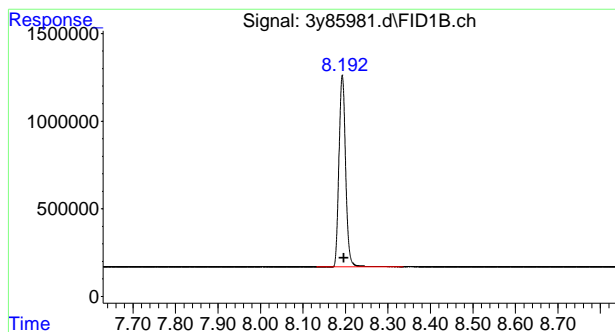
9

```
                      Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:24:46 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

          Compound                 R.T.      Response    Conc Units
     --------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.192     11115350   19.030 ug/L
26) S   o-Terphenyl  (S)          12.462      1444916    2.266 ug/L
55) S   1-Chlorooctadecane (S)    13.614       679172    1.291 ug/L

  Target Compounds
 1) T   1,2,3-Trimethylbenzene     4.594      1457086    2.202 ug/l m
 2) T   Naphthalene                6.422      1521164    2.210 ug/L
 4) T   2-Methylnaphthalene        7.550      1701936    2.520 ug/L
 5) T   Acenaphthylene             9.008      1610388    2.445 ug/l
 6) T   Acenaphthene               9.301      1902207    2.710 ug/l
 8) T   Fluorene                  10.172      1995571    3.012 ug/l
 9) T   Phenanthrene              11.763      2136383    3.317 ug/l
10) T   Anthracene                11.851      2202880    3.437 ug/l
11) T   Fluoranthene              13.798      2271860    3.642 ug/l
12) T   Pyrene                    14.180      2304688    3.600 ug/l
14) T   Benzo(a)Anthracene        16.426      2282721    3.685 ug/l
15) T   Chrysene                  16.487      2286007    3.702 ug/l
16) T   Benzo(b)Fluoranthene      18.351      2299084    3.811 ug/l
17) T   Benzo(k)Fluoranthene      18.398      2369143    4.049 ug/l
18) T   Benzo(a)Pyrene            18.877      2072318    3.537 ug/l
19) T   Indeno(1,2,3-cd)Pyrene    20.588      2176841    3.755 ug/l
20) T   Dibenzo(ah)Anthracene     20.636      2541066    4.066 ug/l
21) T   Benzo(ghi)Perylene        20.936      2273396    3.927 ug/l
23) H   C11-C22 Aromatics (Un...  13.720     57269248   90.729 ug/L
28) T   C9                         3.049f     1129501    1.918 ug/L m
29) T   C10                        4.131f     2518004    4.193 ug/L
30) T   C12                        6.293      1967077    3.212 ug/L
32) T   C14                        8.242      2226710    3.625 ug/L
33) T   C16                        9.983      2324402    3.745 ug/L
35) T   C18                       11.554      2348630    3.758 ug/L
36) T   C19                       12.285      2351289    3.726 ug/L
37) T   C20                       12.991      2294977    3.693 ug/L
38) T   C21                       13.685      2268794    3.680 ug/L
40) T   C22                       14.371      2319646    3.768 ug/L
41) T   C24                       15.697      2318562    3.866 ug/L
42) T   C26                       16.957      2333484    3.987 ug/L
43) T   C28                       18.145      2266831    4.011 ug/L
44) T   C30                       19.264      2174757    3.916 ug/L
45) T   C32                       20.317      2094103    3.833 ug/L
46) T   C34                       21.312      2080391    3.969 ug/L m
47) T   C36                       22.324      1993040    3.800 ug/L
48) T   C38                       23.639      1912714    3.719 ug/L
49) T   C40                       25.450      1961819    3.743 ug/L
51) H   C9-C18 Aliphatics          7.580     28118344   46.071 ug/L
52) H   C19-C36 Aliphatics        17.380     50400841   85.826 ug/L
     --------------------------------------------------------------------

  (f)=RT Delta > 1/2 Window                     (m)=manual int.

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```
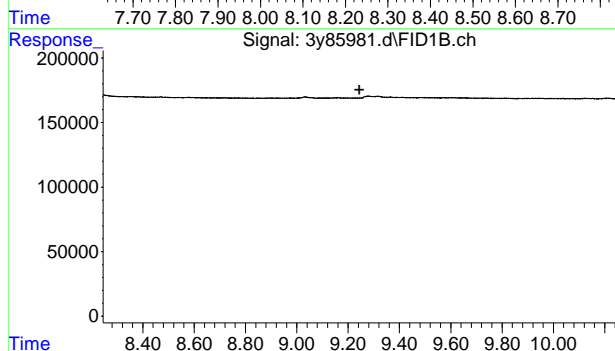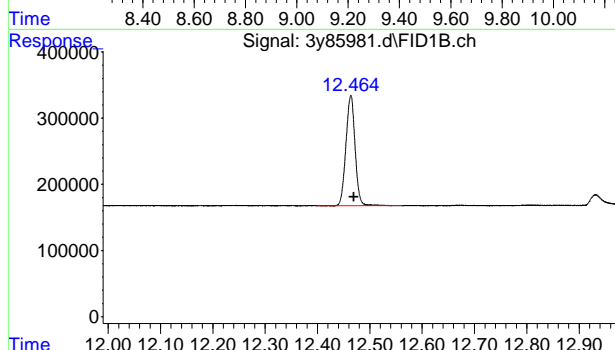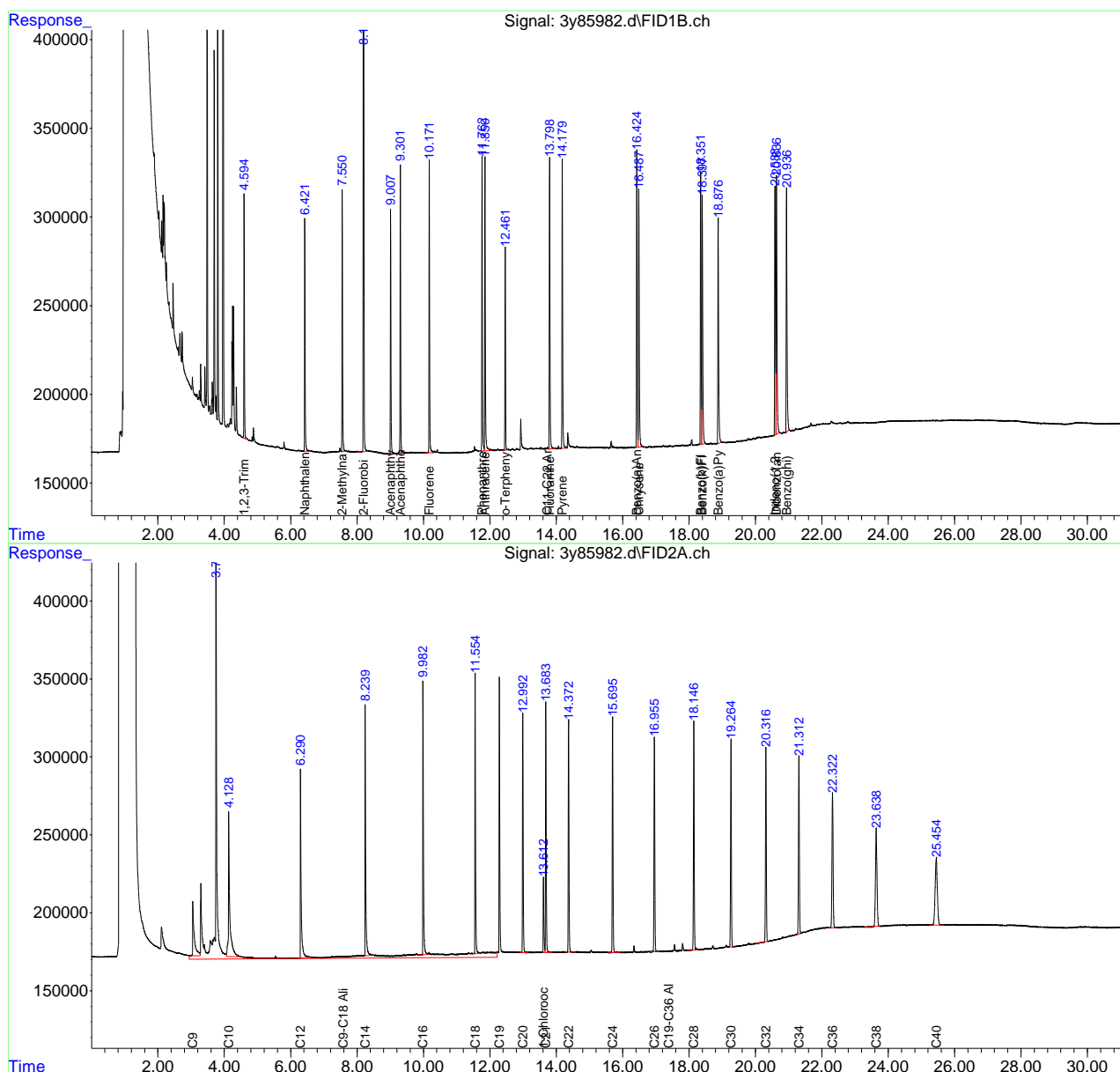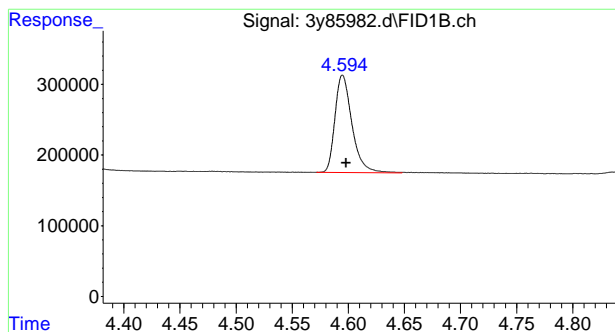
9.3.1

9

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:24:46 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5            Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```



```
EPH3Y3347.M Fri Oct 28 08:36:48 2022                    Page: 2
```

#1 1,2,3-Trimethylbenzene

```
        R.T.:     4.594 min
Delta R.T.:    -0.004 min
   Response:    1457086
        Conc:    2.20 ug/l m
```
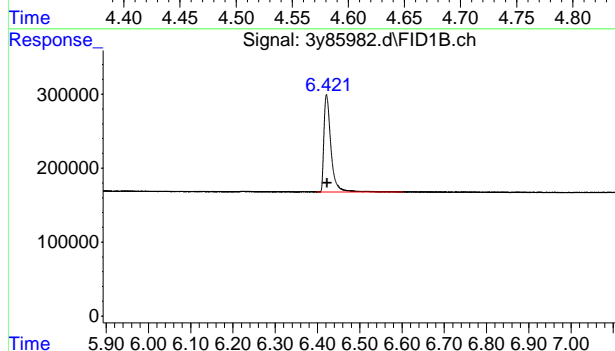
#2 Naphthalene

```
        R.T.:     6.422 min
Delta R.T.:     0.000 min
   Response:    1521164
        Conc:    2.21 ug/L
```
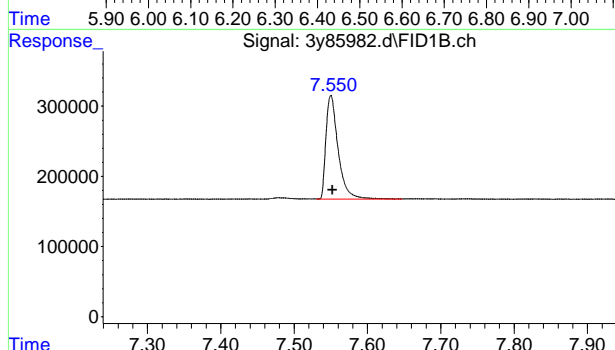
#4 2-Methylnaphthalene

```
        R.T.:     7.550 min
Delta R.T.:    -0.002 min
   Response:    1701936
        Conc:    2.52 ug/L
```
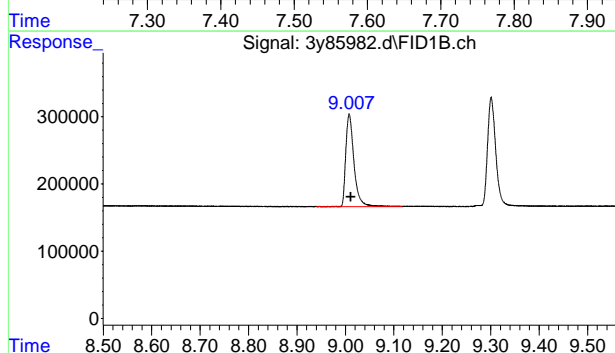
#5 Acenaphthylene

```
        R.T.:     9.008 min
Delta R.T.:    -0.003 min
   Response:    1610388
        Conc:    2.45 ug/l
```

3y85982.d EPH3Y3347.M   Fri Oct 28 08:36:49 2022

9.3.1

9
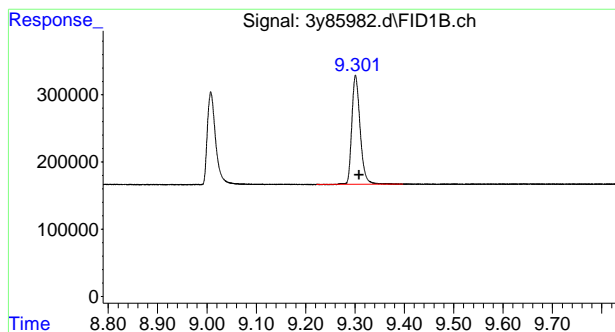
#6 Acenaphthene

R.T.: 9.301 min
Delta R.T.: -0.007 min
Response: 1902207
Conc: 2.71 ug/l
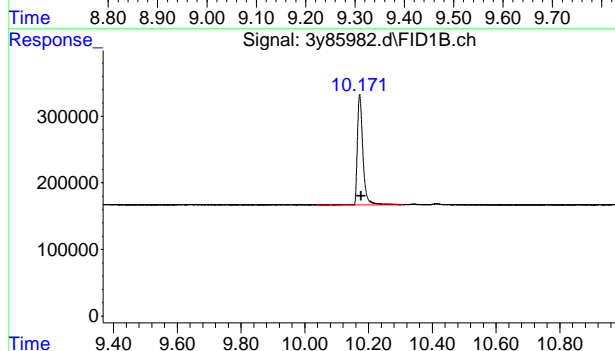
#8 Fluorene

R.T.: 10.172 min
Delta R.T.: -0.005 min
Response: 1995571
Conc: 3.01 ug/l
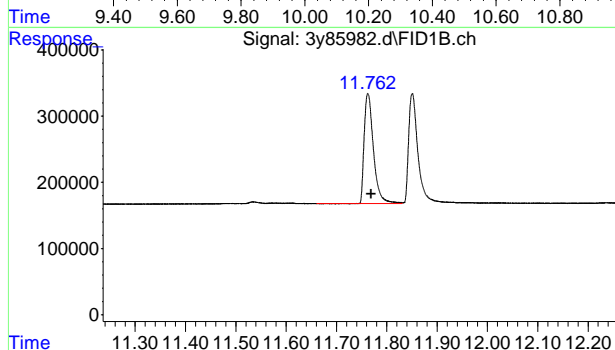
#9 Phenanthrene

R.T.: 11.763 min
Delta R.T.: -0.006 min
Response: 2136383
Conc: 3.32 ug/l
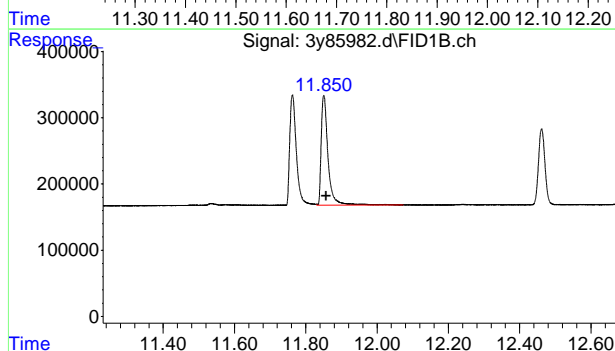
#10 Anthracene

R.T.: 11.851 min
Delta R.T.: -0.006 min
Response: 2202880
Conc: 3.44 ug/l

9.3.1

9
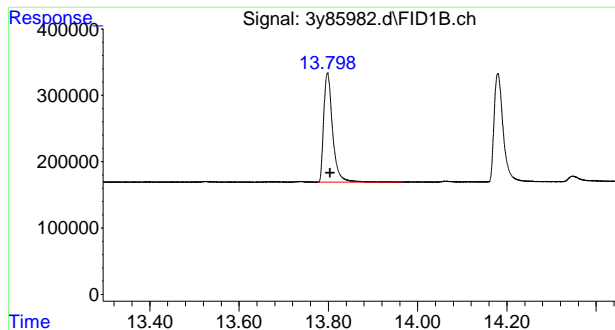
#11 Fluoranthene

R.T.:	13.798 min
Delta R.T.:	-0.005 min
Response:	2271860
Conc:	3.64 ug/l
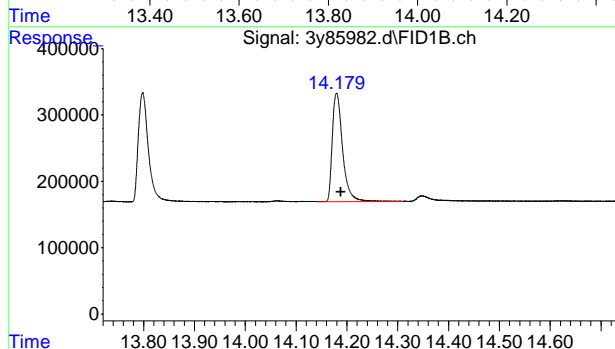
#12 Pyrene

R.T.:	14.180 min
Delta R.T.:	-0.008 min
Response:	2304688
Conc:	3.60 ug/l
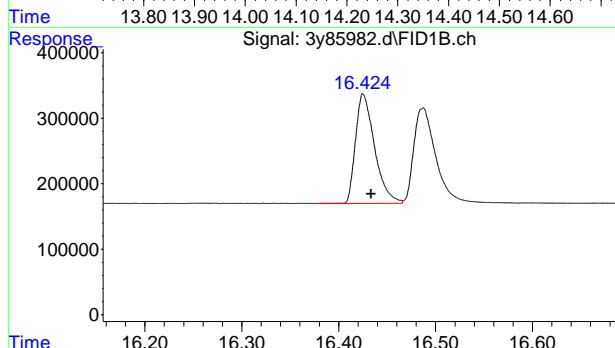
#14 Benzo(a)Anthracene

R.T.:	16.426 min
Delta R.T.:	-0.007 min
Response:	2282721
Conc:	3.69 ug/l
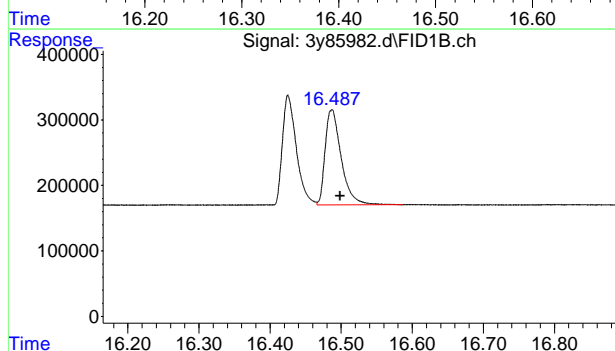
#15 Chrysene

R.T.:	16.487 min
Delta R.T.:	-0.012 min
Response:	2286007
Conc:	3.70 ug/l

9.3.1

9

3Y85982.D: OP42283-BS1 Blank Spike   page 5 of 14
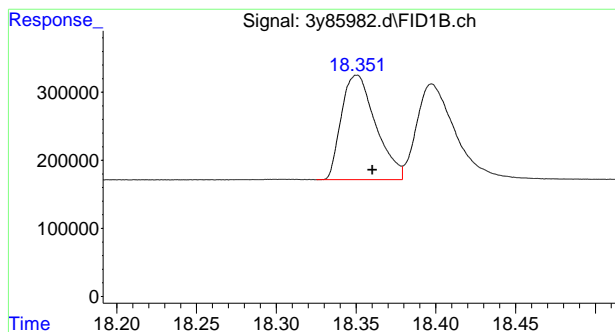
#16   Benzo(b)Fluoranthene

```
       R.T.:    18.351 min
Delta R.T.:    -0.010 min
  Response:    2299084
      Conc:    3.81 ug/l
```
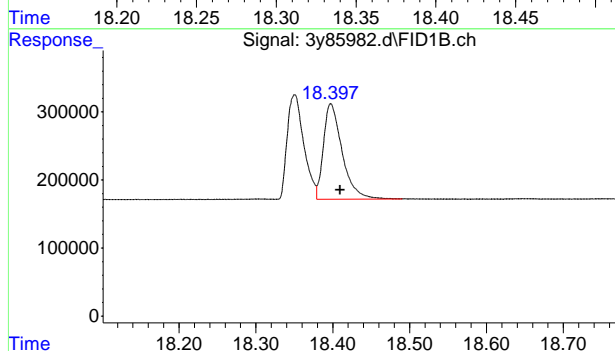

#17   Benzo(k)Fluoranthene

```
       R.T.:    18.398 min
Delta R.T.:    -0.012 min
  Response:    2369143
      Conc:    4.05 ug/l
```
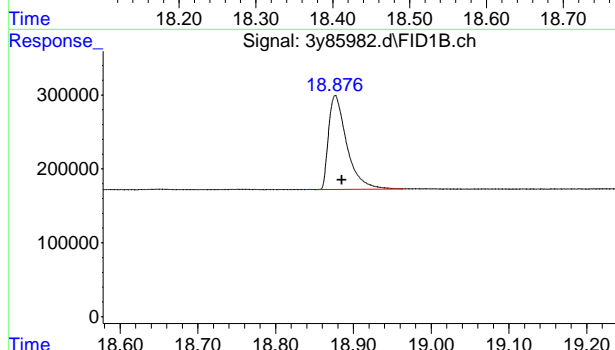

#18   Benzo(a)Pyrene

```
       R.T.:    18.877 min
Delta R.T.:    -0.008 min
  Response:    2072318
      Conc:    3.54 ug/l
```
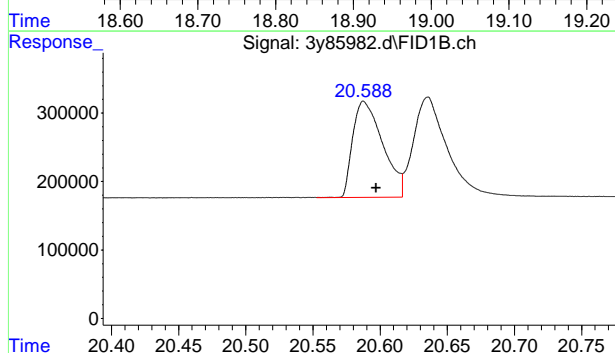

#19   Indeno(1,2,3-cd)Pyrene

```
       R.T.:    20.588 min
Delta R.T.:    -0.009 min
  Response:    2176841
      Conc:    3.75 ug/l
```

9.3.1

9
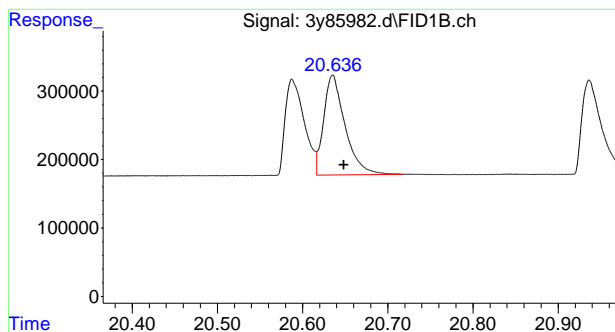
#20   Dibenzo(ah)Anthracene

```
         R.T.:    20.636 min
Delta R.T.:    -0.013 min
   Response:    2541066
       Conc:    4.07 ug/l
```
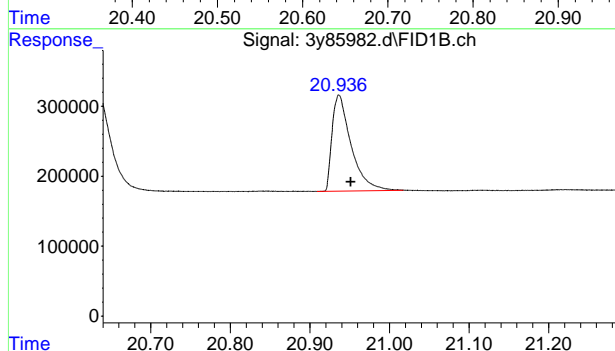

#21   Benzo(ghi)Perylene

```
         R.T.:    20.936 min
Delta R.T.:    -0.015 min
   Response:    2273396
       Conc:    3.93 ug/l
```
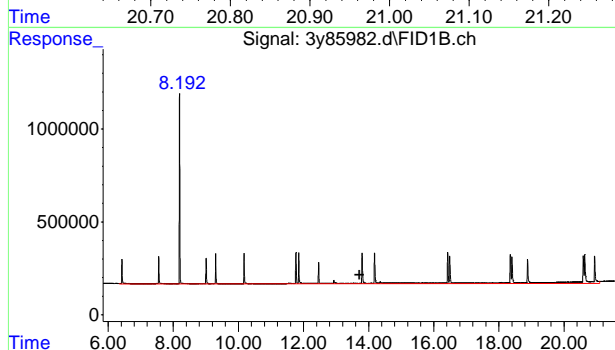

#23   C11-C22 Aromatics (Unadj.)

```
         R.T.:    13.720 min
Delta R.T.:     0.000 min
   Response:    57269248
       Conc:    90.73 ug/L
```
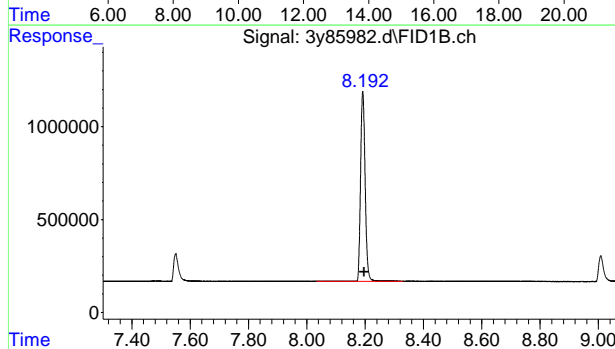

#24   2-Fluorobiphenyl (S)

```
         R.T.:     8.192 min
Delta R.T.:    -0.004 min
   Response:    11115350
       Conc:    19.03 ug/L
```

9.3.1

9
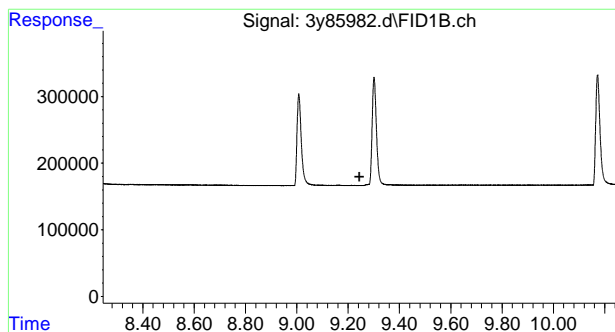
#25 2-Bromonaphthalene (S)

```
      R.T.:    0.000 min
Exp R.T.  :    9.245 min
  Response:        0
     Conc:    N.D.
```
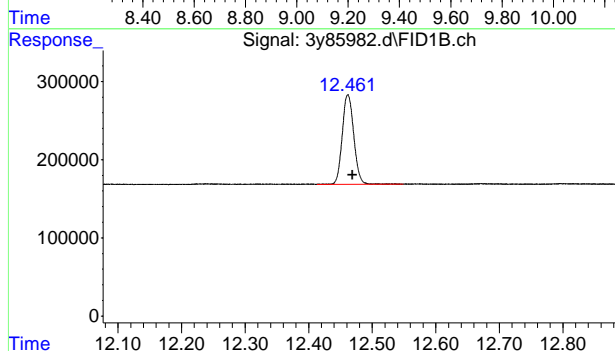
#26 o-Terphenyl (S)

```
      R.T.:   12.462 min
Delta R.T.:   -0.007 min
  Response:  1444916
     Conc:    2.27 ug/L
```
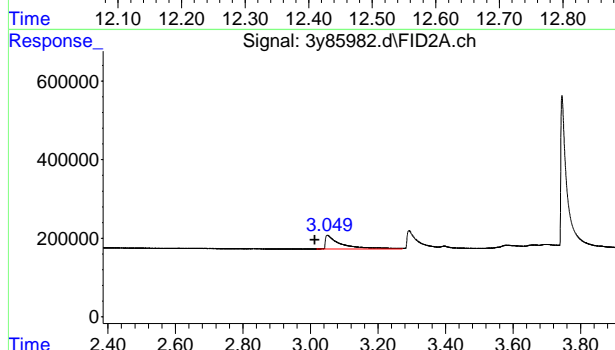
#28 C9

```
      R.T.:    3.049 min
Delta R.T.:    0.036 min
  Response:  1129501
     Conc:    1.92 ug/L m
```
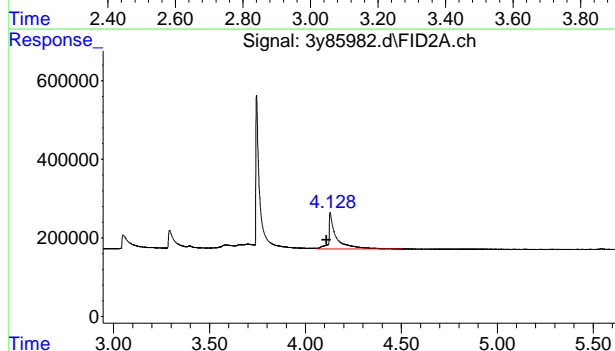
#29 C10

```
      R.T.:    4.131 min
Delta R.T.:    0.021 min
  Response:  2518004
     Conc:    4.19 ug/L
```

3y85982.d EPH3Y3347.M   Fri Oct 28 08:36:50 2022

Signal: 3y85982.d\FID2A.ch
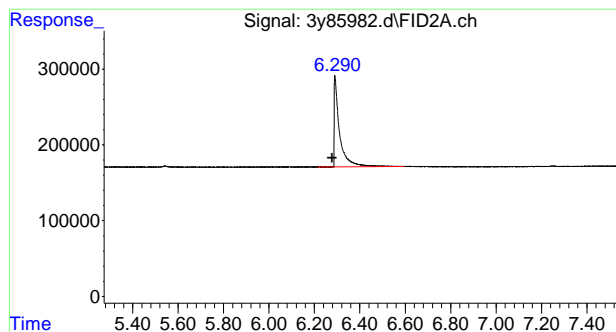
#30 C12

R.T.: 6.293 min
Delta R.T.: 0.014 min
Response: 1967077
Conc: 3.21 ug/L

Signal: 3y85982.d\FID2A.ch
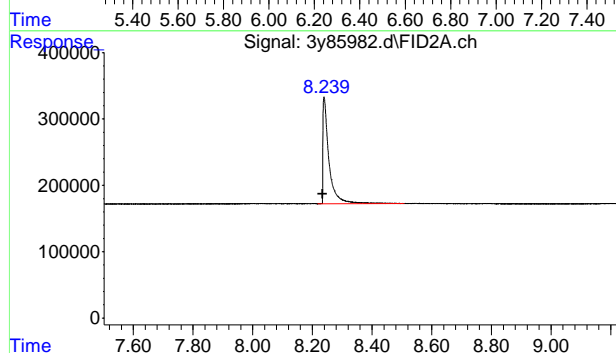
#32 C14

R.T.: 8.242 min
Delta R.T.: 0.008 min
Response: 2226710
Conc: 3.63 ug/L

Signal: 3y85982.d\FID2A.ch
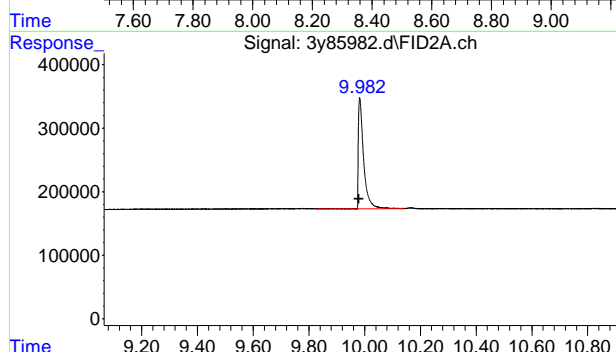
#33 C16

R.T.: 9.983 min
Delta R.T.: 0.004 min
Response: 2324402
Conc: 3.74 ug/L

Signal: 3y85982.d\FID2A.ch
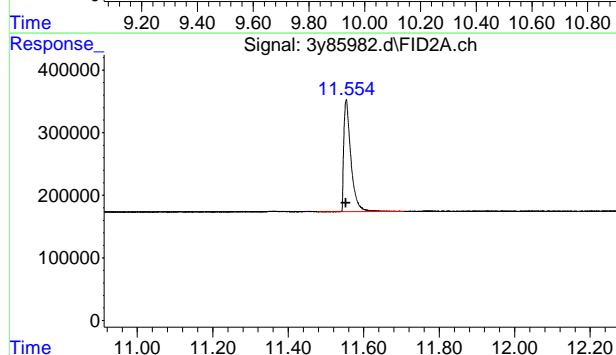
#35 C18

R.T.: 11.554 min
Delta R.T.: 0.002 min
Response: 2348630
Conc: 3.76 ug/L

9.3.1

9
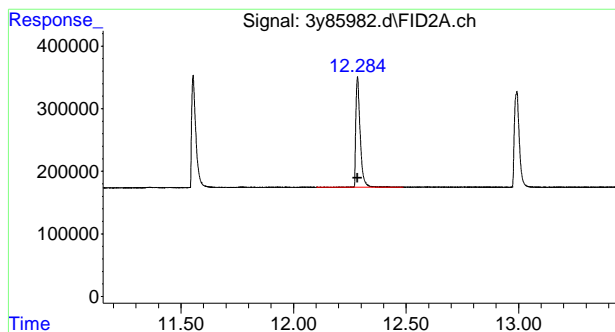
#36 C19

R.T.:	12.285 min
Delta R.T.:	0.002 min
Response:	2351289
Conc:	3.73 ug/L
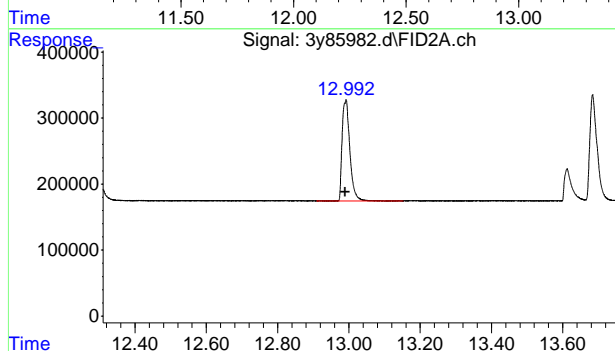
#37 C20

R.T.:	12.991 min
Delta R.T.:	0.002 min
Response:	2294977
Conc:	3.69 ug/L
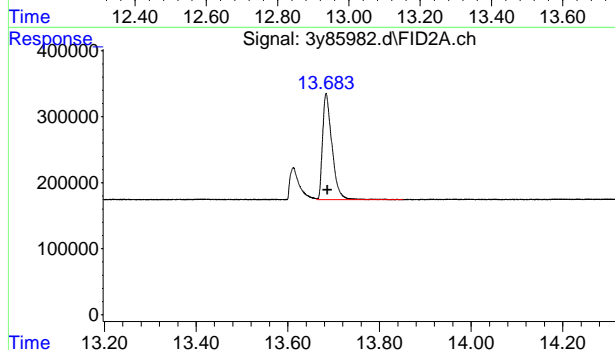
#38 C21

R.T.:	13.685 min
Delta R.T.:	0.000 min
Response:	2268794
Conc:	3.68 ug/L
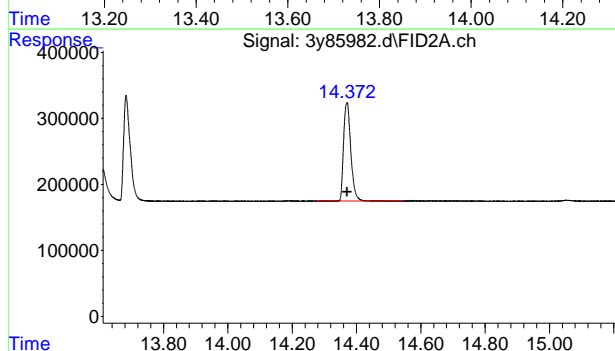
#40 C22

R.T.:	14.371 min
Delta R.T.:	0.000 min
Response:	2319646
Conc:	3.77 ug/L

9.3.1

9

Signal: 3y85982.d\FID2A.ch
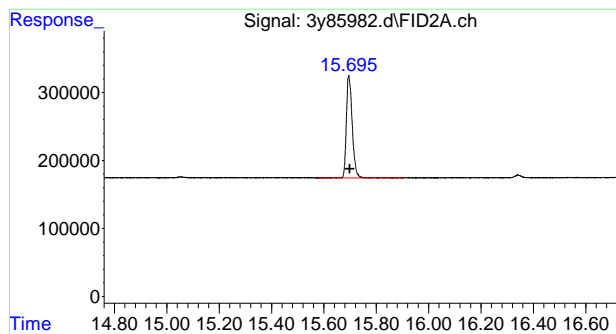
#41 C24

```
        R.T.:     15.697 min
Delta R.T.:     -0.002 min
   Response:     2318562
      Conc:      3.87 ug/L
```

15.695

Signal: 3y85982.d\FID2A.ch
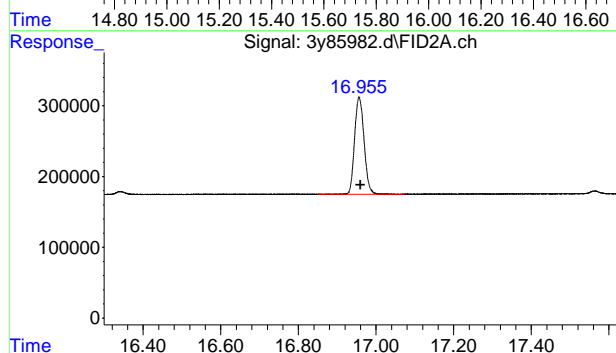
#42 C26

```
        R.T.:     16.957 min
Delta R.T.:     -0.003 min
   Response:     2333484
      Conc:      3.99 ug/L
```

16.955

Signal: 3y85982.d\FID2A.ch
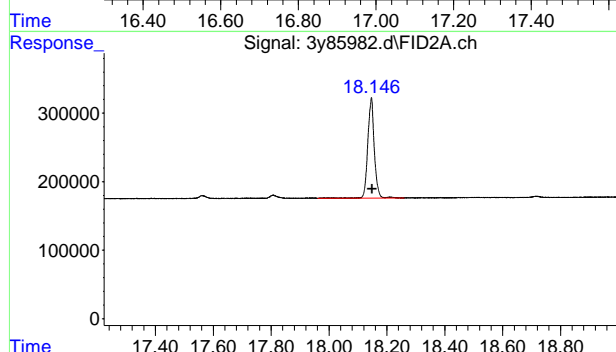
#43 C28

```
        R.T.:     18.145 min
Delta R.T.:     -0.003 min
   Response:     2266831
      Conc:      4.01 ug/L
```

18.146

Signal: 3y85982.d\FID2A.ch
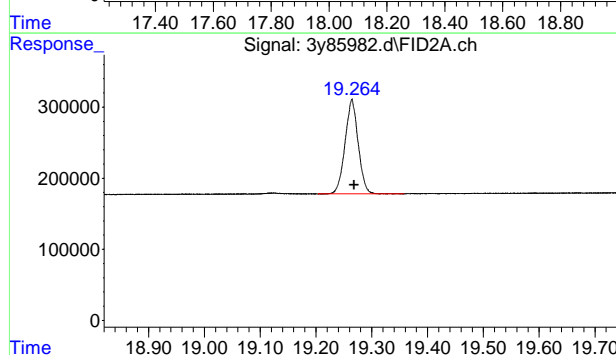
#44 C30

```
        R.T.:     19.264 min
Delta R.T.:     -0.004 min
   Response:     2174757
      Conc:      3.92 ug/L
```

19.264

9.3.1

9

Signal: 3y85982.d\FID2A.ch
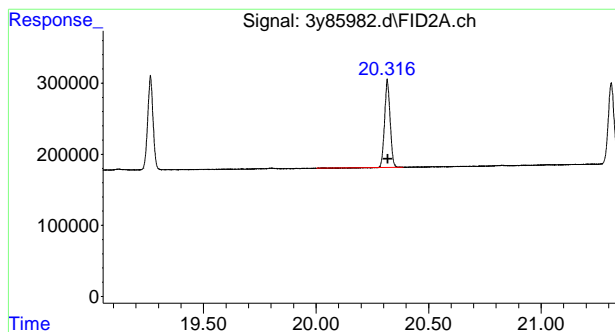
#45 C32

R.T.:   20.317 min
Delta R.T.: -0.003 min
Response: 2094103
Conc: 3.83 ug/L

20.316

Signal: 3y85982.d\FID2A.ch
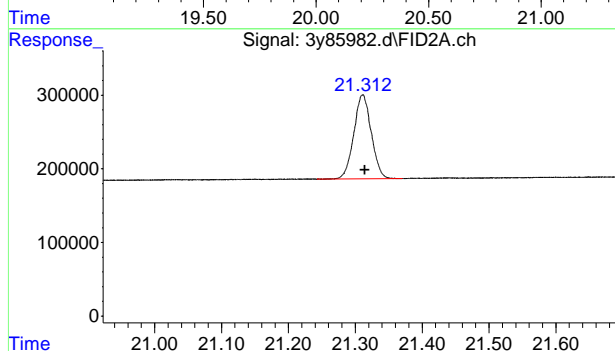
#46 C34

R.T.:   21.312 min
Delta R.T.: -0.002 min
Response: 2080391
Conc: 3.97 ug/L m

21.312

Signal: 3y85982.d\FID2A.ch
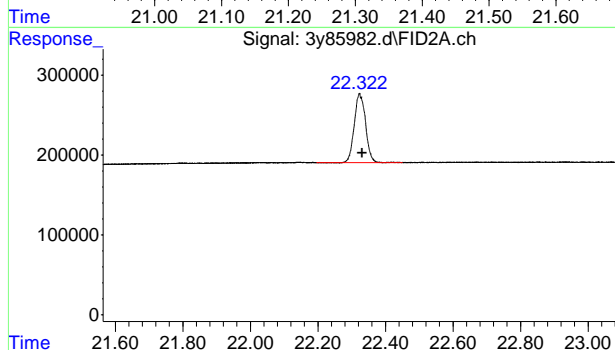
#47 C36

R.T.:   22.324 min
Delta R.T.: -0.006 min
Response: 1993040
Conc: 3.80 ug/L

22.322

Signal: 3y85982.d\FID2A.ch
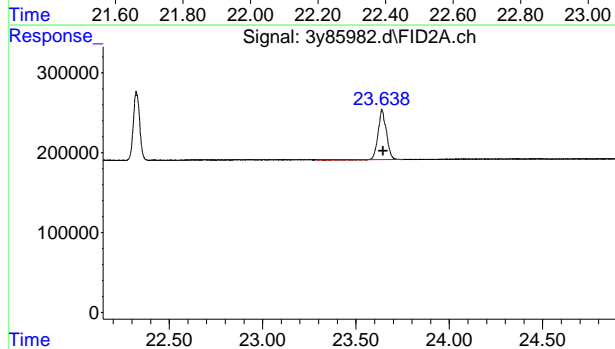
#48 C38

R.T.:   23.639 min
Delta R.T.: -0.006 min
Response: 1912714
Conc: 3.72 ug/L

23.638

3y85982.d EPH3Y3347.M   Fri Oct 28 08:36:51 2022

Signal: 3y85982.d\FID2A.ch
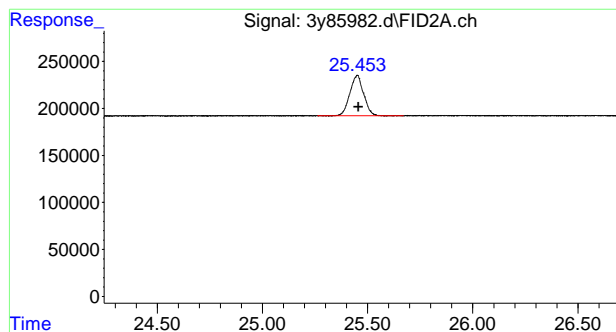
#49 C40

```
        R.T.:    25.450 min
Delta R.T.:    -0.006 min
  Response:     1961819
      Conc:     3.74 ug/L
```


Signal: 3y85982.d\FID2A.ch
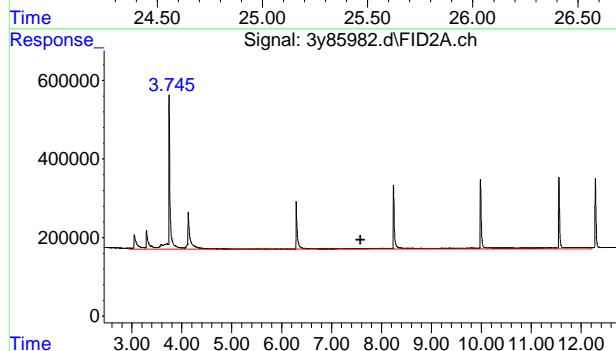
#51 C9-C18 Aliphatics

```
        R.T.:     7.580 min
Delta R.T.:     0.000 min
  Response:     28118344
      Conc:     46.07 ug/L
```


Signal: 3y85982.d\FID2A.ch
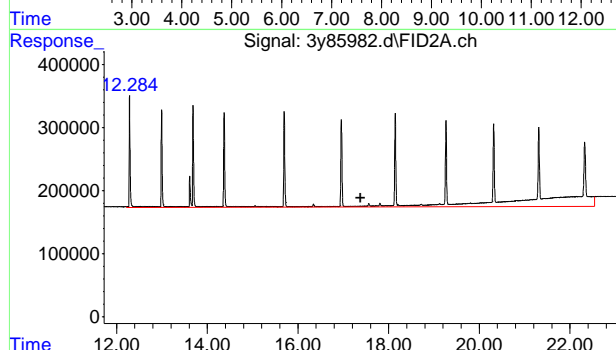
#52 C19-C36 Aliphatics

```
        R.T.:    17.380 min
Delta R.T.:     0.000 min
  Response:     50400841
      Conc:     85.83 ug/L
```
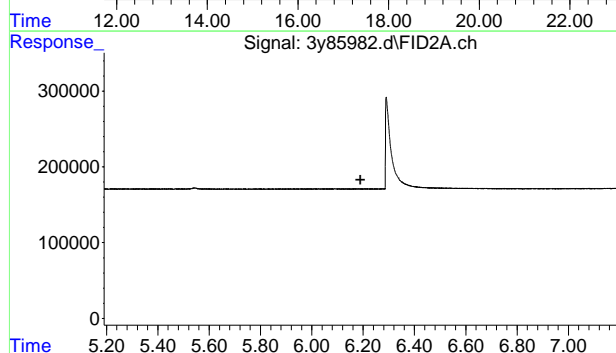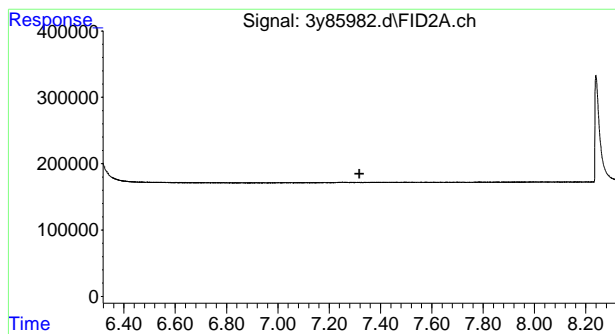

Signal: 3y85982.d\FID2A.ch

#53 Naphthalene (S)

```
        R.T.:     0.000 min
Exp R.T.  :      6.190 min
  Response:            0
      Conc:     N.D.
```



```
3y85982.d   EPH3Y3347.M      Fri Oct 28 08:36:51 2022                   Page 14
```

9.3.1

9

Signal: 3y85982.d\FID2A.ch

#54 2-Methylnaphthalene (S)

```
       R.T.:     0.000 min
Exp R.T.  :     7.318 min
   Response:           0
        Conc:   N.D.
```

Signal: 3y85982.d\FID2A.ch

13.612
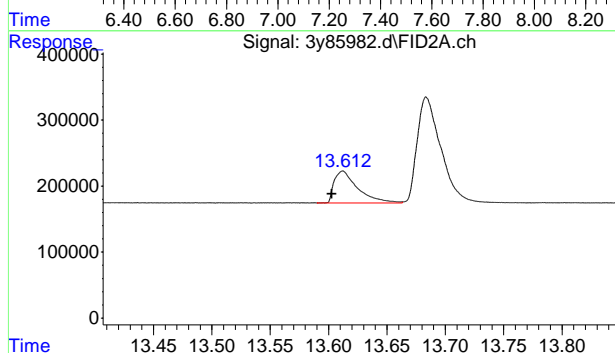
#55 1-Chlorooctadecane (S)

```
       R.T.:    13.614 min
Delta R.T.:     0.011 min
   Response:    679172
        Conc:   1.29 ug/L
```

9.3.1

9

Manual Integration Approval Summary

Sample Number: OP42283-BS1   **Method:** MADEP EPH REV 2.1
Lab FileID: 3Y85982.D   **Analyst approved:** 10/28/22 04:45 MaryAnne Loyola
Injection Time: 10/26/22 22:19   **Supervisor approved:** 10/29/22 21:09 Gwendolyn Burns

Parameter	CAS	Sig#	R.T. (min.)	Reason
C9		2	3.05	Poorly defined baseline

9.3.1.1

9

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:05:21 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


Signal: 3y85982.d\FID1B.ch

4.594
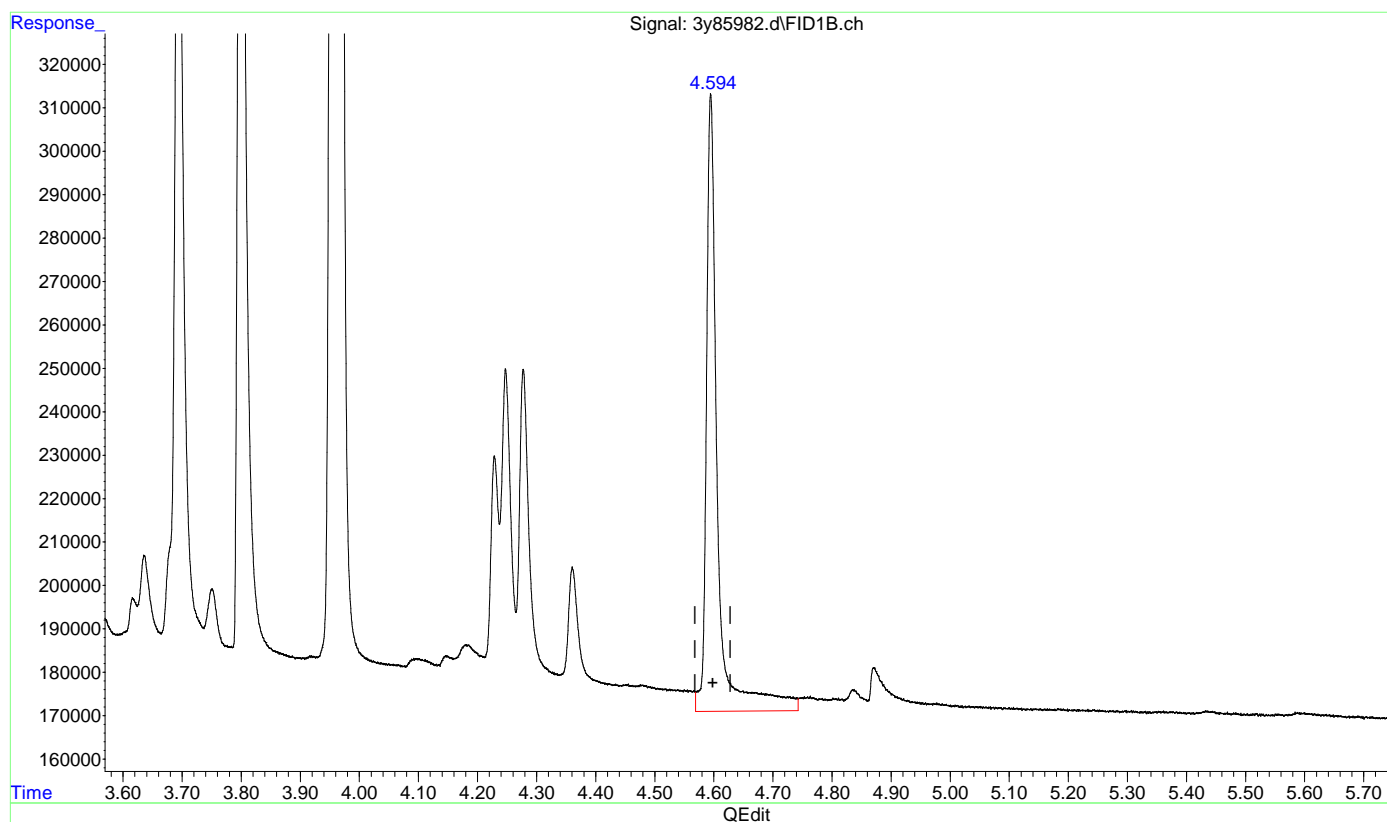
QEdit

(1) 1,2,3-Trimethylbenzene (T)

4.595min   2.811 ug/l

response 1859748

9.3.1.2

9

```
 (+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:17:18 2022
```

3Y85982.D edits: 1,2,3-Trimethylbenzene

```
                              Quantitation Report (Qedit)

  Data Path : C:\msdchem\1\data\maryannl\g3y3363\
  Data File : 3y85982.d
  Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
  Acq On    : 26 Oct 2022  10:19 pm
  Operator  : thomasl
  Sample    : op42283-bs1
  Misc      : op42283,g3y3363,1000,,,2,1
  ALS Vial  : 13   Sample Multiplier: 1

  Integration File signal 1: autoint1.e
  Integration File signal 2: autoint2.e
  Quant Time: Oct 28 07:21:05 2022
  Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
  Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
  QLast Update : Fri Oct 28 06:38:11 2022
  Response via : Initial Calibration
  Integrator: ChemStation

  Volume Inj.     : 1ul/col
  Signal #1 Phase : HP5              Signal #2 Phase: HP5
  Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

9.3.1.3

9

Signal: 3y85982.d\FID1B.ch

QEdit

(1) 1,2,3-Trimethylbenzene (T)

4.594min   2.202 ug/l m

response   1457086

```
 (+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:21:30 2022
```

Page: 1

3Y85982.D edits: 1,2,3-Trimethylbenzene

```
                          Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:21:05 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5            Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


(28) C9 (T)

3.013min   0.000 ug/L

response 0

```
 (+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:23:23 2022                        Page: 1
```

3Y85982.D edits: C9

```
                        Quantitation Report (Qedit)

  Data Path : C:\msdchem\1\data\maryannl\g3y3363\
  Data File : 3y85982.d
  Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
  Acq On    : 26 Oct 2022  10:19 pm
  Operator  : thomasl
  Sample    : op42283-bs1
  Misc      : op42283,g3y3363,1000,,,2,1
  ALS Vial  : 13    Sample Multiplier: 1

  Integration File signal 1: autoint1.e
  Integration File signal 2: autoint2.e
  Quant Time: Oct 28 07:21:05 2022
  Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
  Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
  QLast Update : Fri Oct 28 06:38:11 2022
  Response via : Initial Calibration
  Integrator: ChemStation

  Volume Inj.   : 1ul/col
  Signal #1 Phase : HP5              Signal #2 Phase: HP5
  Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


Signal: 3y85982.d\FID2A.ch

9.3.1.5

9

(28) C9 (T)

3.049min   1.918 ug/L m

response   1129501

```
  (+) = Expected Retention Time
  EPH3Y3347.M Fri Oct 28 07:23:54 2022                      Page: 1
```

SGS   JD53080

3Y85982.D edits: C9

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:21:05 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5            Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


(46) C34 (T)

21.311min   3.831 ug/L

response   2008395

(+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:24:41 2022

Page: 1

3Y85982.D edits: C34

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85982.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:19 pm
Operator  : thomasl
Sample    : op42283-bs1
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:21:05 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

9.3.1.7

9

Signal: 3y85982.d\FID2A.ch

QEdit

(46) C34 (T)

21.312min   3.969 ug/L m

response   2080391

(+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:24:53 2022

Page: 1

3Y85982.D edits: C34

```
                                  Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85983.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:56 pm
Operator  : thomasl
Sample    : op42283-bsd
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:32:14 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

          Compound                  R.T.       Response    Conc Units
     --------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)        8.193    10944499   18.737 ug/L
26) S   o-Terphenyl  (S)           12.463     2417347    3.792 ug/L
55) S   1-Chlorooctadecane (S)     13.608     1140372    2.167 ug/L

  Target Compounds
 1) T   1,2,3-Trimethylbenzene      4.596     1679283    2.538 ug/l
 2) T   Naphthalene                 6.422     2134074    3.100 ug/L
 4) T   2-Methylnaphthalene         7.550     2669686    3.953 ug/L
 5) T   Acenaphthylene              9.007     2743090    4.165 ug/l
 6) T   Acenaphthene                9.301     3319069    4.728 ug/l
 8) T   Fluorene                   10.172     3508777    5.296 ug/l
 9) T   Phenanthrene               11.762     3836491    5.957 ug/l
10) T   Anthracene                 11.850     3833523    5.981 ug/l
11) T   Fluoranthene               13.797     4010024    6.428 ug/l
12) T   Pyrene                     14.180     4084728    6.381 ug/l
14) T   Benzo(a)Anthracene         16.426     4015934    6.483 ug/l
15) T   Chrysene                   16.486     4006572    6.489 ug/l
16) T   Benzo(b)Fluoranthene       18.349     4037911    6.694 ug/l
17) T   Benzo(k)Fluoranthene       18.397     4113630    7.031 ug/l
18) T   Benzo(a)Pyrene             18.875     3635868    6.206 ug/l
19) T   Indeno(1,2,3-cd)Pyrene     20.586     3849859    6.640 ug/l
20) T   Dibenzo(ah)Anthracene      20.632     4409575    7.056 ug/l
21) T   Benzo(ghi)Perylene         20.934     4005174    6.918 ug/l
23) H   C11-C22 Aromatics (Un...   13.720    84547803  133.946 ug/L
28) T   C9                          3.050f    1169555    1.986 ug/L m
29) T   C10                         4.129f    2796337    4.656 ug/L
30) T   C12                         6.289     3285582    5.365 ug/L
32) T   C14                         8.238     4020999    6.546 ug/L
33) T   C16                         9.981     4419573    7.120 ug/L
35) T   C18                        11.553     4472038    7.155 ug/L
36) T   C19                        12.282     4475287    7.092 ug/L
37) T   C20                        12.988     4347622    6.996 ug/L
38) T   C21                        13.684     4232392    6.865 ug/L
40) T   C22                        14.369     4335823    7.044 ug/L
41) T   C24                        15.695     4305315    7.179 ug/L
42) T   C26                        16.955     4319828    7.380 ug/L
43) T   C28                        18.143     4185500    7.406 ug/L
44) T   C30                        19.263     4169252    7.507 ug/L
45) T   C32                        20.317     4072118    7.453 ug/L
46) T   C34                        21.310     3942066    7.520 ug/L
47) T   C36                        22.319     3755830    7.162 ug/L
48) T   C38                        23.640     3615506    7.030 ug/L
49) T   C40                        25.446     3597384    6.863 ug/L
51) H   C9-C18 Aliphatics           7.580    31646128   51.851 ug/L
52) H   C19-C36 Aliphatics         17.380    70545939  120.131 ug/L
     --------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window                       (m)=manual int.

EPH3Y3347.M Fri Oct 28 08:36:54 2022                             Page:  1
```
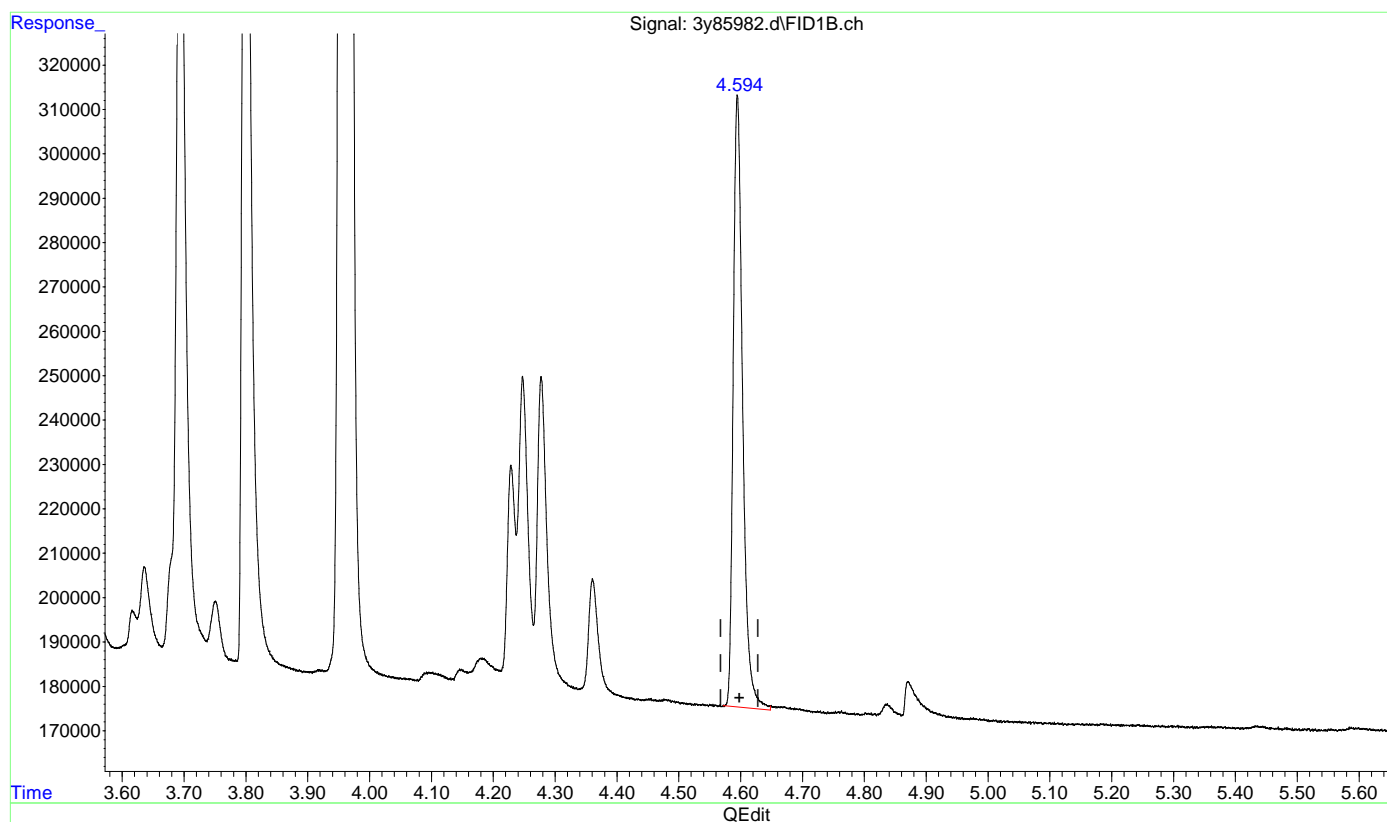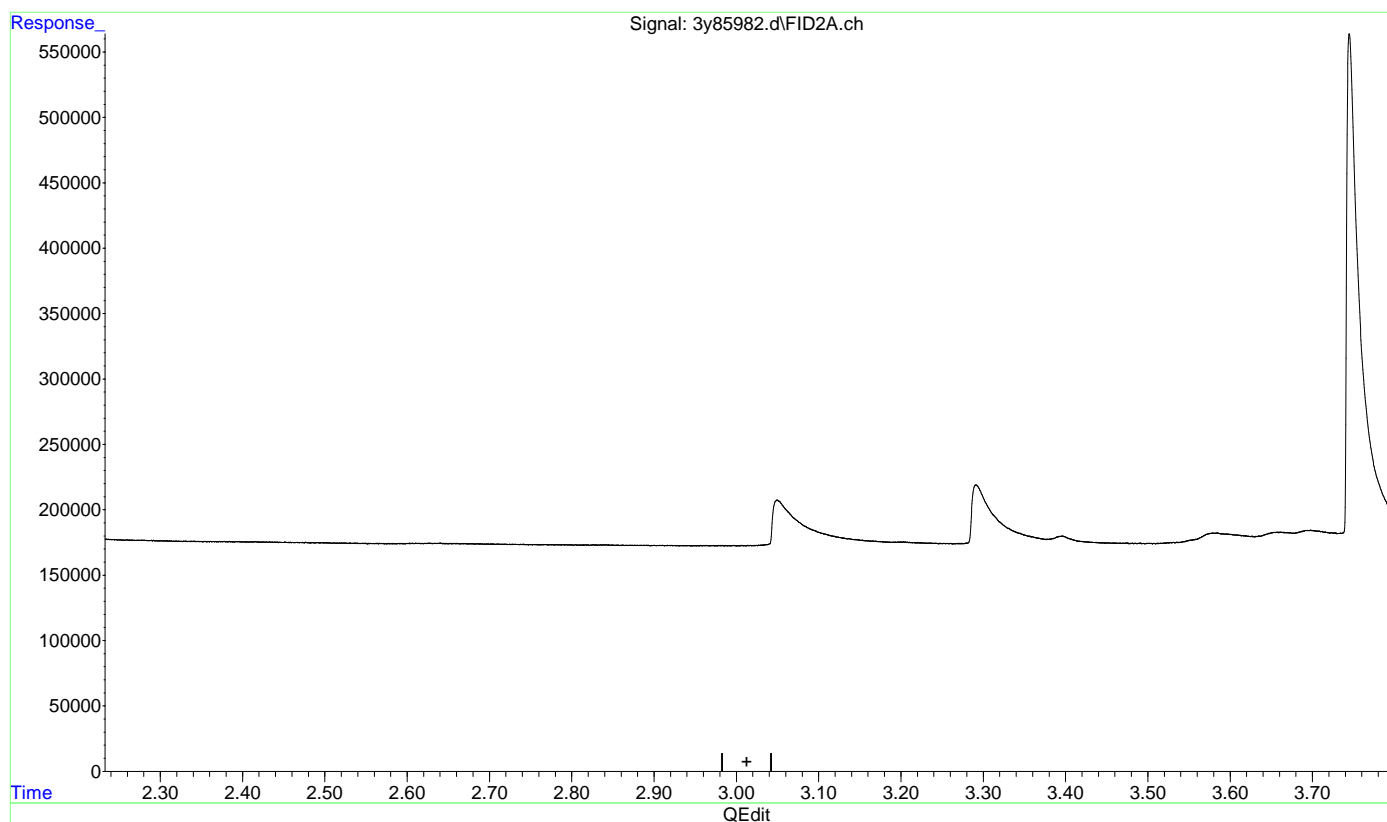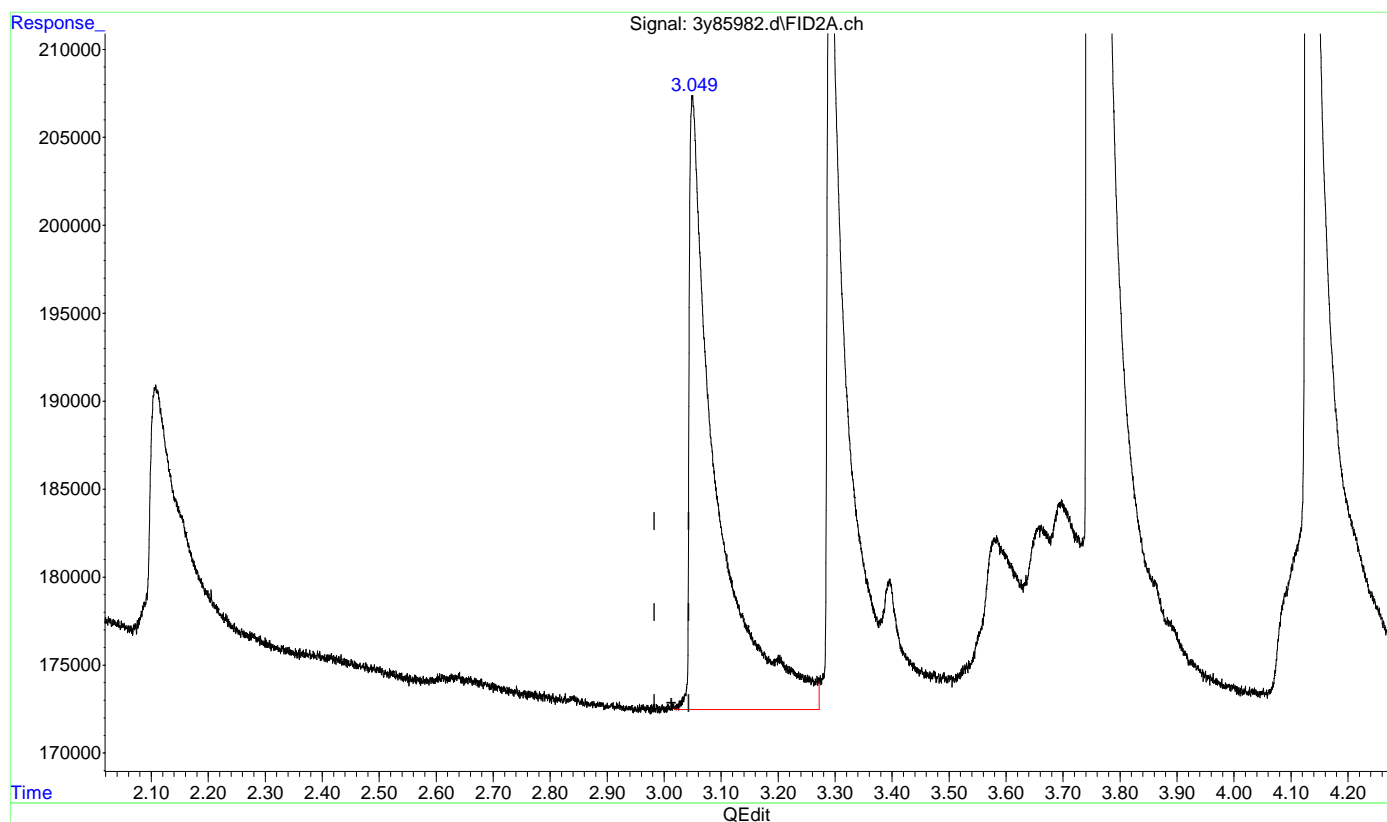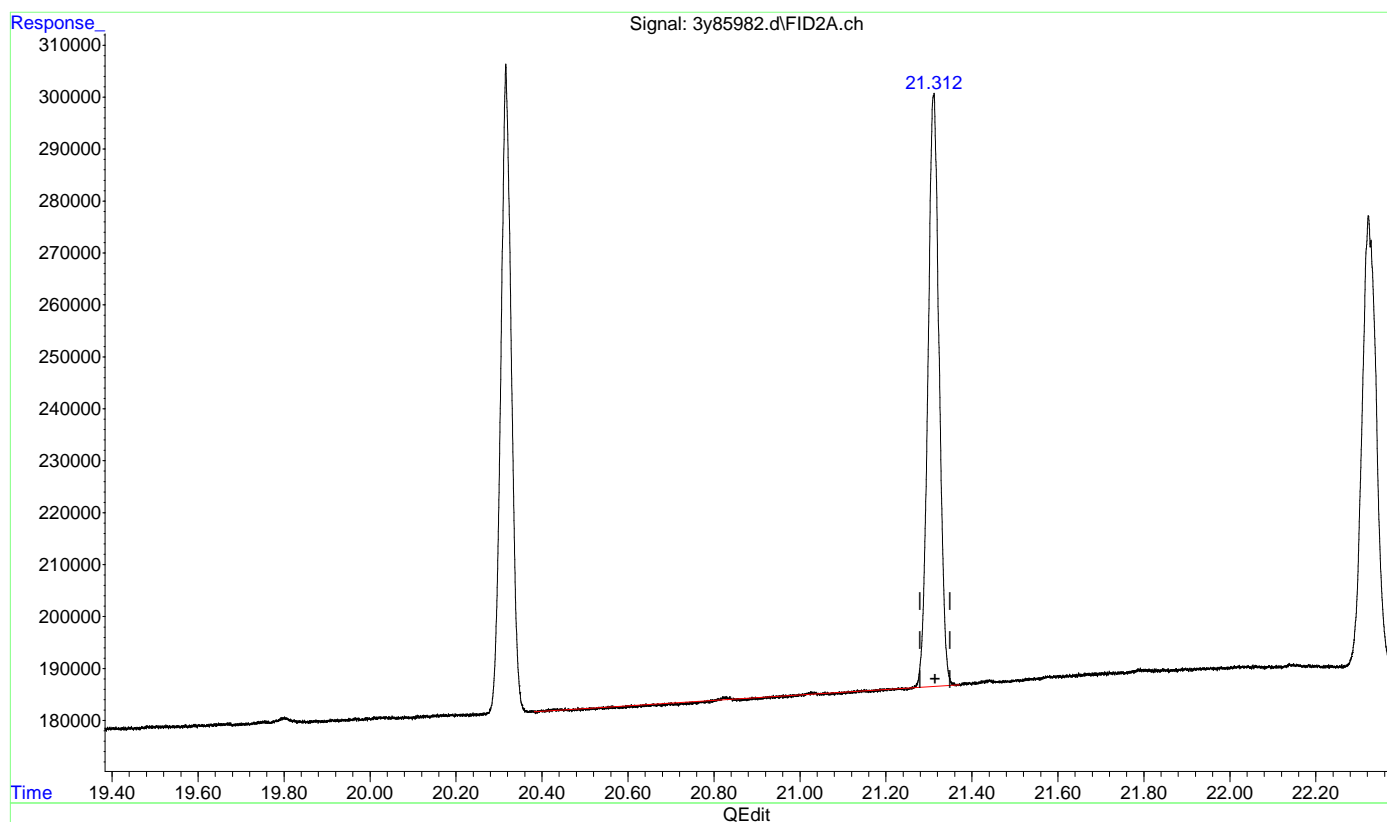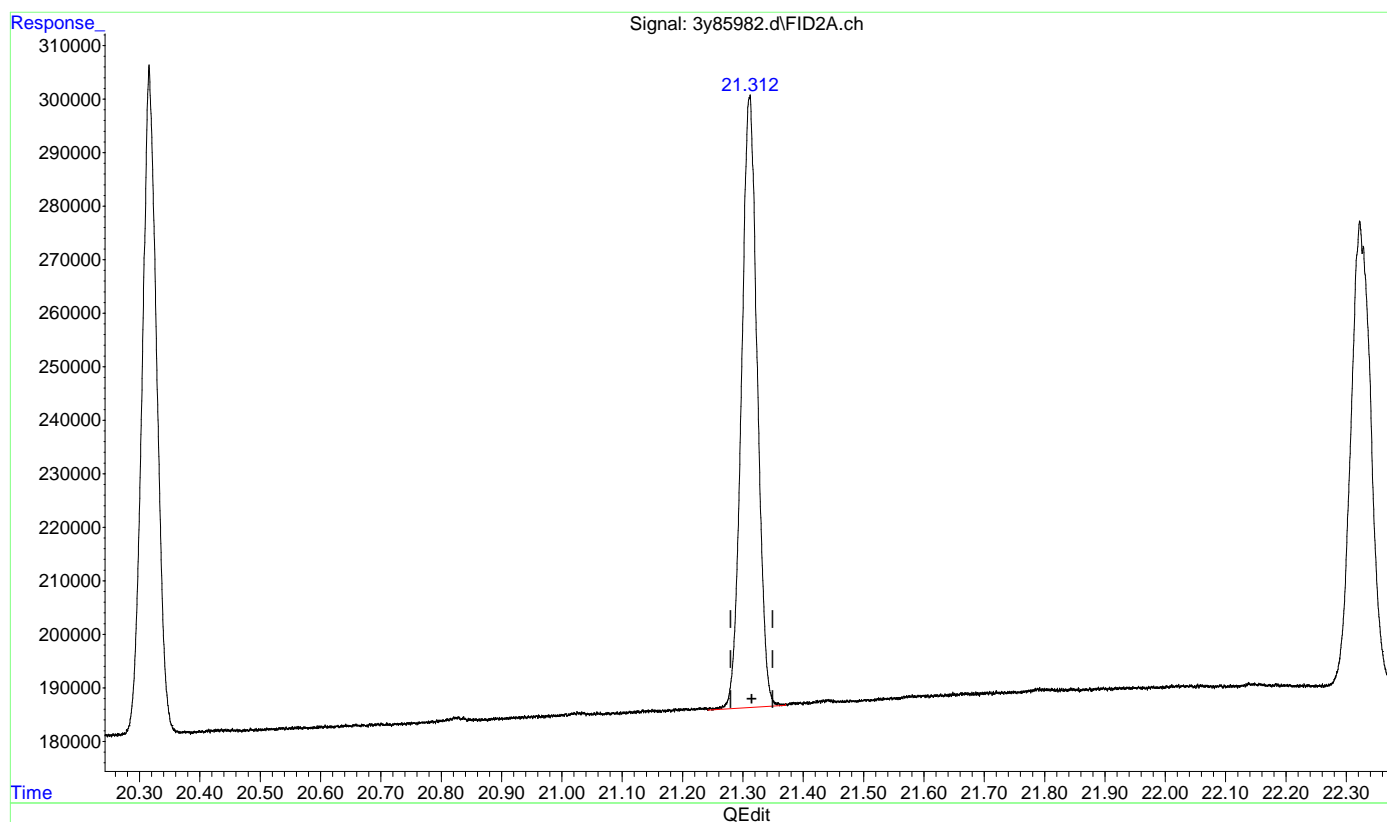
Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85983.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On   : 26 Oct 2022 10:56 pm
Operator : thomasl
Sample   : op42283-bsd
Misc   : op42283,g3y3363,1000,,,2,1
ALS Vial : 14   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:32:14 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5   Signal #2 Phase: HP5
Signal #1 Info : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

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JD53080

#1 1,2,3-Trimethylbenzene

```
        R.T.:    4.596 min
Delta R.T.:   -0.002 min
  Response:   1679283
      Conc:   2.54 ug/l
```
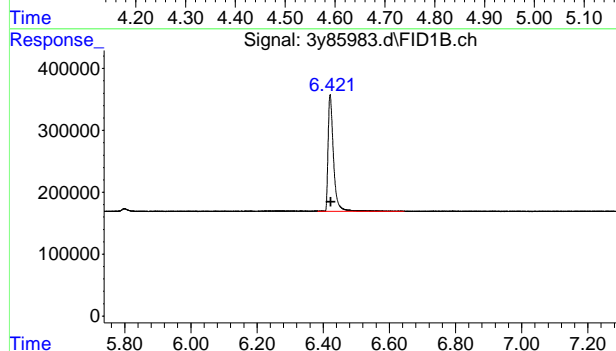
#2 Naphthalene

```
        R.T.:    6.422 min
Delta R.T.:   -0.001 min
  Response:   2134074
      Conc:   3.10 ug/L
```
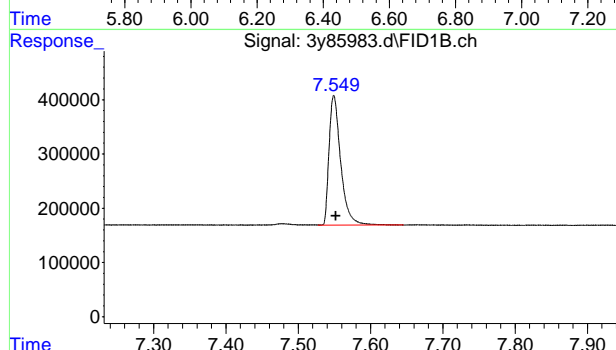
#4 2-Methylnaphthalene

```
        R.T.:    7.550 min
Delta R.T.:   -0.002 min
  Response:   2669686
      Conc:   3.95 ug/L
```
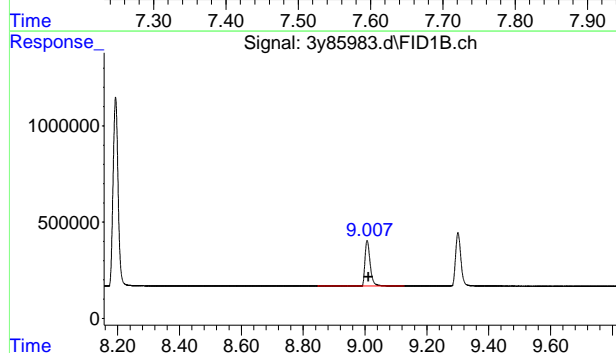
#5 Acenaphthylene

```
        R.T.:    9.007 min
Delta R.T.:   -0.004 min
  Response:   2743090
      Conc:   4.17 ug/l
```

9.3.2

9

Signal: 3y85983.d\FID1B.ch
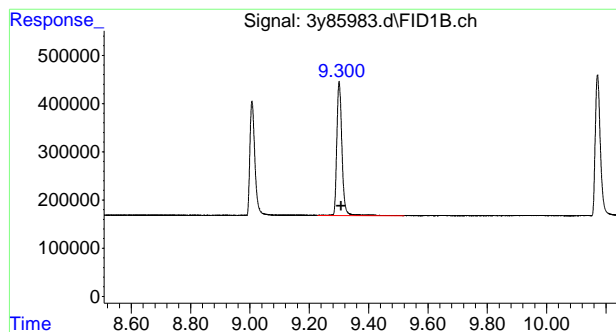
#6 Acenaphthene

R.T.:   9.301 min
Delta R.T.:   -0.007 min
Response: 3319069
Conc: 4.73 ug/l

Signal: 3y85983.d\FID1B.ch
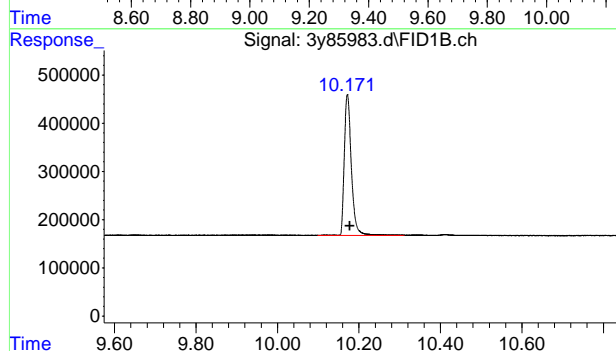
#8 Fluorene

R.T.:   10.172 min
Delta R.T.:   -0.005 min
Response: 3508777
Conc: 5.30 ug/l

Signal: 3y85983.d\FID1B.ch
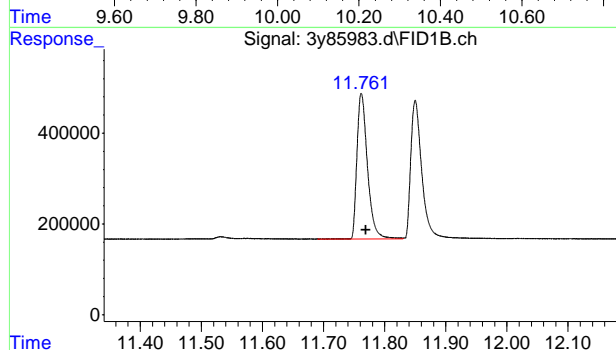
#9 Phenanthrene

R.T.:   11.762 min
Delta R.T.:   -0.006 min
Response: 3836491
Conc: 5.96 ug/l

Signal: 3y85983.d\FID1B.ch
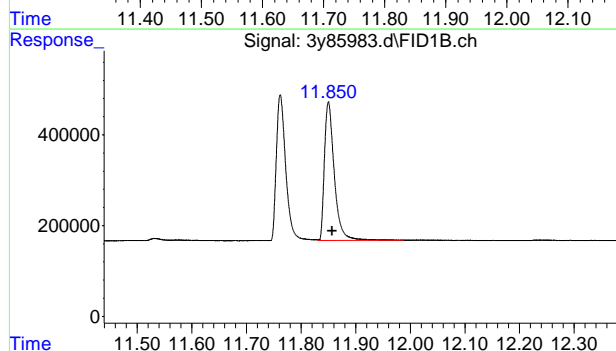
#10 Anthracene

R.T.:   11.850 min
Delta R.T.:   -0.006 min
Response: 3833523
Conc: 5.98 ug/l
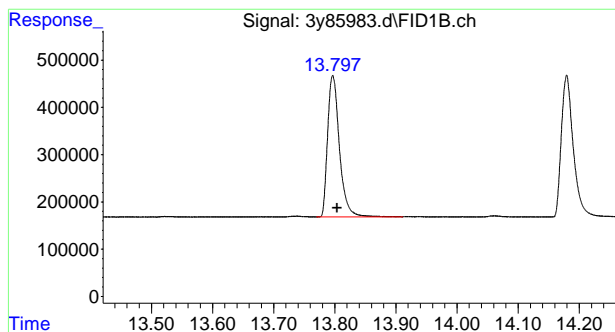
#11   Fluoranthene

```
      R.T.:    13.797 min
Delta R.T.:    -0.007 min
  Response:    4010024
      Conc:    6.43 ug/l
```
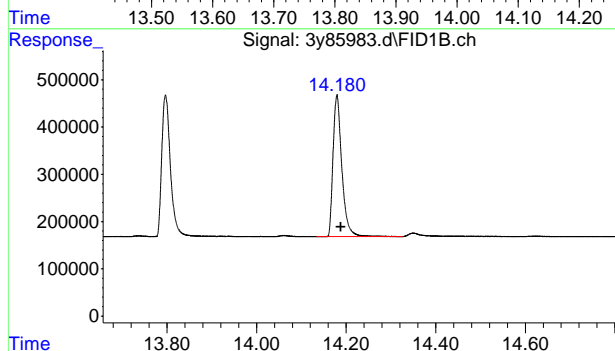

#12   Pyrene

```
      R.T.:    14.180 min
Delta R.T.:    -0.008 min
  Response:    4084728
      Conc:    6.38 ug/l
```
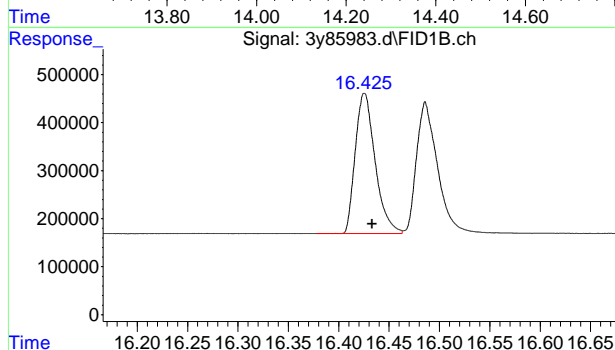

#14   Benzo(a)Anthracene

```
      R.T.:    16.426 min
Delta R.T.:    -0.008 min
  Response:    4015934
      Conc:    6.48 ug/l
```
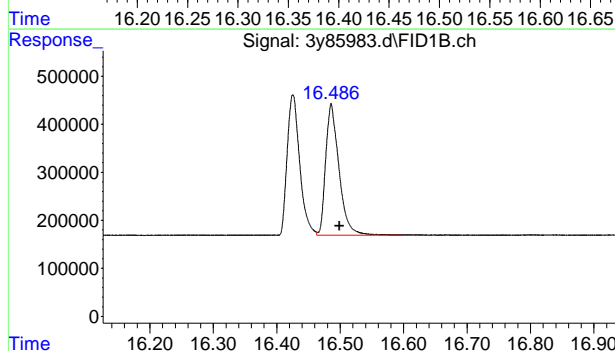

#15   Chrysene

```
      R.T.:    16.486 min
Delta R.T.:    -0.013 min
  Response:    4006572
      Conc:    6.49 ug/l
```

9.3.2

9

Signal: 3y85983.d\FID1B.ch
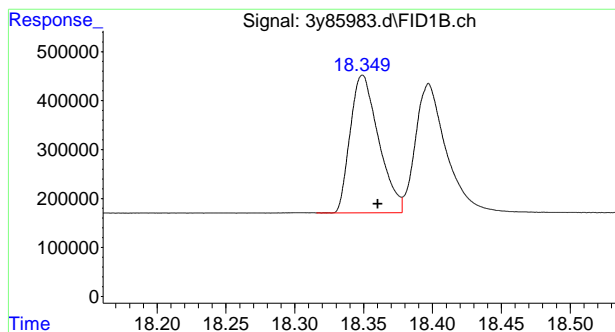
#16   Benzo(b)Fluoranthene

```
        R.T.:     18.349 min
Delta R.T.:     -0.011 min
  Response:     4037911
      Conc:     6.69 ug/l
```

Signal: 3y85983.d\FID1B.ch
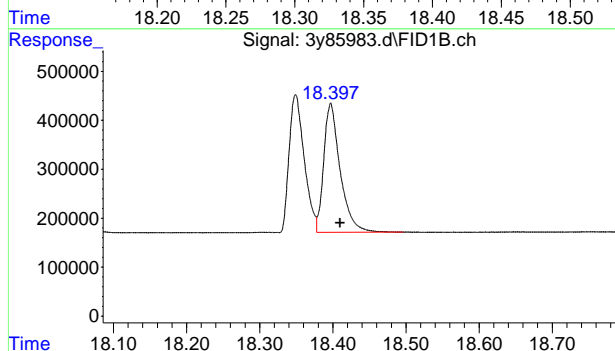
#17   Benzo(k)Fluoranthene

```
        R.T.:     18.397 min
Delta R.T.:     -0.013 min
  Response:     4113630
      Conc:     7.03 ug/l
```

Signal: 3y85983.d\FID1B.ch
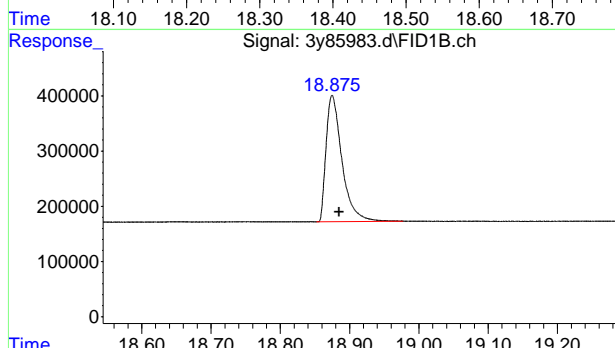
#18   Benzo(a)Pyrene

```
        R.T.:     18.875 min
Delta R.T.:     -0.010 min
  Response:     3635868
      Conc:     6.21 ug/l
```

Signal: 3y85983.d\FID1B.ch
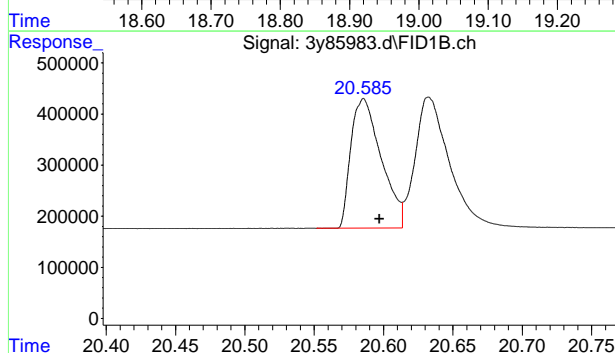
#19   Indeno(1,2,3-cd)Pyrene

```
        R.T.:     20.586 min
Delta R.T.:     -0.011 min
  Response:     3849859
      Conc:     6.64 ug/l
```

9.3.2   9
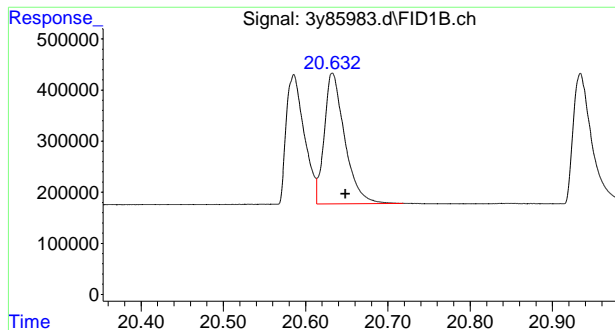
#20 Dibenzo(ah)Anthracene

```
       R.T.:    20.632 min
Delta R.T.:    -0.016 min
  Response:     4409575
      Conc:    7.06 ug/l
```
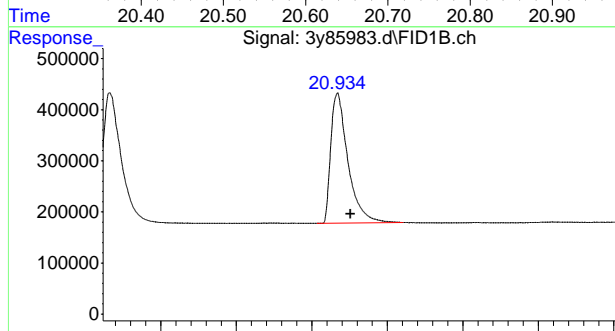

#21 Benzo(ghi)Perylene

```
       R.T.:    20.934 min
Delta R.T.:    -0.017 min
  Response:     4005174
      Conc:    6.92 ug/l
```
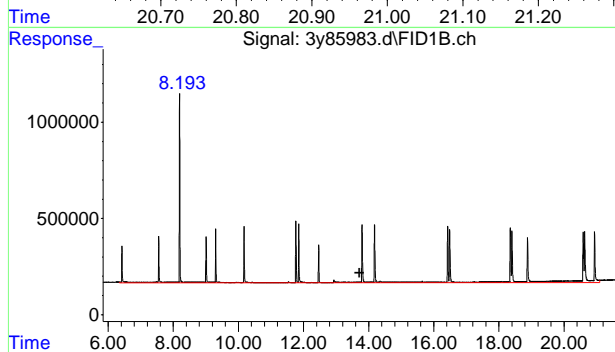

#23 C11-C22 Aromatics (Unadj.)

```
       R.T.:    13.720 min
Delta R.T.:     0.000 min
  Response:    84547803
      Conc:  133.95 ug/L
```
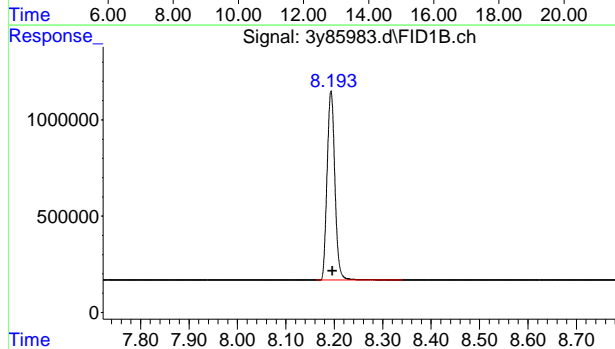

#24 2-Fluorobiphenyl (S)

```
       R.T.:     8.193 min
Delta R.T.:    -0.003 min
  Response:    10944499
      Conc:   18.74 ug/L
```
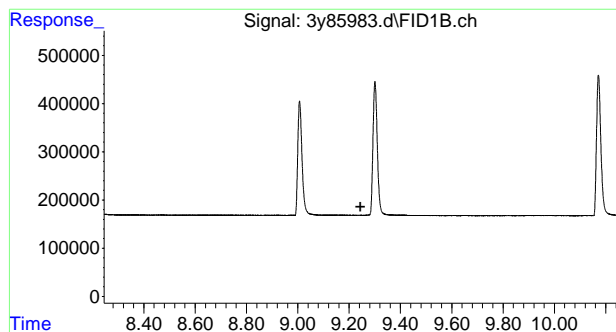
9.3.2

9

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#25 2-Bromonaphthalene (S)

```
        R.T.:     0.000 min
Exp R.T.  :     9.245 min
    Response:        0
        Conc:   N.D.
```
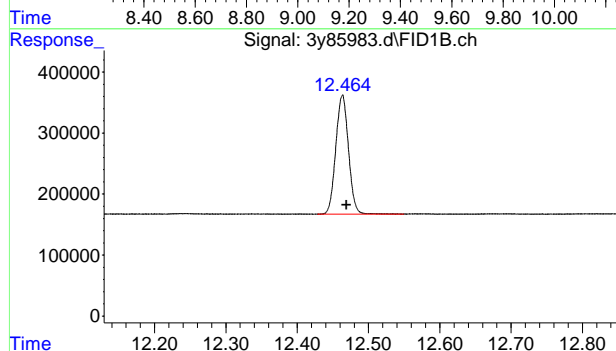
#26 o-Terphenyl (S)

```
        R.T.:    12.463 min
Delta R.T.:    -0.006 min
    Response:    2417347
        Conc:    3.79 ug/L
```
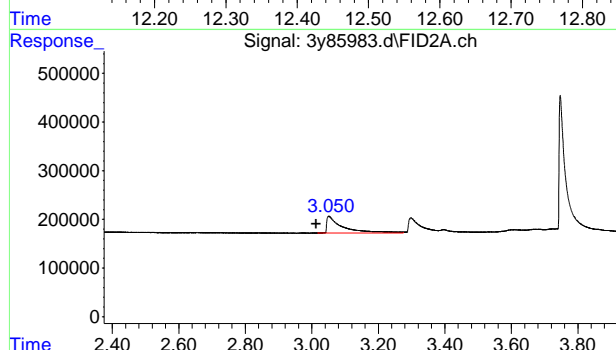
#28 C9

```
        R.T.:     3.050 min
Delta R.T.:     0.037 min
    Response:    1169555
        Conc:    1.99 ug/L m
```
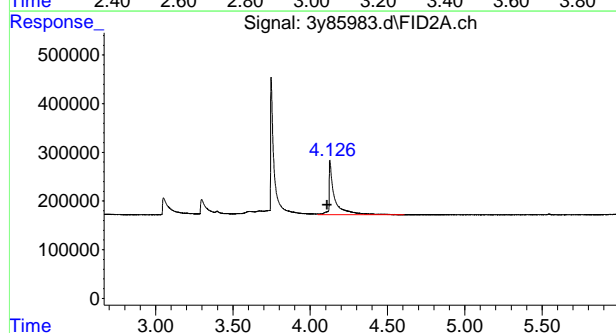
#29 C10

```
        R.T.:     4.129 min
Delta R.T.:     0.019 min
    Response:    2796337
        Conc:    4.66 ug/L
```

9.3.2

9

Signal: 3y85983.d\FID2A.ch
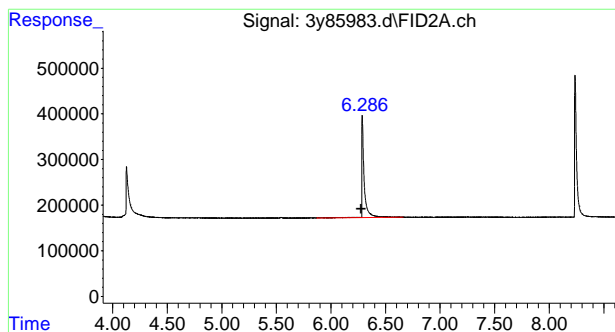
#30　C12

```
      R.T.:     6.289 min
Delta R.T.:     0.010 min
  Response:     3285582
      Conc:     5.37 ug/L
```

Signal: 3y85983.d\FID2A.ch
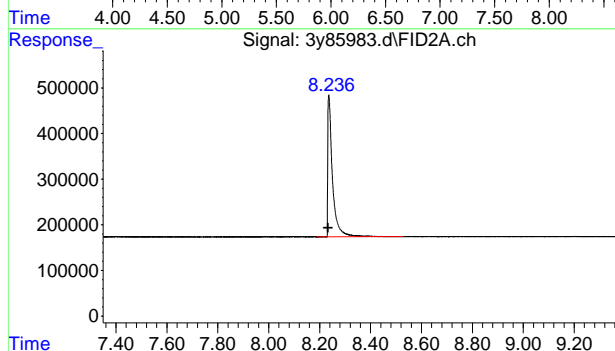
#32　C14

```
      R.T.:     8.238 min
Delta R.T.:     0.004 min
  Response:     4020999
      Conc:     6.55 ug/L
```

Signal: 3y85983.d\FID2A.ch
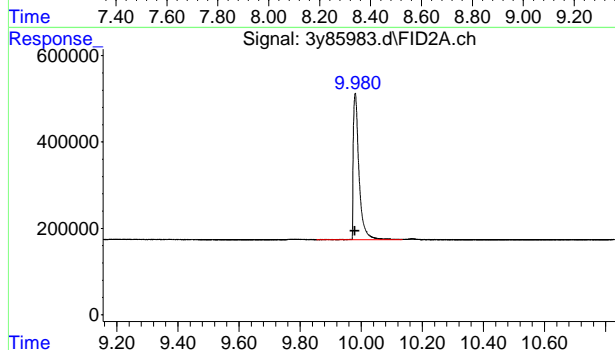
#33　C16

```
      R.T.:     9.981 min
Delta R.T.:     0.002 min
  Response:     4419573
      Conc:     7.12 ug/L
```

Signal: 3y85983.d\FID2A.ch
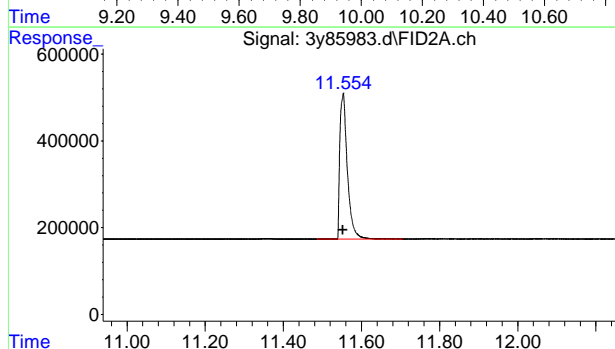
#35　C18

```
      R.T.:    11.553 min
Delta R.T.:     0.000 min
  Response:     4472038
      Conc:     7.15 ug/L
```

9.3.2

9
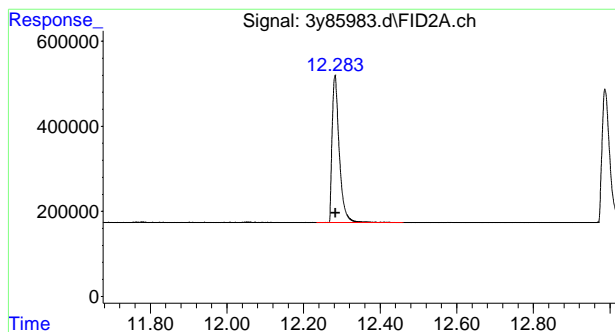
```
#36  C19
          R.T.:     12.282 min
     Delta R.T.:    -0.001 min
       Response:    4475287
          Conc:     7.09 ug/L
```
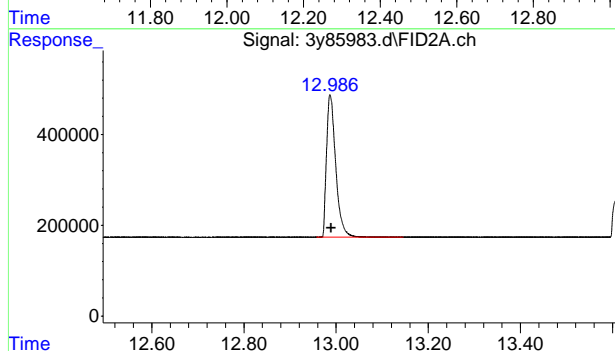


```
#37  C20
          R.T.:     12.988 min
     Delta R.T.:    -0.001 min
       Response:    4347622
          Conc:     7.00 ug/L
```
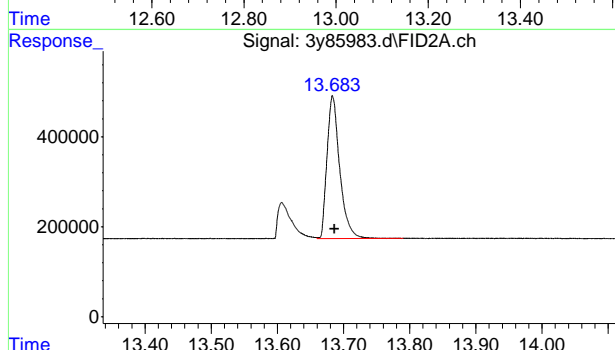


```
#38  C21
          R.T.:     13.684 min
     Delta R.T.:    -0.002 min
       Response:    4232392
          Conc:     6.86 ug/L
```
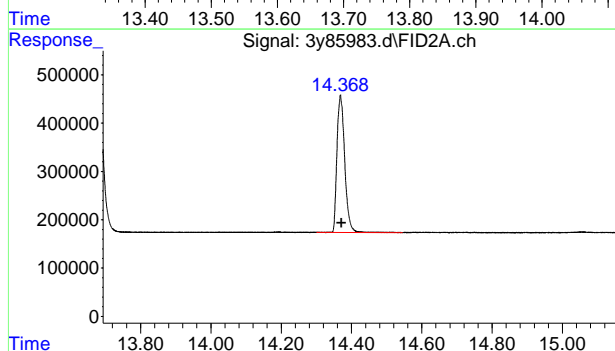


```
#40  C22
          R.T.:     14.369 min
     Delta R.T.:    -0.002 min
       Response:    4335823
          Conc:     7.04 ug/L
```

9.3.2

9

3Y85983.D: OP42283-BSD Blank Spike Duplicate   page 10 of 14

Signal: 3y85983.d\FID2A.ch
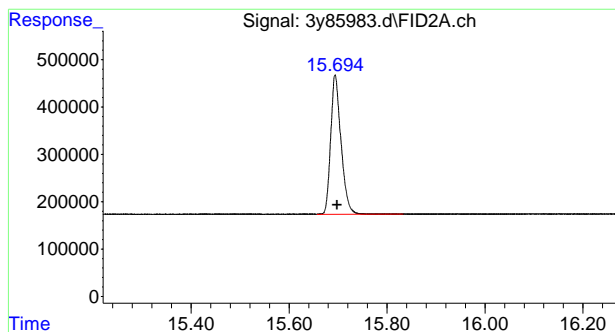
#41   C24

R.T.:	15.695 min
Delta R.T.:	-0.004 min
Response:	4305315
Conc:	7.18 ug/L

Signal: 3y85983.d\FID2A.ch
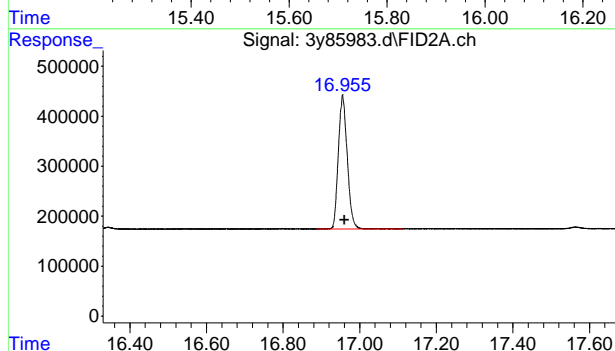
#42   C26

R.T.:	16.955 min
Delta R.T.:	-0.005 min
Response:	4319828
Conc:	7.38 ug/L

Signal: 3y85983.d\FID2A.ch
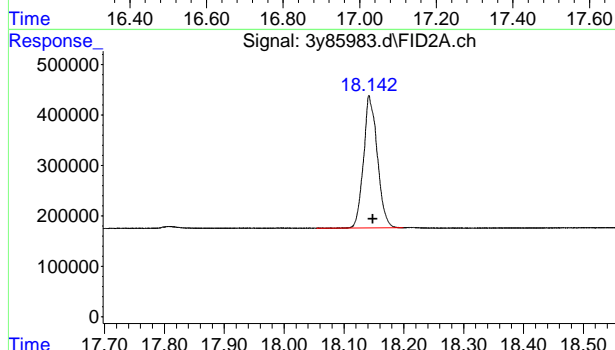
#43   C28

R.T.:	18.143 min
Delta R.T.:	-0.005 min
Response:	4185500
Conc:	7.41 ug/L

Signal: 3y85983.d\FID2A.ch
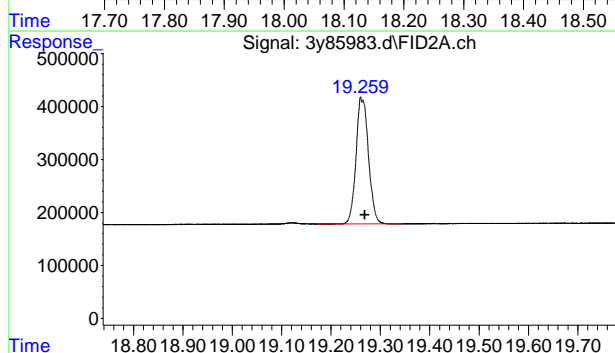
#44   C30

R.T.:	19.263 min
Delta R.T.:	-0.005 min
Response:	4169252
Conc:	7.51 ug/L

9.3.2

9
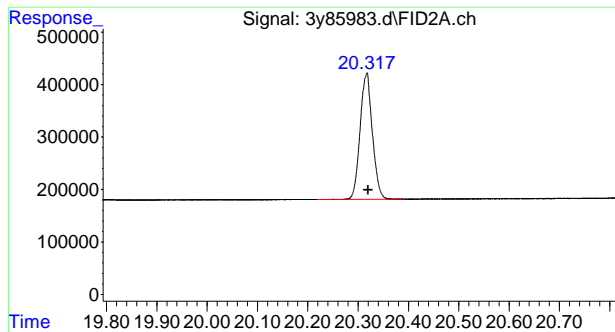
#45 C32

```
      R.T.:   20.317 min
Delta R.T.:   -0.003 min
  Response:   4072118
      Conc:   7.45 ug/L
```
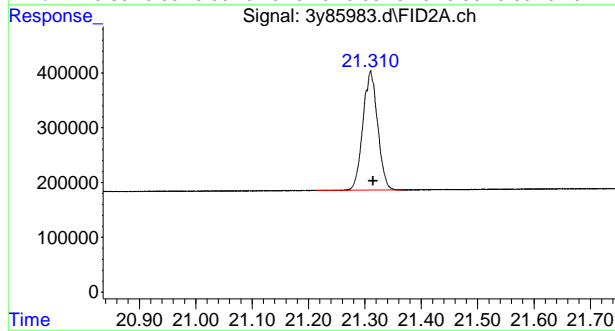
#46 C34

```
      R.T.:   21.310 min
Delta R.T.:   -0.004 min
  Response:   3942066
      Conc:   7.52 ug/L
```
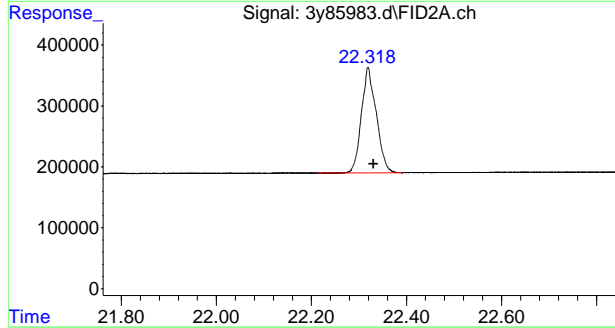
#47 C36

```
      R.T.:   22.319 min
Delta R.T.:   -0.011 min
  Response:   3755830
      Conc:   7.16 ug/L
```
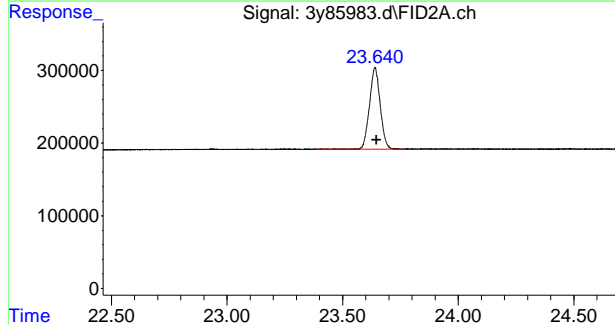
#48 C38

```
      R.T.:   23.640 min
Delta R.T.:   -0.006 min
  Response:   3615506
      Conc:   7.03 ug/L
```

9.3.2

9
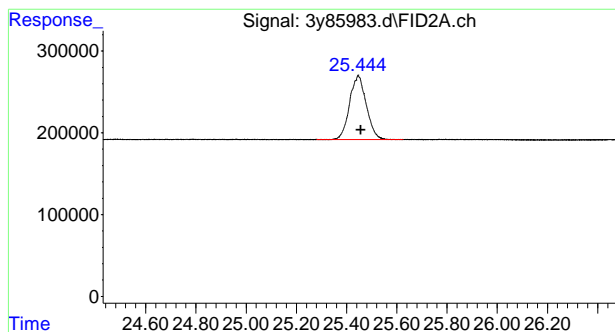
#49 C40

```
       R.T.:    25.446 min
Delta R.T.:    -0.010 min
   Response:    3597384
       Conc:    6.86 ug/L
```
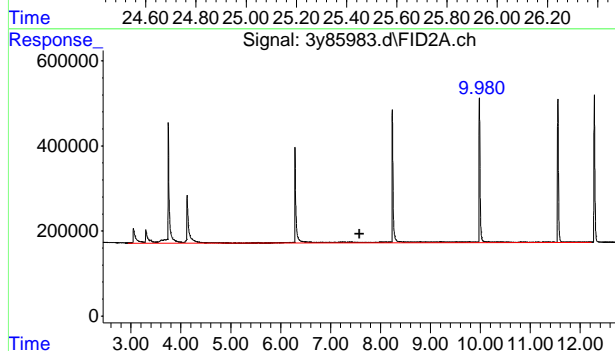
#51 C9-C18 Aliphatics

```
       R.T.:     7.580 min
Delta R.T.:     0.000 min
   Response:    31646128
       Conc:    51.85 ug/L
```
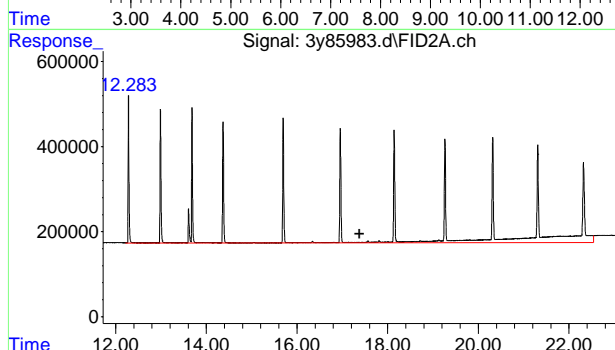
#52 C19-C36 Aliphatics

```
       R.T.:    17.380 min
Delta R.T.:     0.000 min
   Response:    70545939
       Conc:   120.13 ug/L
```
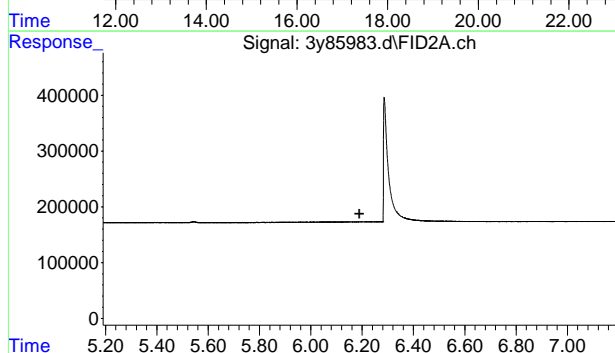
#53 Naphthalene (S)
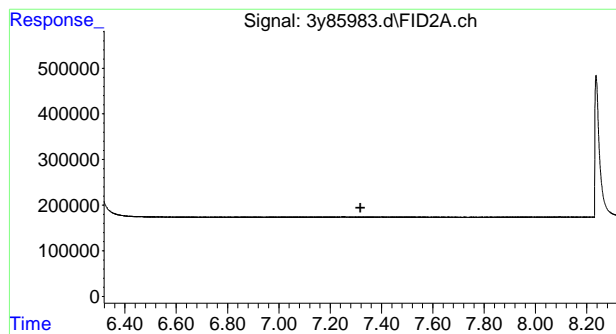
```
       R.T.:     0.000 min
Exp R.T.  :     6.190 min
   Response:        0
       Conc:    N.D.
```

3Y85983.D: OP42283-BSD Blank Spike Duplicate   page 13 of 14

9.3.2

9

#54 2-Methylnaphthalene (S)

```
        R.T.:      0.000 min
Exp R.T.  :      7.318 min
  Response:           0
      Conc:   N.D.
```
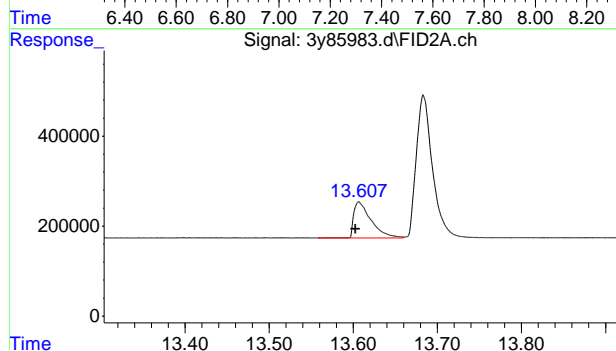
#55 1-Chlorooctadecane (S)

```
        R.T.:     13.608 min
Delta R.T.:      0.005 min
  Response:      1140372
      Conc:     2.17 ug/L
```

Manual Integration Approval Summary

Sample Number:	OP42283-BSD	**Method:**
Lab FileID:	3Y85983.D	**Analyst approved:**
Injection Time:	10/26/22 22:56	**Supervisor approved:**

Sample Number: OP42283-BSD **Method:** MADEP EPH REV 2.1
Lab FileID: 3Y85983.D **Analyst approved:** 10/28/22 04:45 MaryAnne Loyola
Injection Time: 10/26/22 22:56 **Supervisor approved:** 10/29/22 21:09 Gwendolyn Burns

Parameter	CAS	Sig#	R.T. (min.)	Reason
C9		2	3.05	Poorly defined baseline

9.3.2.1

9

SGS

JD53080

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85983.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022  10:56 pm
Operator  : thomasl
Sample    : op42283-bsd
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:05:29 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


Signal: 3y85983.d\FID2A.ch

QEdit

(28) C9 (T)

3.013min   0.000 ug/L

response 0

(+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 07:31:37 2022

Page: 1

9.3.2.2

9

3Y85983.D edits: C9

```
                              Quantitation Report (Qedit)

    Data Path : C:\msdchem\1\data\maryannl\g3y3363\
    Data File : 3y85983.d
    Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
    Acq On    : 26 Oct 2022  10:56 pm
    Operator  : thomasl
    Sample    : op42283-bsd
    Misc      : op42283,g3y3363,1000,,,2,1
    ALS Vial  : 14    Sample Multiplier: 1

    Integration File signal 1: autoint1.e
    Integration File signal 2: autoint2.e
    Quant Time: Oct 28 07:05:29 2022
    Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
    Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
    QLast Update : Fri Oct 28 06:38:11 2022
    Response via : Initial Calibration
    Integrator: ChemStation

    Volume Inj.   : 1ul/col
    Signal #1 Phase : HP5              Signal #2 Phase: HP5
    Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```



```
    (28)  C9 (T)

    3.050min   1.986 ug/L m

    response  1169555
```

3Y85983.D edits: C9

Side margin: 9.3.2.3   9

```
                       Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85985.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 27 Oct 2022  12:10 am
Operator  : thomasl
Sample    : op42283-ms
Misc      : op42283,g3y3363,1030,,,2,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:41:08 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


          Compound                  R.T.      Response    Conc Units
        -----------------------------------------------------------------------

  System Monitoring Compounds
24) S    2-Fluorobiphenyl (S)       8.193     11385664   19.493 ug/L
26) S    o-Terphenyl  (S)          12.463      2119903    3.325 ug/L
55) S    1-Chlorooctadecane (S)    13.610       846180    1.608 ug/L

  Target Compounds
 1) T    1,2,3-Trimethylbenzene     4.596      1111287    1.680 ug/l
 2) T    Naphthalene                6.422      1483344    2.155 ug/L
 4) T    2-Methylnaphthalene        7.550      1854067    2.745 ug/L
 5) T    Acenaphthylene             9.008      2063822    3.134 ug/l
 6) T    Acenaphthene               9.301      2446021    3.484 ug/l
 8) T    Fluorene                  10.171      2718431    4.103 ug/l
 9) T    Phenanthrene              11.763      3063303    4.757 ug/l
10) T    Anthracene                11.850      3122932    4.873 ug/l
11) T    Fluoranthene              13.798      3341291    5.356 ug/l
12) T    Pyrene                    14.179      3341499    5.220 ug/l
14) T    Benzo(a)Anthracene        16.426      3349466    5.407 ug/l
15) T    Chrysene                  16.487      3337988    5.406 ug/l
16) T    Benzo(b)Fluoranthene      18.349      3371370    5.589 ug/l
17) T    Benzo(k)Fluoranthene      18.396      3450081    5.897 ug/l
18) T    Benzo(a)Pyrene            18.876      3039465    5.188 ug/l
19) T    Indeno(1,2,3-cd)Pyrene    20.586      3161732    5.453 ug/l
20) T    Dibenzo(ah)Anthracene     20.634      3662041    5.860 ug/l
21) T    Benzo(ghi)Perylene        20.935      3281931    5.669 ug/l
23) H    C11-C22 Aromatics (Un...  13.720     77893072  123.403 ug/L
51) H    C9-C18 Aliphatics          7.580     25353712   41.541 ug/L
52) H    C19-C36 Aliphatics        17.380     63939751  108.882 ug/L
        -----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                          (m)=manual int.
```

9.4.1

9

EPH3Y3347.M Fri Oct 28 08:37:05 2022   Page: 1

SGS

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85985.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 27 Oct 2022  12:10 am
Operator  : thomasl
Sample    : op42283-ms
Misc      : op42283,g3y3363,1030,,,2,1
ALS Vial  : 16   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:41:08 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5             Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


EPH3Y3347.M Fri Oct 28 08:37:05 2022

#1 1,2,3-Trimethylbenzene

```
        R.T.:     4.596 min
Delta R.T.:    -0.002 min
  Response:    1111287
      Conc:    1.68 ug/l
```
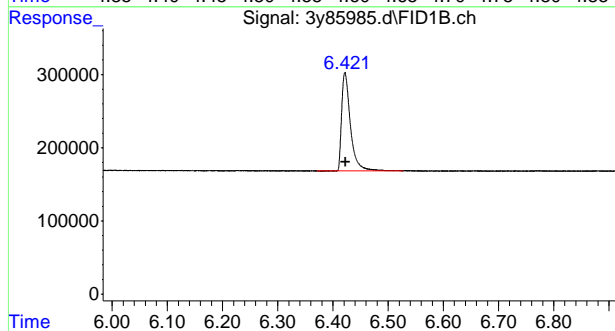
#2 Naphthalene

```
        R.T.:     6.422 min
Delta R.T.:     0.000 min
  Response:    1483344
      Conc:    2.15 ug/L
```
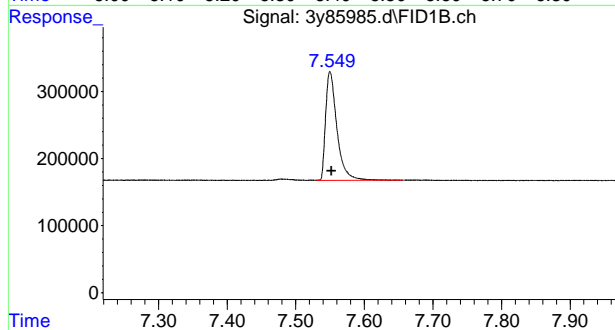
#4 2-Methylnaphthalene

```
        R.T.:     7.550 min
Delta R.T.:    -0.002 min
  Response:    1854067
      Conc:    2.75 ug/L
```
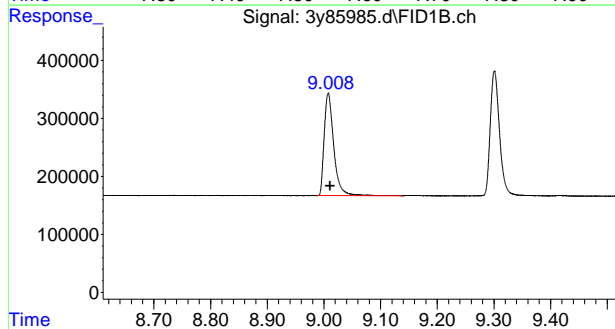
#5 Acenaphthylene

```
        R.T.:     9.008 min
Delta R.T.:    -0.003 min
  Response:    2063822
      Conc:    3.13 ug/l
```
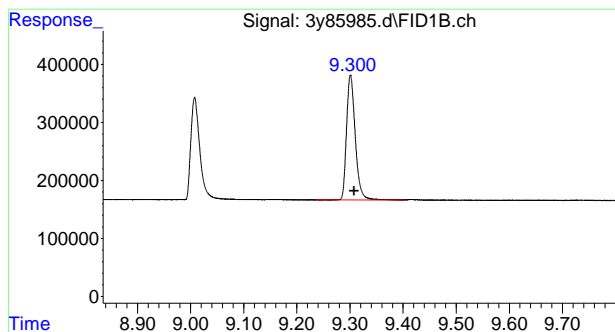
#6 Acenaphthene

```
      R.T.:    9.301 min
Delta R.T.:   -0.007 min
  Response:   2446021
      Conc:   3.48 ug/l
```
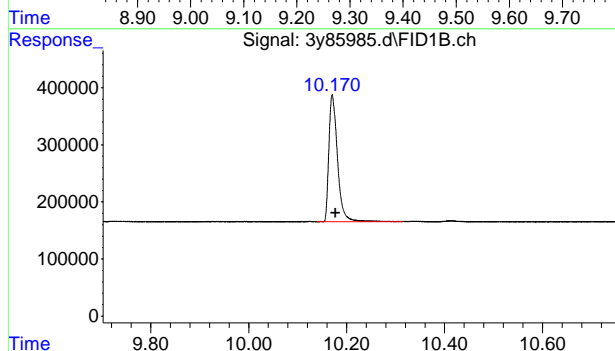
#8 Fluorene

```
      R.T.:   10.171 min
Delta R.T.:   -0.006 min
  Response:   2718431
      Conc:   4.10 ug/l
```
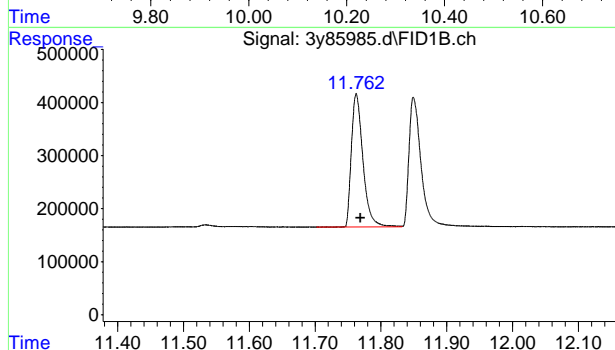
#9 Phenanthrene

```
      R.T.:   11.763 min
Delta R.T.:   -0.006 min
  Response:   3063303
      Conc:   4.76 ug/l
```
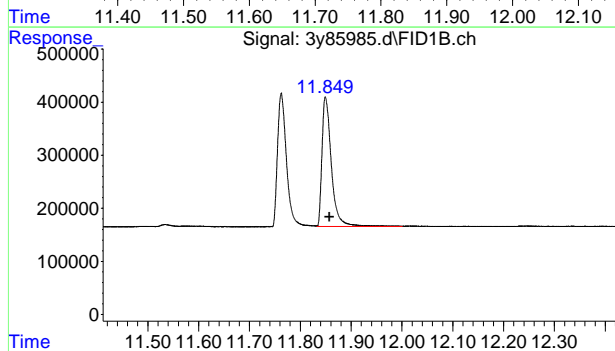
#10 Anthracene

```
      R.T.:   11.850 min
Delta R.T.:   -0.007 min
  Response:   3122932
      Conc:   4.87 ug/l
```

9.4.1

9
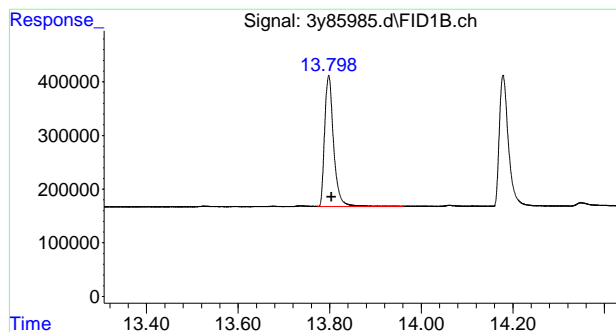
#11   Fluoranthene

```
        R.T.:    13.798 min
Delta R.T.:    -0.005 min
   Response:    3341291
       Conc:    5.36 ug/l
```
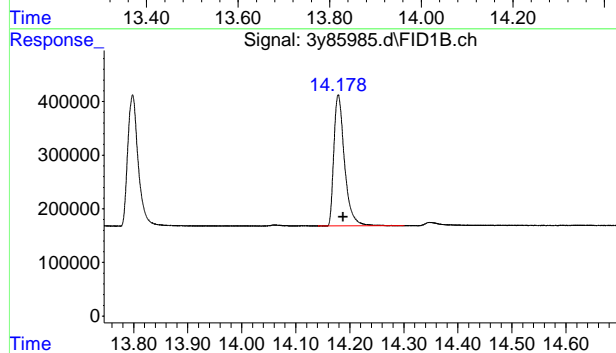
#12   Pyrene

```
        R.T.:    14.179 min
Delta R.T.:    -0.009 min
   Response:    3341499
       Conc:    5.22 ug/l
```
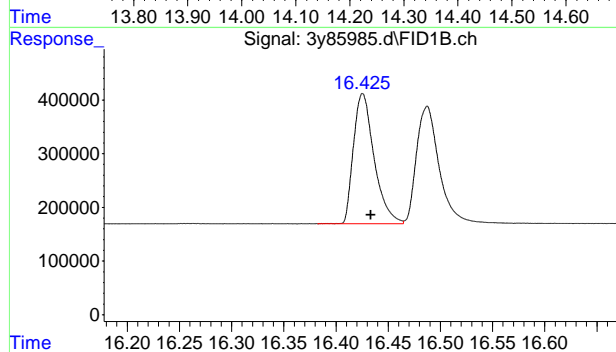
#14   Benzo(a)Anthracene

```
        R.T.:    16.426 min
Delta R.T.:    -0.008 min
   Response:    3349466
       Conc:    5.41 ug/l
```
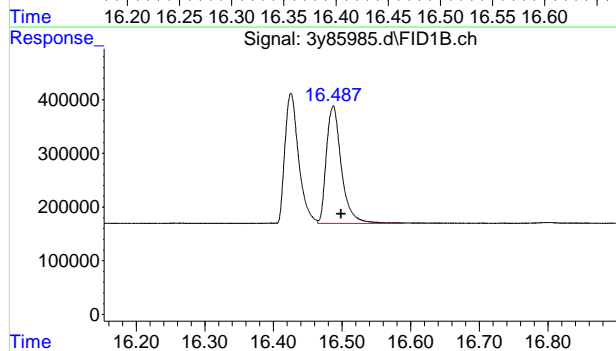
#15   Chrysene

```
        R.T.:    16.487 min
Delta R.T.:    -0.011 min
   Response:    3337988
       Conc:    5.41 ug/l
```

9.4.1

9

Signal: 3y85985.d\FID1B.ch
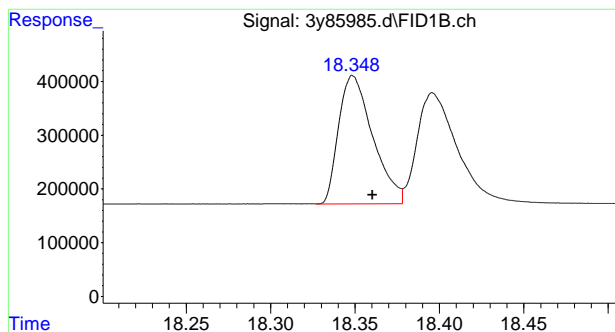
#16 Benzo(b)Fluoranthene

```
      R.T.:    18.349 min
 Delta R.T.:   -0.012 min
  Response:    3371370
      Conc:    5.59 ug/l
```

Signal: 3y85985.d\FID1B.ch
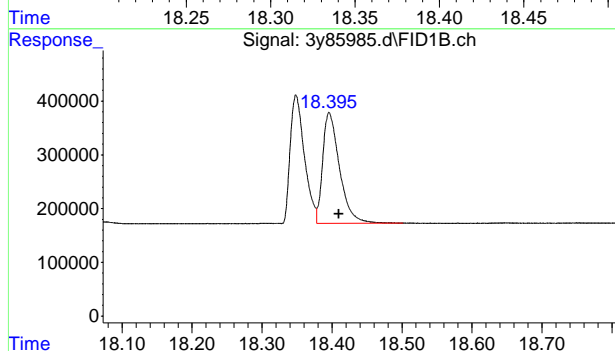
#17 Benzo(k)Fluoranthene

```
      R.T.:    18.396 min
 Delta R.T.:   -0.014 min
  Response:    3450081
      Conc:    5.90 ug/l
```

Signal: 3y85985.d\FID1B.ch
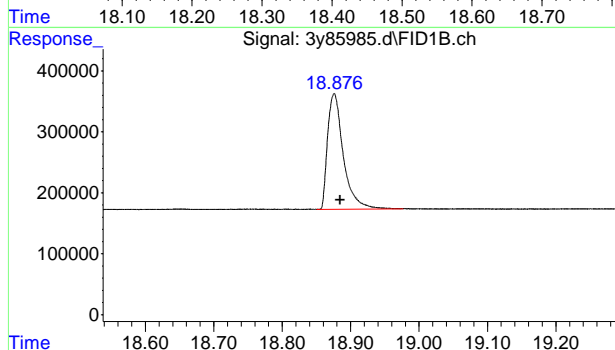
#18 Benzo(a)Pyrene

```
      R.T.:    18.876 min
 Delta R.T.:   -0.008 min
  Response:    3039465
      Conc:    5.19 ug/l
```

Signal: 3y85985.d\FID1B.ch
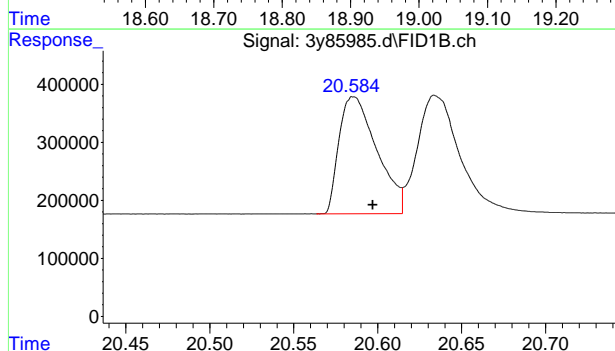
#19 Indeno(1,2,3-cd)Pyrene

```
      R.T.:    20.586 min
 Delta R.T.:   -0.011 min
  Response:    3161732
      Conc:    5.45 ug/l
```

9.4.1

9
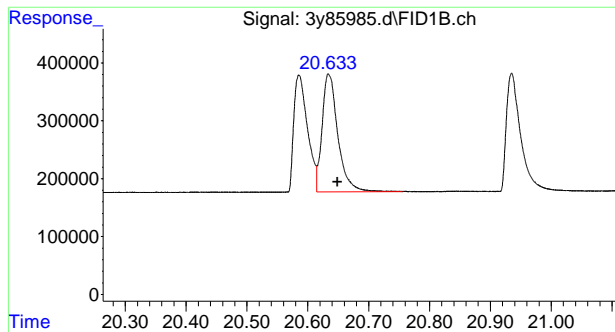
#20 Dibenzo(ah)Anthracene

```
        R.T.:    20.634 min
Delta R.T.:    -0.015 min
  Response:     3662041
      Conc:      5.86 ug/l
```
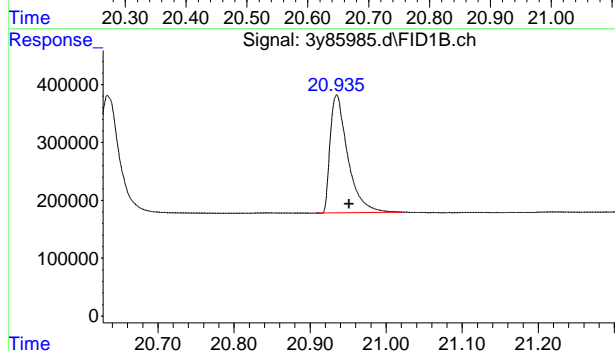

#21 Benzo(ghi)Perylene

```
        R.T.:    20.935 min
Delta R.T.:    -0.016 min
  Response:     3281931
      Conc:      5.67 ug/l
```
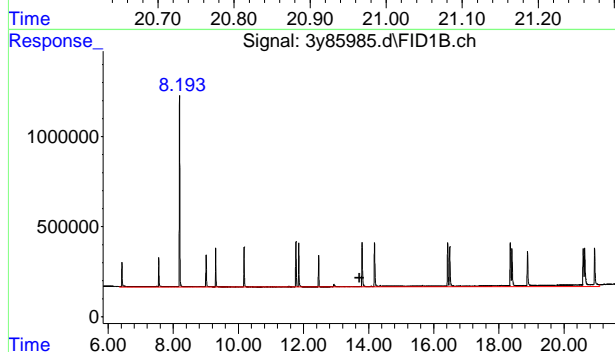

#23 C11-C22 Aromatics (Unadj.)

```
        R.T.:    13.720 min
Delta R.T.:     0.000 min
  Response:    77893072
      Conc:    123.40 ug/L
```
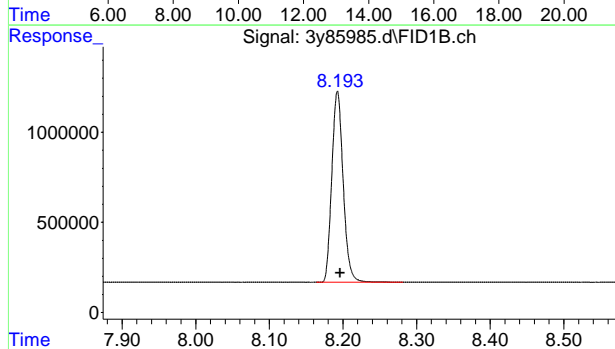

#24 2-Fluorobiphenyl (S)

```
        R.T.:     8.193 min
Delta R.T.:    -0.004 min
  Response:    11385664
      Conc:     19.49 ug/L
```
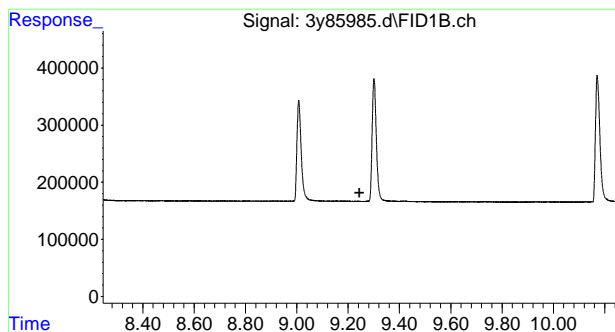
9.4.1

9

3Y85985.D: OP42283-MS Matrix Spike   page 7 of 9

#25 2-Bromonaphthalene (S)

```
         R.T.:    0.000 min
Exp R.T. :    9.245 min
    Response:         0
       Conc:   N.D.
```
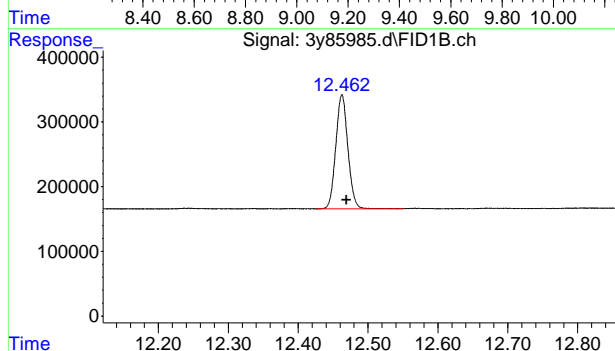
#26 o-Terphenyl (S)

```
       R.T.:   12.463 min
Delta R.T.:   -0.006 min
  Response:   2119903
      Conc:   3.33 ug/L
```
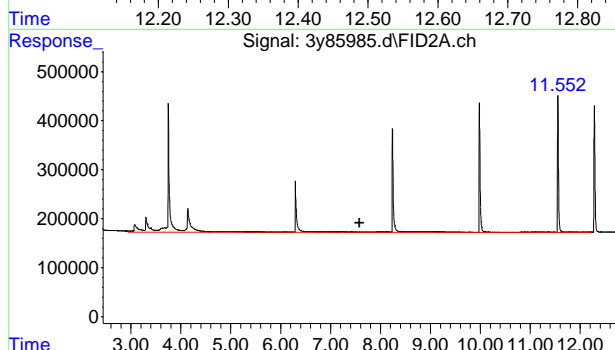
#51 C9-C18 Aliphatics

```
       R.T.:    7.580 min
Delta R.T.:    0.000 min
  Response:   25353712
      Conc:   41.54 ug/L
```
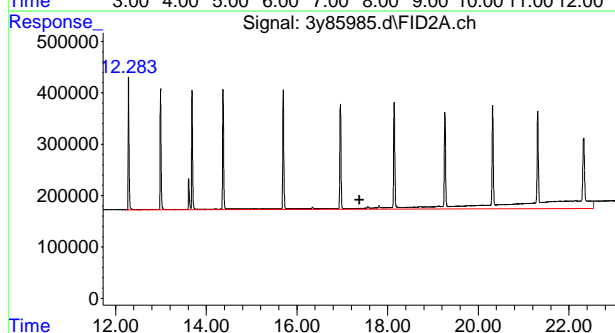
#52 C19-C36 Aliphatics

```
       R.T.:   17.380 min
Delta R.T.:    0.000 min
  Response:   63939751
      Conc: 108.88 ug/L
```
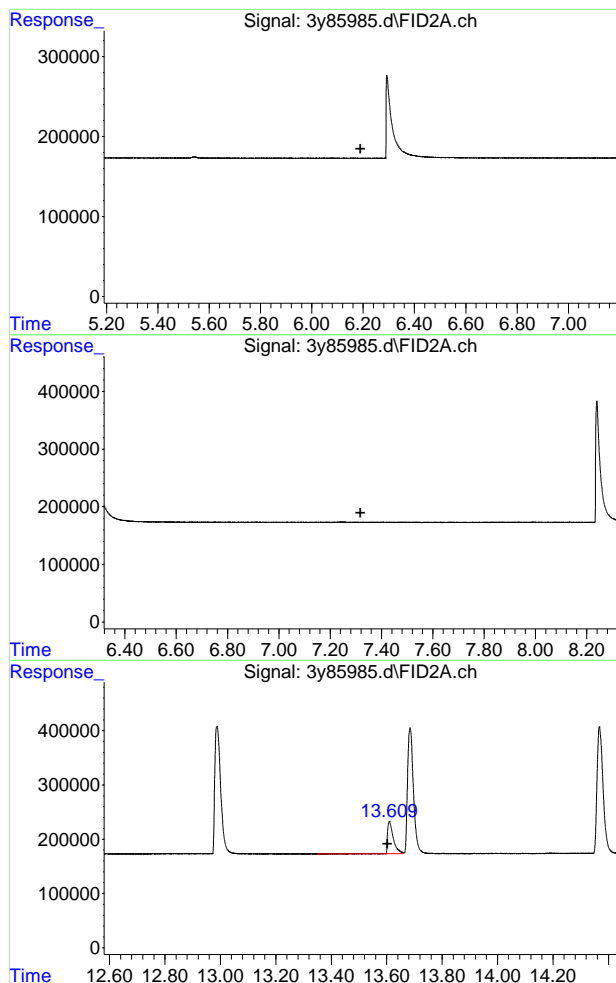
#53   Naphthalene (S)

```
        R.T.:      0.000 min
Exp R.T.  :      6.190 min
   Response:           0
        Conc:    N.D.
```

#54   2-Methylnaphthalene (S)

```
        R.T.:      0.000 min
Exp R.T.  :      7.318 min
   Response:           0
        Conc:    N.D.
```

#55   1-Chlorooctadecane (S)

```
        R.T.:     13.610 min
Delta R.T.:       0.008 min
   Response:      846180
        Conc:    1.61 ug/L
```

```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85986.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 27 Oct 2022  12:47 am
Operator  : thomasl
Sample    : op42283-msd
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 17    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:42:56 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     : 1ul/col
Signal #1 Phase : HP5                  Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


          Compound                   R.T.      Response    Conc Units
     --------------------------------------------------------------------------


  System Monitoring Compounds
 24) S   2-Fluorobiphenyl (S)       8.192      11885526   20.348 ug/L
 26) S   o-Terphenyl  (S)          12.463       1847645    2.898 ug/L
 55) S   1-Chlorooctadecane (S)    13.611        826483    1.570 ug/L

  Target Compounds
  1) T   1,2,3-Trimethylbenzene     4.596        906301    1.370 ug/l
  2) T   Naphthalene                6.422       1333241    1.937 ug/L
  4) T   2-Methylnaphthalene        7.550       1652124    2.446 ug/L
  5) T   Acenaphthylene             9.008       1881721    2.857 ug/l
  6) T   Acenaphthene               9.302       2199634    3.133 ug/l
  8) T   Fluorene                  10.172       2405444    3.630 ug/l
  9) T   Phenanthrene              11.762       2656454    4.125 ug/l
 10) T   Anthracene                11.850       2644632    4.126 ug/l
 11) T   Fluoranthene              13.798       2735182    4.385 ug/l
 12) T   Pyrene                    14.180       2763042    4.316 ug/l
 14) T   Benzo(a)Anthracene        16.425       2682839    4.331 ug/l
 15) T   Chrysene                  16.487       2686368    4.351 ug/l
 16) T   Benzo(b)Fluoranthene      18.349       2681123    4.445 ug/l
 17) T   Benzo(k)Fluoranthene      18.398       2751318    4.702 ug/l
 18) T   Benzo(a)Pyrene            18.876       2415745    4.123 ug/l
 19) T   Indeno(1,2,3-cd)Pyrene    20.587       2582268    4.454 ug/l
 20) T   Dibenzo(ah)Anthracene     20.635       2909973    4.656 ug/l
 21) T   Benzo(ghi)Perylene        20.936       2658540    4.592 ug/l
 23) H   C11-C22 Aromatics (Un...  13.720      59665921   94.526 ug/L
 51) H   C9-C18 Aliphatics          7.580      25739208   42.173 ug/L
 52) H   C19-C36 Aliphatics        17.380      56667823   96.498 ug/L
     --------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                      (m)=manual int.
```
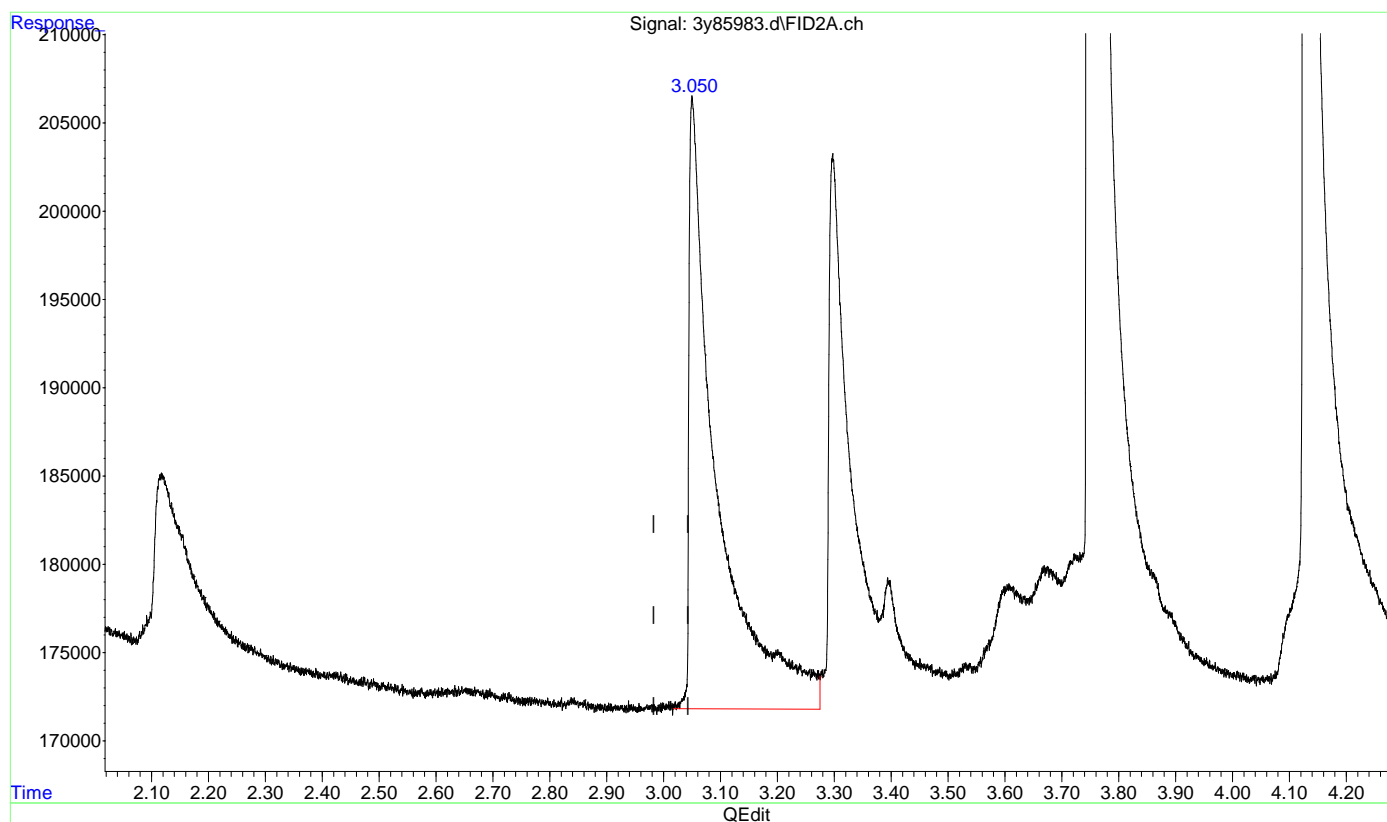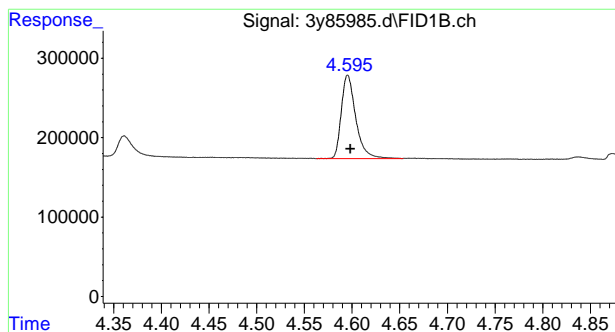
Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85986.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 27 Oct 2022  12:47 am
Operator  : thomasl
Sample    : op42283-msd
Misc      : op42283,g3y3363,1000,,,2,1
ALS Vial  : 17    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:42:56 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5             Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


EPH3Y3347.M Fri Oct 28 08:37:10 2022   Page: 2

#1 1,2,3-Trimethylbenzene

```
        R.T.:     4.596 min
Delta R.T.:    -0.002 min
  Response:     906301
      Conc:   1.37 ug/l
```
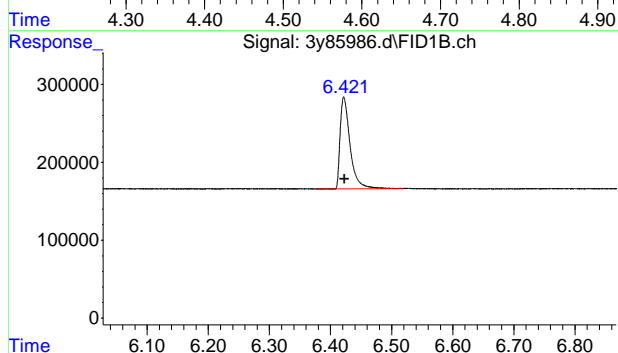
#2 Naphthalene

```
        R.T.:     6.422 min
Delta R.T.:     0.000 min
  Response:    1333241
      Conc:   1.94 ug/L
```
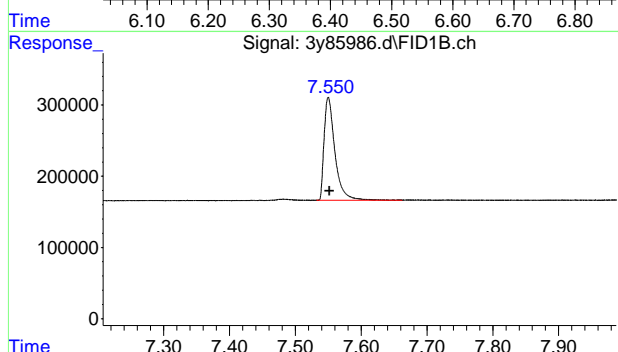
#4 2-Methylnaphthalene

```
        R.T.:     7.550 min
Delta R.T.:    -0.002 min
  Response:    1652124
      Conc:   2.45 ug/L
```
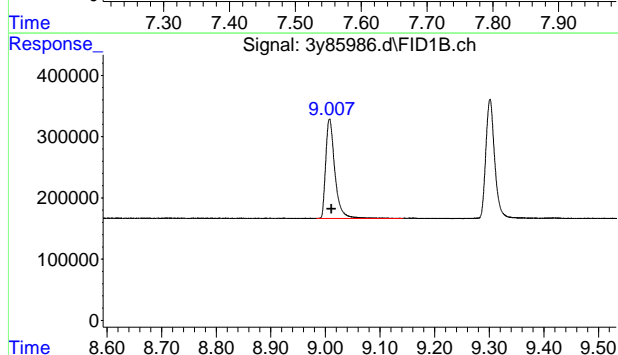
#5 Acenaphthylene

```
        R.T.:     9.008 min
Delta R.T.:    -0.003 min
  Response:    1881721
      Conc:   2.86 ug/l
```

9.4.2

9
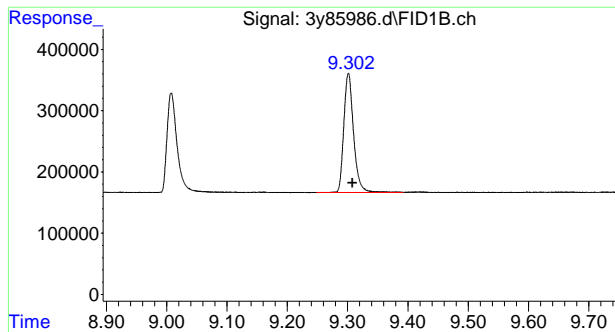
#6   Acenaphthene

        R.T.:   9.302 min
Delta R.T.:   -0.007 min
  Response: 2199634
        Conc: 3.13 ug/l
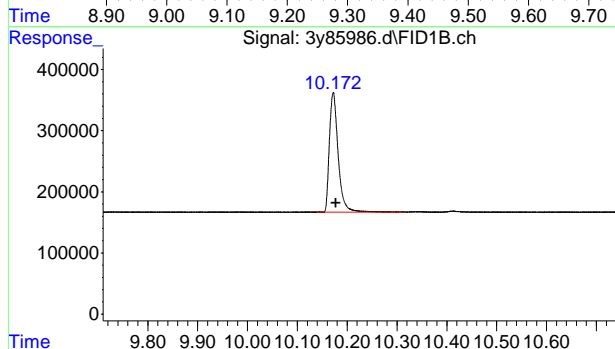
#8   Fluorene

        R.T.:   10.172 min
Delta R.T.:   -0.005 min
  Response: 2405444
        Conc: 3.63 ug/l
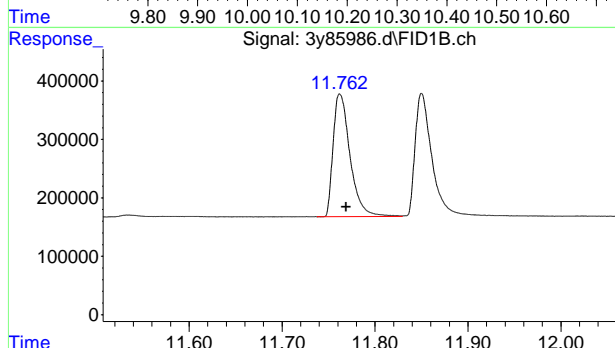
#9   Phenanthrene

        R.T.:   11.762 min
Delta R.T.:   -0.006 min
  Response: 2656454
        Conc: 4.13 ug/l
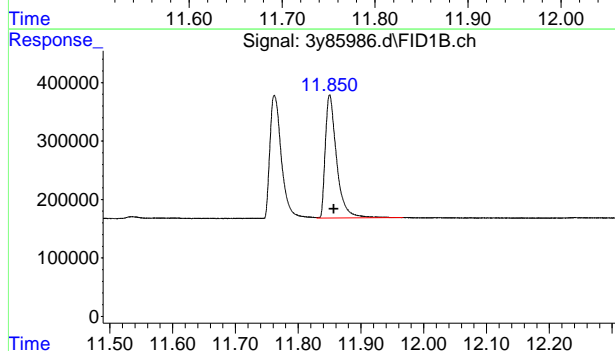
#10   Anthracene

        R.T.:   11.850 min
Delta R.T.:   -0.007 min
  Response: 2644632
        Conc: 4.13 ug/l

9.4.2

9
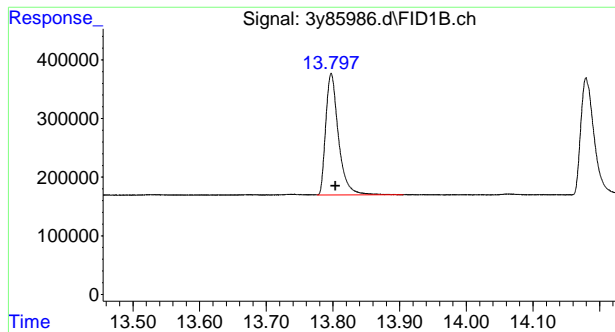
#11   Fluoranthene

R.T.:	13.798 min
Delta R.T.:	-0.006 min
Response:	2735182
Conc:	4.38 ug/l
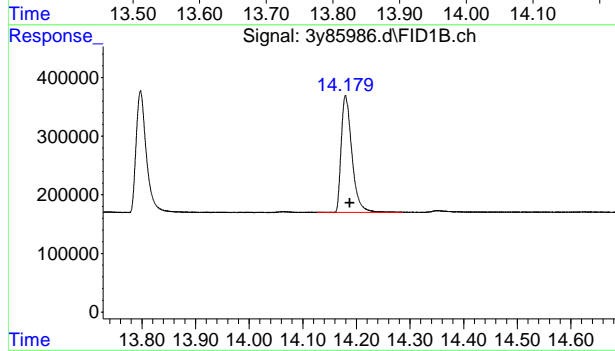
#12   Pyrene

R.T.:	14.180 min
Delta R.T.:	-0.008 min
Response:	2763042
Conc:	4.32 ug/l
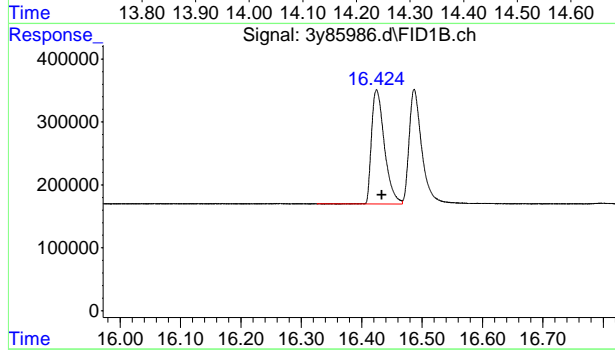
#14   Benzo(a)Anthracene

R.T.:	16.425 min
Delta R.T.:	-0.008 min
Response:	2682839
Conc:	4.33 ug/l
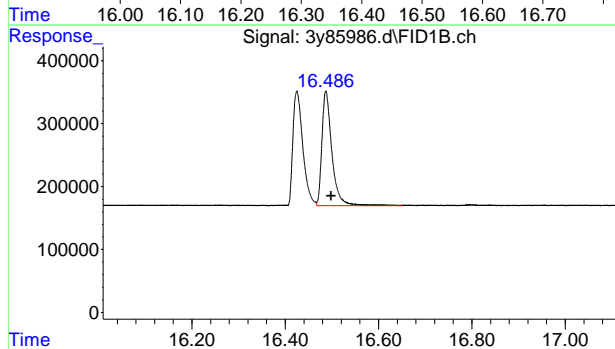
#15   Chrysene

R.T.:	16.487 min
Delta R.T.:	-0.011 min
Response:	2686368
Conc:	4.35 ug/l

9.4.2

9

Signal: 3y85986.d\FID1B.ch
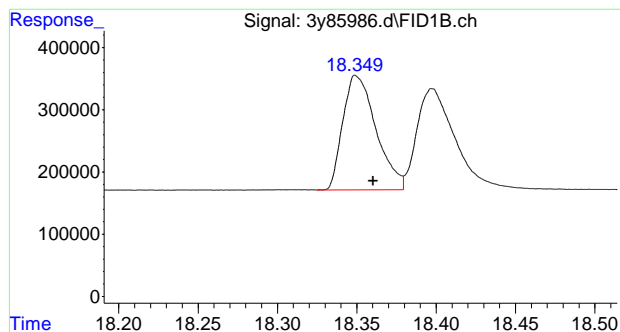
#16   Benzo(b)Fluoranthene

```
      R.T.:    18.349 min
Delta R.T.:    -0.011 min
  Response:    2681123
      Conc:    4.44 ug/l
```


Signal: 3y85986.d\FID1B.ch
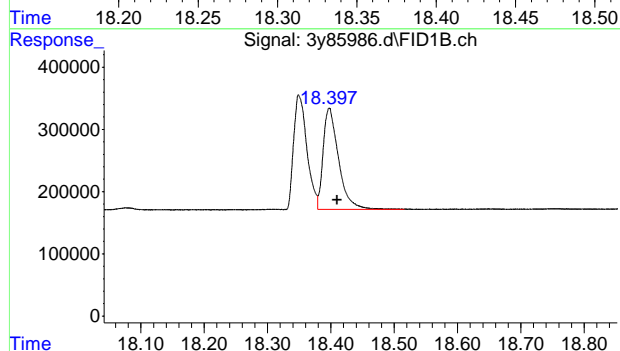
#17   Benzo(k)Fluoranthene

```
      R.T.:    18.398 min
Delta R.T.:    -0.012 min
  Response:    2751318
      Conc:    4.70 ug/l
```


Signal: 3y85986.d\FID1B.ch
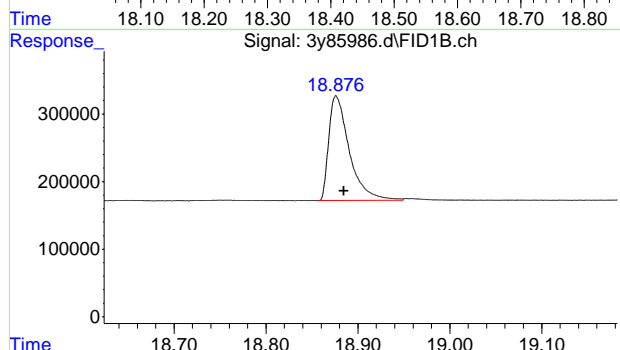
#18   Benzo(a)Pyrene

```
      R.T.:    18.876 min
Delta R.T.:    -0.008 min
  Response:    2415745
      Conc:    4.12 ug/l
```


Signal: 3y85986.d\FID1B.ch
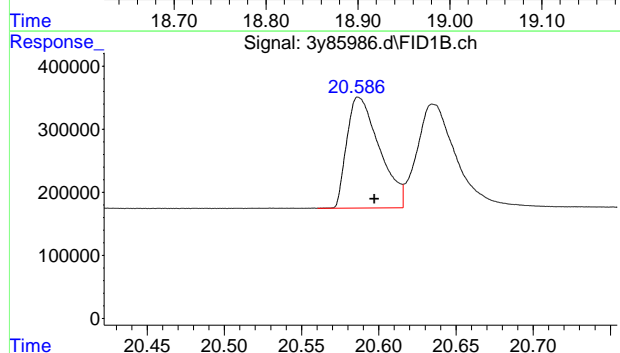
#19   Indeno(1,2,3-cd)Pyrene

```
      R.T.:    20.587 min
Delta R.T.:    -0.010 min
  Response:    2582268
      Conc:    4.45 ug/l
```

9.4.2

9
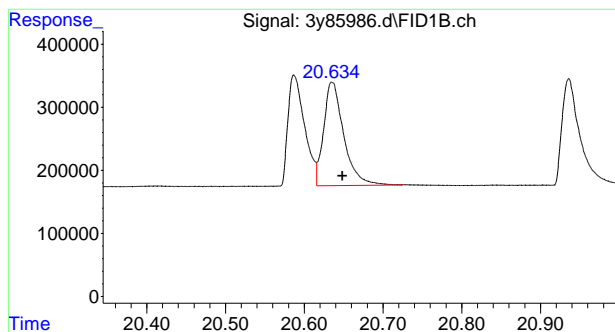
#20 Dibenzo(ah)Anthracene

```
      R.T.:   20.635 min
Delta R.T.:   -0.014 min
  Response:   2909973
      Conc:   4.66 ug/l
```
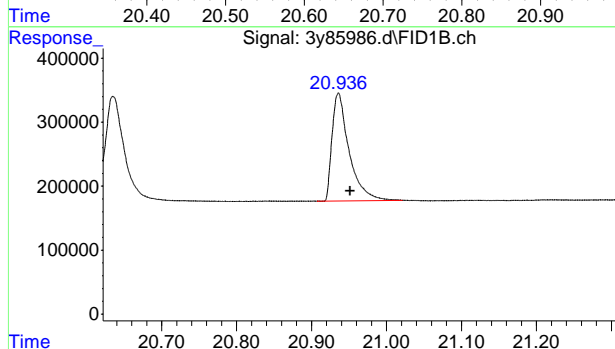
#21 Benzo(ghi)Perylene

```
      R.T.:   20.936 min
Delta R.T.:   -0.015 min
  Response:   2658540
      Conc:   4.59 ug/l
```
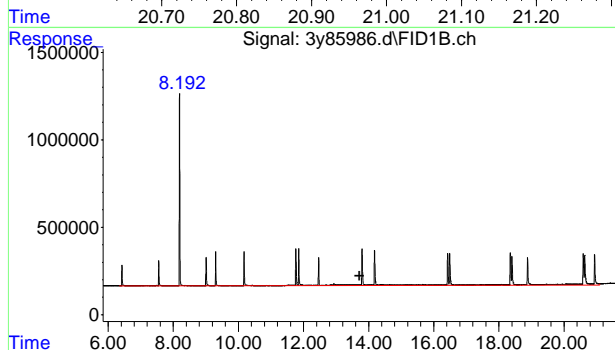
#23 C11-C22 Aromatics (Unadj.)

```
      R.T.:   13.720 min
Delta R.T.:    0.000 min
  Response:   59665921
      Conc:   94.53 ug/L
```
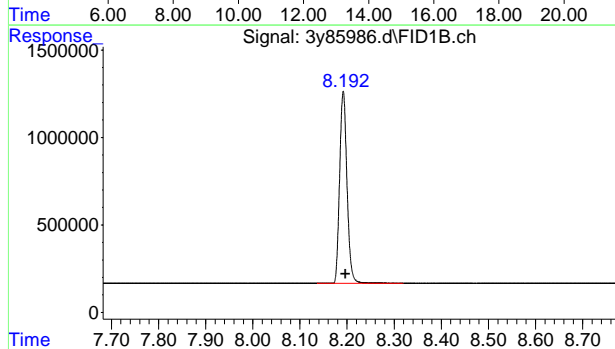
#24 2-Fluorobiphenyl (S)

```
      R.T.:    8.192 min
Delta R.T.:   -0.004 min
  Response:   11885526
      Conc:   20.35 ug/L
```
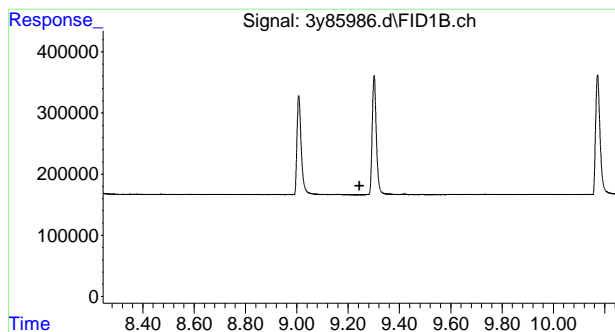
#25 2-Bromonaphthalene (S)

```
        R.T.:     0.000 min
Exp R.T.  :     9.245 min
   Response:         0
        Conc:   N.D.
```
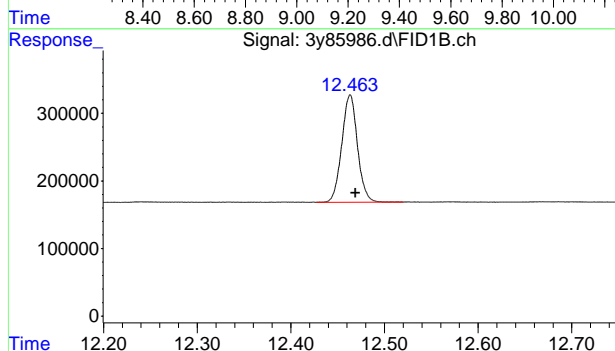

#26 o-Terphenyl (S)

```
        R.T.:    12.463 min
Delta R.T.:   -0.006 min
   Response:  1847645
        Conc:   2.90 ug/L
```
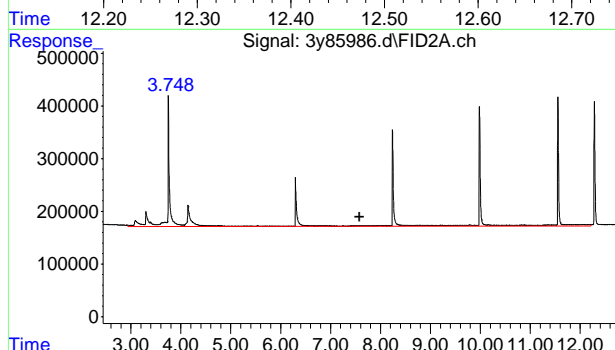

#51 C9-C18 Aliphatics

```
        R.T.:     7.580 min
Delta R.T.:     0.000 min
   Response:  25739208
        Conc:   42.17 ug/L
```
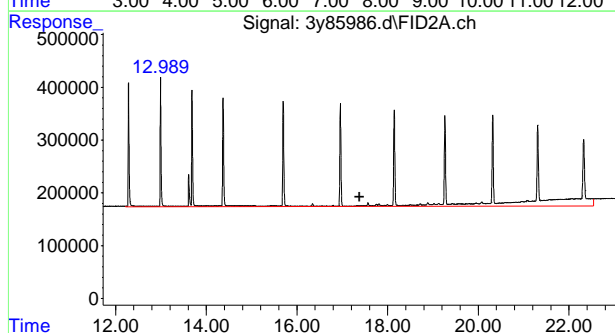

#52 C19-C36 Aliphatics

```
        R.T.:    17.380 min
Delta R.T.:     0.000 min
   Response:  56667823
        Conc:   96.50 ug/L
```
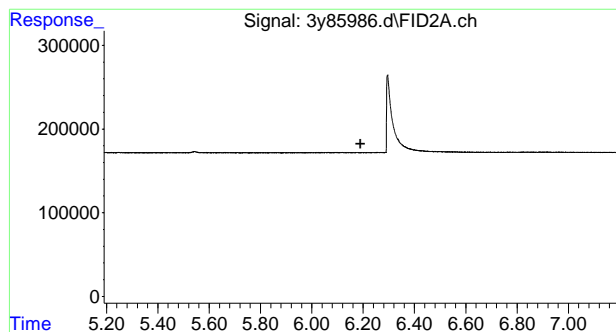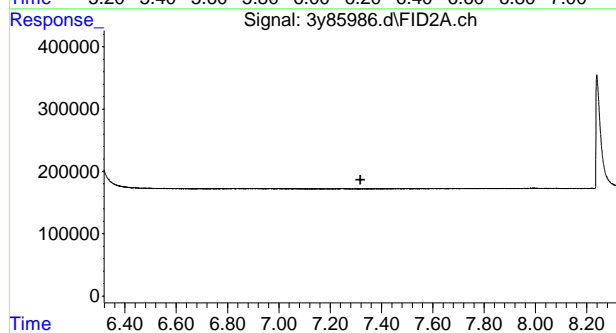
3Y85986.D: OP42283-MSD Matrix Spike Duplicate   page 8 of 9

Signal: 3y85986.d\FID2A.ch

#53 Naphthalene (S)

```
        R.T.:      0.000 min
Exp R.T.  :      6.190 min
   Response:           0
        Conc:   N.D.
```

#54 2-Methylnaphthalene (S)

```
        R.T.:      0.000 min
Exp R.T.  :      7.318 min
   Response:           0
        Conc:   N.D.
```
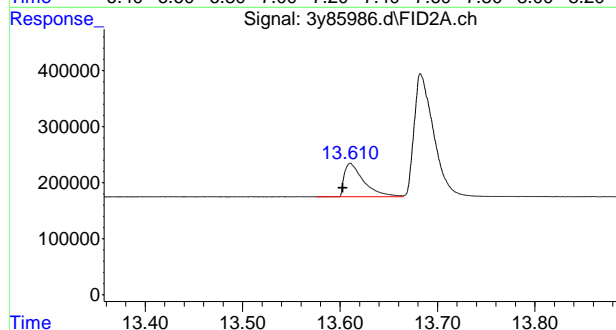
#55 1-Chlorooctadecane (S)

```
        R.T.:     13.611 min
Delta R.T.:      0.009 min
   Response:     826483
        Conc:    1.57 ug/L
```

9.4.2

9

```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85349.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022    4:44 pm
Operator  : thomasl
Sample    : ic3347-1
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 6    Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:11:43 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.     : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


          Compound                R.T.      Response    Conc Units
      --------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)      8.234       566679    1.184 ug/L
25) S   2-Bromonaphthalene (S)    9.283       392895    1.152 ug/L
26) S   o-Terphenyl  (S)         12.510       636890    1.154 ug/L
53) S   Naphthalene (S)           6.236       232409    0.420 ug/L
54) S   2-Methylnaphthalene (S)   7.364       237742    0.440 ug/L
55) S   1-Chlorooctadecane (S)   13.657       403923    0.916 ug/L


  Target Compounds
 1) T   1,2,3-Trimethylbenzene    4.632       614611    1.160 ug/l
 2) T   Naphthalene               6.460       643110    1.156 ug/L
 4) T   2-Methylnaphthalene       7.589       644427    1.205 ug/L
 5) T   Acenaphthylene            9.048       677332    1.226 ug/l
 6) T   Acenaphthene              9.343       685620    1.090 ug/l
 8) T   Fluorene                 10.213       654116    1.171 ug/l
 9) T   Phenanthrene             11.805       639564    1.168 ug/l
10) T   Anthracene               11.892       634142    1.143 ug/l
11) T   Fluoranthene             13.843       625524    1.176 ug/l
12) T   Pyrene                   14.227       644516    1.187 ug/l
14) T   Benzo(a)Anthracene       16.472       649261    1.321 ug/l
15) T   Chrysene                 16.534       628798    1.222 ug/l
16) T   Benzo(b)Fluoranthene     18.394       609965    1.246 ug/l
17) T   Benzo(k)Fluoranthene     18.443       598038    1.213 ug/l
18) T   Benzo(a)Pyrene           18.920       589642    1.241 ug/l
19) T   Indeno(1,2,3-cd)Pyrene   20.628       569358    1.223 ug/l
20) T   Dibenzo(ah)Anthracene    20.680       628025    1.291 ug/l
21) T   Benzo(ghi)Perylene       20.975       574797    1.249 ug/l
28) T   C9                        3.047       440037    0.881 ug/L
29) T   C10                       4.151       452660    0.895 ug/L
30) T   C12                       6.324       467924    0.915 ug/L
32) T   C14                       8.280       471551    0.916 ug/L
33) T   C16                      10.027       483581    0.938 ug/L
35) T   C18                      11.602       486958    0.942 ug/L
36) T   C19                      12.334       487914    0.930 ug/L
37) T   C20                      13.042       485225    0.944 ug/L
38) T   C21                      13.739       481496    0.943 ug/L
40) T   C22                      14.427       491689    0.955 ug/L
41) T   C24                      15.757       465576    0.932 ug/L
42) T   C26                      17.021       459721    0.926 ug/L
43) T   C28                      18.213       425307    0.891 ug/L
44) T   C30                      19.333       411202    0.878 ug/L
```

9.5.1

9

```
                      Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85349.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022    4:44 pm
Operator  : thomasl
Sample    : ic3347-1
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 6    Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:11:43 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


        Compound               R.T.      Response    Conc Units
  -------------------------------------------------------------------------
45) T  C32                    20.387      397570     0.876 ug/L
46) T  C34                    21.382      378118     0.865 ug/L
47) T  C36                    22.416      378463     0.868 ug/L
48) T  C38                    23.769      384600     0.898 ug/L
49) T  C40                    25.630      388037     0.894 ug/L
  -------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
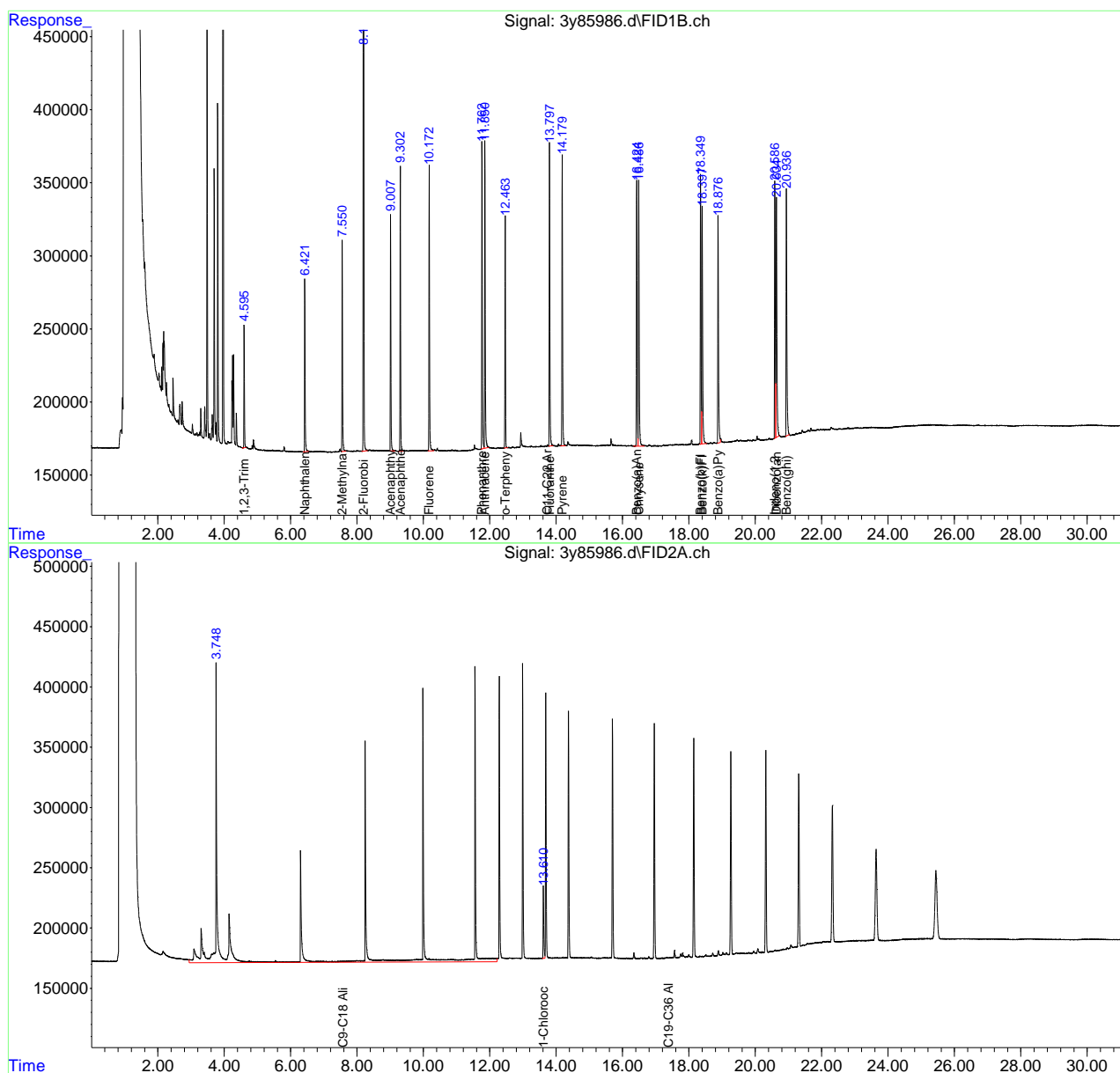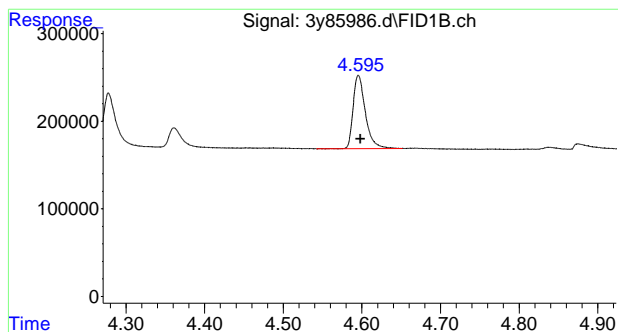
Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85349.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   4:44 pm
Operator  : thomasl
Sample    : ic3347-1
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 6    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:11:43 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5                Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um   Signal #2 Info : 30mx.32mm.x25um
```

9.5.1

9

EPH3Y3347.M Sun Sep 25 16:42:24 2022   Page: 3

C:\msdchem\1\data\g3y3347\3y85349.d

Hydrocarbon Range Total Response

	Data File Name	**3y85349.d**
	Date Acquired	**9/22/2022 16:44**
	Sample Name	**ic3347-1**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	614611
2)	Naphthalene	643110
3)	C10-C12 Aromatics	1257721
4)	2-Methylnaphthalene	644427
5)	Acenaphthylene	677332
6)	Acenaphthene	685620
7)	C12-C16 Aromatics	2007380
8)	Fluorene	654116
9)	Phenanthrene	639564
10)	Anthracene	634142
11)	Fluoranthene	625524
12)	Pyrene	644516
13)	C16-C21 Aromatics	3197863
14)	Benzo(a)Anthracene	649261
15)	Chrysene	628798
16)	Benzo(b)Fluoranthene	609965
17)	Benzo(k)Fluoranthene	598038
18)	Benzo(a)Pyrene	589642
19)	Indeno(1,2,3-cd)Pyrene	569358
20)	Dibenzo(ah)Anthracene	628025
21)	Benzo(ghi)Perylene	574797
22)	C21-C36 Aromatics	4847885
23)	C11-C22 Aromatics (Unadj.)	10696237)
27)	SIGNAL #2	0
28)	C9	440037
29)	C10	452660
30)	C12	467924
31)	C9-C12 Aliphatics	1360621
32)	C14	471551
33)	C16	483581
34)	C12-C16 Aliphatics	955131
35)	C18	486958
36)	C19	487914
37)	C20	485225
38)	C21	481496
39)	C16-C21 Aliphatics	1453679
40)	C22	491689
41)	C24	465576
42)	C26	459721
43)	C28	425307
44)	C30	411202
45)	C32	397570
46)	C34	378118
47)	C36	378463

9.5.2

9

SGS

JD53080

C:\msdchem\1\data\g3y3347\3y85349.d

48)	C38	384600.417
49)	C40	388037.375
50)	C21-C40 Aliphatics	4180283.084
51)	C9-C18 Aliphatics	2802710.308
52)	C19-C36 Aliphatics	3605096.458

9.5.2

9

SGS

JD53080

```
                       Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85350.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   5:40 pm
Operator  : thomasl
Sample    : ic3347-2
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 7   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:14:17 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                  R.T.      Response   Conc Units
    --------------------------------------------------------------------

 System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.228      1224007    2.557 ug/L
25) S   2-Bromonaphthalene (S)     9.277       853622    2.503 ug/L
26) S   o-Terphenyl  (S)          12.509      1328527    2.407 ug/L
53) S   Naphthalene (S)            6.232       671727    1.215 ug/L
54) S   2-Methylnaphthalene (S)    7.361       661219    1.225 ug/L
55) S   1-Chlorooctadecane (S)    13.660      1133400    2.572 ug/L

 Target Compounds
 1) T   1,2,3-Trimethylbenzene     4.623      1401148    2.645 ug/l
 2) T   Naphthalene                6.451      1445523    2.599 ug/L
 4) T   2-Methylnaphthalene        7.583      1405900    2.628 ug/L
 5) T   Acenaphthylene             9.042      1392382    2.521 ug/l
 6) T   Acenaphthene               9.338      1471522    2.340 ug/l
 8) T   Fluorene                  10.209      1385890    2.481 ug/l
 9) T   Phenanthrene              11.802      1346453    2.459 ug/l
10) T   Anthracene                11.889      1333341    2.402 ug/l
11) T   Fluoranthene              13.840      1301272    2.446 ug/l
12) T   Pyrene                    14.224      1330276    2.451 ug/l
14) T   Benzo(a)Anthracene        16.471      1274220    2.593 ug/l
15) T   Chrysene                  16.532      1267998    2.463 ug/l
16) T   Benzo(b)Fluoranthene      18.393      1232298    2.517 ug/l
17) T   Benzo(k)Fluoranthene      18.442      1203454    2.441 ug/l
18) T   Benzo(a)Pyrene            18.920      1190906    2.507 ug/l
19) T   Indeno(1,2,3-cd)Pyrene    20.627      1159275    2.491 ug/l
20) T   Dibenzo(ah)Anthracene     20.679      1286306    2.644 ug/l
21) T   Benzo(ghi)Perylene        20.974      1166134    2.535 ug/l
28) T   C9                         3.050      1231182    2.465 ug/L
29) T   C10                        4.151      1261585    2.494 ug/L
30) T   C12                        6.323      1313809    2.570 ug/L
32) T   C14                        8.281      1291862    2.509 ug/L
33) T   C16                       10.028      1315892    2.553 ug/L
35) T   C18                       11.603      1356895    2.626 ug/L
36) T   C19                       12.337      1352447    2.579 ug/L
37) T   C20                       13.043      1332983    2.595 ug/L
38) T   C21                       13.742      1331453    2.609 ug/L
40) T   C22                       14.429      1334511    2.591 ug/L
41) T   C24                       15.760      1292746    2.587 ug/L
42) T   C26                       17.023      1268303    2.555 ug/L
43) T   C28                       18.214      1201594    2.518 ug/L
44) T   C30                       19.336      1170746    2.500 ug/L
```

EPH3Y3347.M Sun Sep 25 16:42:37 2022   Page: 1

SGS

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85350.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   5:40 pm
Operator  : thomasl
Sample    : ic3347-2
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 7   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:14:17 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

	Compound	R.T.	Response	Conc Units
45) T	C32	20.390	1144562	2.523 ug/L
46) T	C34	21.385	1087716	2.488 ug/L
47) T	C36	22.421	1091678	2.504 ug/L
48) T	C38	23.780	1070346	2.500 ug/L
49) T	C40	25.645	1081230	2.491 ug/L

(f)=RT Delta > 1/2 Window   (m)=manual int.

9.5.3

9

SGS

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85350.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   5:40 pm
Operator  : thomasl
Sample    : ic3347-2
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 7   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:14:17 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5           Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

9.5.3

9

C:\msdchem\1\data\g3y3347\3y85350.d

Hydrocarbon Range Total Response

	Data File Name	**3y85350.d**
	Date Acquired	**9/22/2022 17:40**
	Sample Name	**ic3347-2**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	1401148
2)	Naphthalene	1445523
3)	C10-C12 Aromatics	2846671
4)	2-Methylnaphthalene	1405900
5)	Acenaphthylene	1392382
6)	Acenaphthene	1471522
7)	C12-C16 Aromatics	4269804
8)	Fluorene	1385890
9)	Phenanthrene	1346453
10)	Anthracene	1333341
11)	Fluoranthene	1301272
12)	Pyrene	1330276
13)	C16-C21 Aromatics	6697233
14)	Benzo(a)Anthracene	1274220
15)	Chrysene	1267998
16)	Benzo(b)Fluoranthene	1232298
17)	Benzo(k)Fluoranthene	1203454
18)	Benzo(a)Pyrene	1190906
19)	Indeno(1,2,3-cd)Pyrene	1159275
20)	Dibenzo(ah)Anthracene	1286306
21)	Benzo(ghi)Perylene	1166134
22)	C21-C36 Aromatics	9780591
23)	C11-C22 Aromatics (Unadj.)	22193151)
27)	SIGNAL #2	0
28)	C9	1231182
29)	C10	1261585
30)	C12	1313809
31)	C9-C12 Aliphatics	3806577
32)	C14	1291862
33)	C16	1315892
34)	C12-C16 Aliphatics	2607754
35)	C18	1356895
36)	C19	1352447
37)	C20	1332983
38)	C21	1331453
39)	C16-C21 Aliphatics	4021331
40)	C22	1334511
41)	C24	1292746
42)	C26	1268303
43)	C28	1201594
44)	C30	1170746
45)	C32	1144562
46)	C34	1087716
47)	C36	1091678

C:\msdchem\1\data\g3y3347\3y85350.d

48)	C38	1070345.938
49)	C40	1081230.25
50)	C21-C40 Aliphatics	11743431.03
51)	C9-C18 Aliphatics	7771226.016
52)	C19-C36 Aliphatics	10045007.36

9.5.4

9

SGS

3Y85350.D: G3Y3347-IC3347   Initial Calibration (2) (additional data)   page 2 of 2
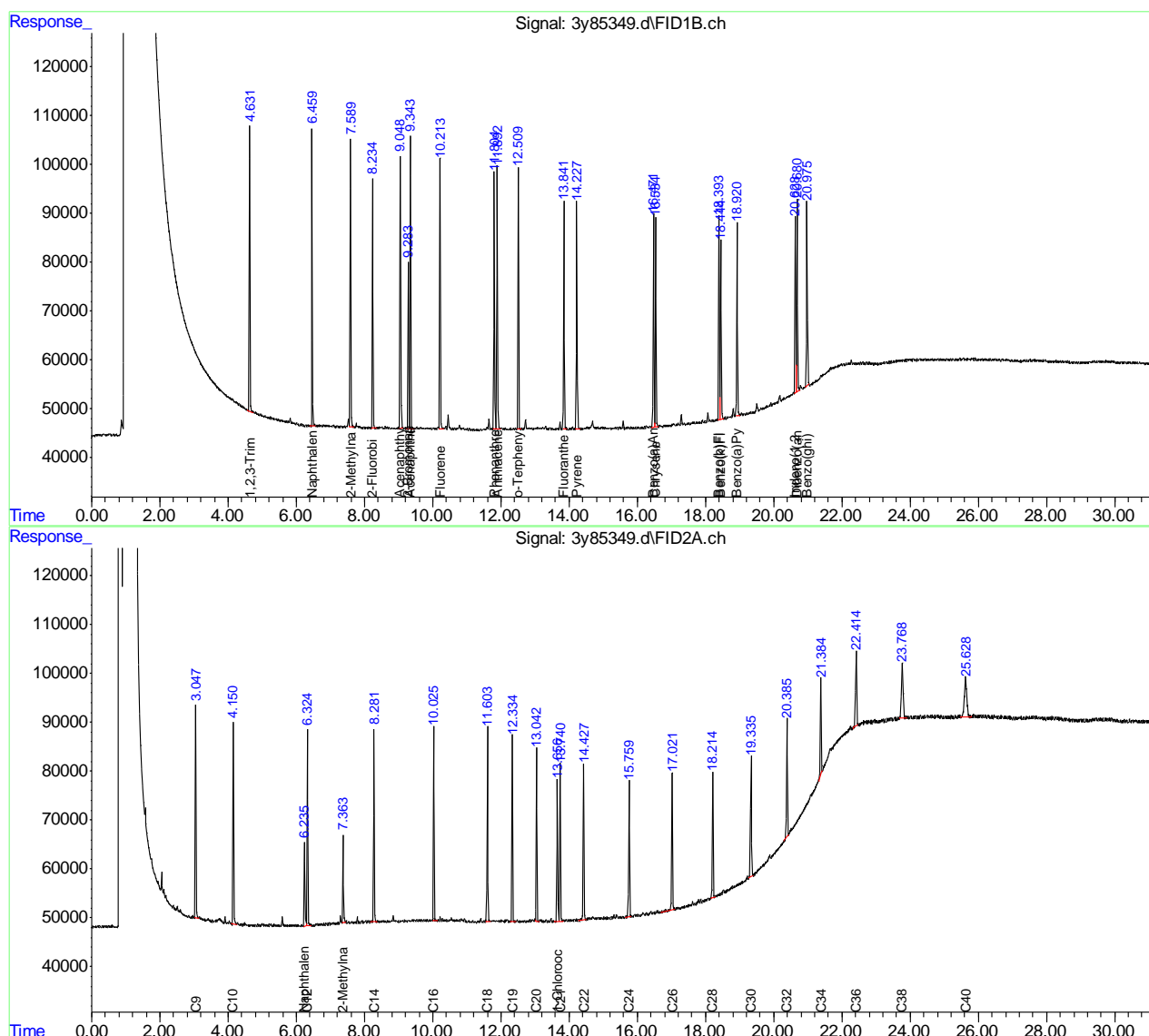
```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85351.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:17 pm
Operator  : thomasl
Sample    : ic3347-5
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 8   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:17:34 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                 R.T.     Response   Conc Units
    ----------------------------------------------------------------------

  System Monitoring Compounds
 24) S   2-Fluorobiphenyl (S)      8.233    3026686    6.324 ug/L
 25) S   2-Bromonaphthalene (S)    9.280    2087854    6.123 ug/L
 26) S   o-Terphenyl  (S)         12.510    3182850    5.766 ug/L
 53) S   Naphthalene (S)           6.229    1672803    3.025 ug/L
 54) S   2-Methylnaphthalene (S)   7.358    1702778    3.154 ug/L
 55) S   1-Chlorooctadecane (S)   13.657    2760143    6.262 ug/L


  Target Compounds
  1) T   1,2,3-Trimethylbenzene    4.631    3456553    6.525 ug/l
  2) T   Naphthalene               6.458    3590512    6.456 ug/L
  4) T   2-Methylnaphthalene       7.587    3525790    6.592 ug/L
  5) T   Acenaphthylene            9.046    3364926    6.092 ug/l
  6) T   Acenaphthene              9.343    3628672    5.770 ug/l
  8) T   Fluorene                 10.211    3375793    6.043 ug/l
  9) T   Phenanthrene             11.804    3220654    5.881 ug/l
 10) T   Anthracene               11.890    3206088    5.777 ug/l
 11) T   Fluoranthene             13.840    3078022    5.785 ug/l
 12) T   Pyrene                   14.223    3165841    5.833 ug/l
 14) T   Benzo(a)Anthracene       16.470    3004563    6.115 ug/l
 15) T   Chrysene                 16.531    3015745    5.859 ug/l
 16) T   Benzo(b)Fluoranthene     18.394    2951126    6.027 ug/l
 17) T   Benzo(k)Fluoranthene     18.441    2859227    5.800 ug/l
 18) T   Benzo(a)Pyrene           18.917    2869820    6.042 ug/l
 19) T   Indeno(1,2,3-cd)Pyrene   20.623    2835281    6.092 ug/l
 20) T   Dibenzo(ah)Anthracene    20.677    3112894    6.399 ug/l
 21) T   Benzo(ghi)Perylene       20.974    2853554    6.202 ug/l
 28) T   C9                        3.051    3062442    6.133 ug/L
 29) T   C10                       4.151    3136719    6.200 ug/L
 30) T   C12                       6.324    3211991    6.282 ug/L
 32) T   C14                       8.280    3214776    6.242 ug/L
 33) T   C16                      10.027    3254907    6.315 ug/L
 35) T   C18                      11.602    3275505    6.340 ug/L
 36) T   C19                      12.333    3322880    6.337 ug/L
 37) T   C20                      13.042    3279776    6.384 ug/L
 38) T   C21                      13.741    3244387    6.356 ug/L
 40) T   C22                      14.427    3254119    6.318 ug/L
 41) T   C24                      15.757    3156392    6.316 ug/L
 42) T   C26                      17.022    3070675    6.185 ug/L
 43) T   C28                      18.214    2955099    6.193 ug/L
 44) T   C30                      19.332    2883643    6.159 ug/L
```

EPH3Y3347.M Sun Sep 25 16:42:46 2022   Page: 1

9.5.5

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SGS   JD53080

```
                     Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85351.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:17 pm
Operator  : thomasl
Sample    : ic3347-5
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 8    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:17:34 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                   R.T.      Response    Conc Units
  ----------------------------------------------------------------------
45) T  C32                         20.388     2822508     6.222 ug/L
46) T  C34                         21.382     2693011     6.160 ug/L
47) T  C36                         22.416     2678341     6.144 ug/L
48) T  C38                         23.772     2616651     6.111 ug/L
49) T  C40                         25.633     2679800     6.174 ug/L
  ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

9.5.5

9

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85351.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:17 pm
Operator  : thomasl
Sample    : ic3347-5
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 8    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:17:34 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


9.5.5

9

EPH3Y3347.M Sun Sep 25 16:42:46 2022   Page: 3

C:\msdchem\1\data\g3y3347\3y85351.d

Hydrocarbon Range Total Response

	Data File Name	**3y85351.d**
	Date Acquired	**9/22/2022 18:17**
	Sample Name	**ic3347-5**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	3456553
2)	Naphthalene	3590512
3)	C10-C12 Aromatics	7047065
4)	2-Methylnaphthalene	3525790
5)	Acenaphthylene	3364926
6)	Acenaphthene	3628672
7)	C12-C16 Aromatics	10519388
8)	Fluorene	3375793
9)	Phenanthrene	3220654
10)	Anthracene	3206088
11)	Fluoranthene	3078022
12)	Pyrene	3165841
13)	C16-C21 Aromatics	16046398
14)	Benzo(a)Anthracene	3004563
15)	Chrysene	3015745
16)	Benzo(b)Fluoranthene	2951126
17)	Benzo(k)Fluoranthene	2859227
18)	Benzo(a)Pyrene	2869820
19)	Indeno(1,2,3-cd)Pyrene	2835281
20)	Dibenzo(ah)Anthracene	3112894
21)	Benzo(ghi)Perylene	2853554
22)	C21-C36 Aromatics	23502210
23)	C11-C22 Aromatics (Unadj.)	53658507)
27)	SIGNAL #2	0
28)	C9	3062442
29)	C10	3136719
30)	C12	3211991
31)	C9-C12 Aliphatics	9411151
32)	C14	3214776
33)	C16	3254907
34)	C12-C16 Aliphatics	6469683
35)	C18	3275505
36)	C19	3322880
37)	C20	3279776
38)	C21	3244387
39)	C16-C21 Aliphatics	9799668
40)	C22	3254119
41)	C24	3156392
42)	C26	3070675
43)	C28	2955099
44)	C30	2883643
45)	C32	2822508
46)	C34	2693011
47)	C36	2678341

9/25/2022 4:42 PM   **C:\msdchem\custrpt\ETPHIC.CRT**   Page 1 of 2

C:\msdchem\1\data\g3y3347\3y85351.d

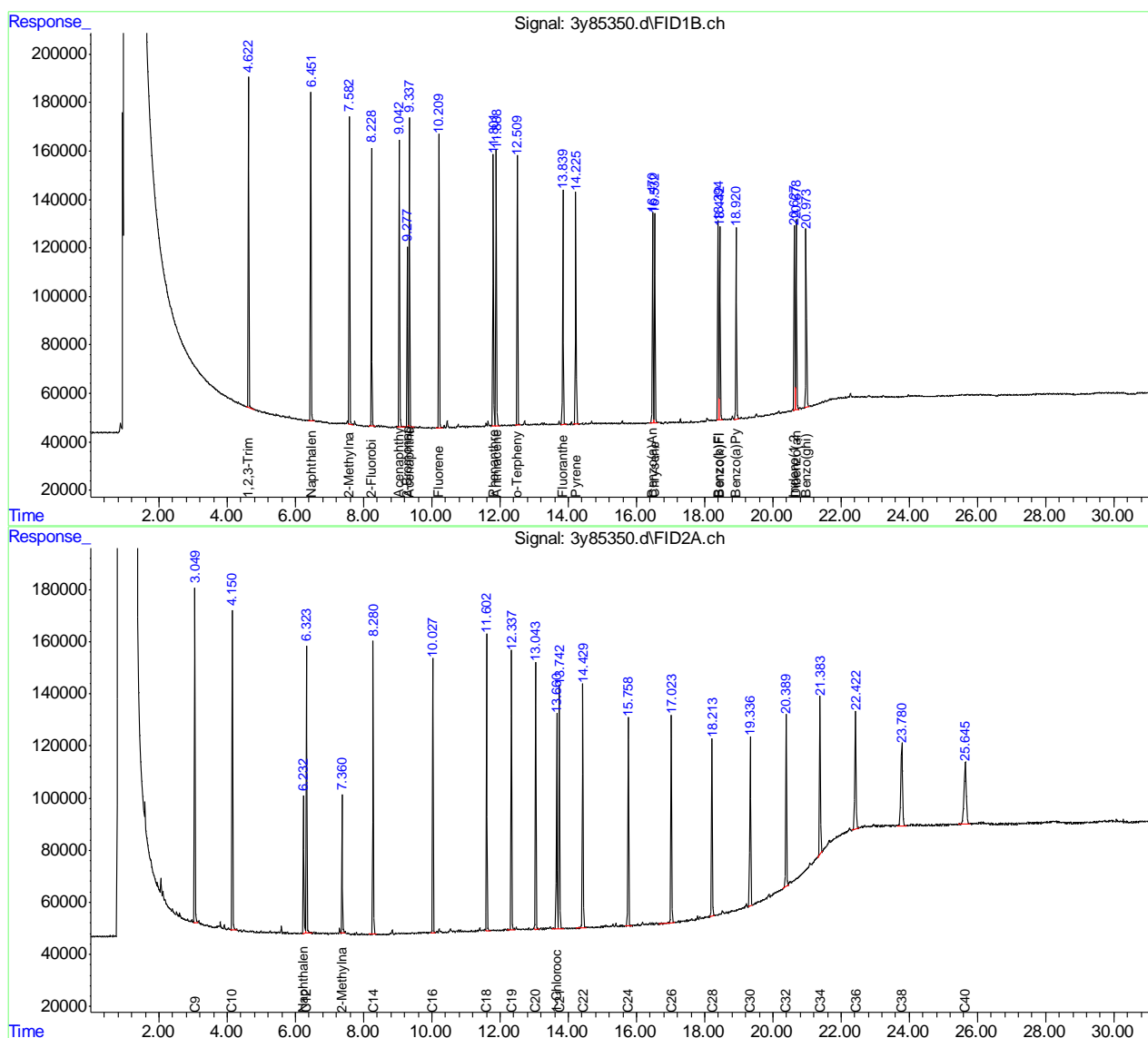|		
48)	C38	2616650.535
49)	C40	2679799.625
50)	C21-C40 Aliphatics	28810235.63
51)	C9-C18 Aliphatics	19156339.12
52)	C19-C36 Aliphatics	24600923.04

9.5.6

9

SGS

JD53080

```
                         Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85352.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:53 pm
Operator  : thomasl
Sample    : ic3347-10
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 9   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:18:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


        Compound                 R.T.      Response   Conc Units
     ----------------------------------------------------------------

 System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)      8.233      5531026   11.557 ug/L
25) S   2-Bromonaphthalene (S)    9.280      3858483   11.316 ug/L
26) S   o-Terphenyl  (S)         12.510      6193053   11.220 ug/L
53) S   Naphthalene (S)           6.227      3415543    6.177 ug/L
54) S   2-Methylnaphthalene (S)   7.355      3493642    6.472 ug/L
55) S   1-Chlorooctadecane (S)   13.657      5501782   12.483 ug/L


 Target Compounds
 1) T   1,2,3-Trimethylbenzene    4.631      6253862   11.806 ug/l
 2) T   Naphthalene               6.458      6502565   11.692 ug/L
 4) T   2-Methylnaphthalene       7.588      6396797   11.959 ug/L
 5) T   Acenaphthylene            9.047      6173453   11.177 ug/l
 6) T   Acenaphthene              9.342      6672549   10.611 ug/l
 8) T   Fluorene                 10.212      6329759   11.331 ug/l
 9) T   Phenanthrene             11.804      6249754   11.412 ug/l
10) T   Anthracene               11.891      6248497   11.259 ug/l
11) T   Fluoranthene             13.841      6129053   11.520 ug/l
12) T   Pyrene                   14.224      6299772   11.607 ug/l
14) T   Benzo(a)Anthracene       16.471      6186330   12.590 ug/l
15) T   Chrysene                 16.533      6216859   12.077 ug/l
16) T   Benzo(b)Fluoranthene     18.394      6104371   12.467 ug/l
17) T   Benzo(k)Fluoranthene     18.442      5904738   11.978 ug/l
18) T   Benzo(a)Pyrene           18.917      5926284   12.476 ug/l
19) T   Indeno(1,2,3-cd)Pyrene   20.625      5793582   12.449 ug/l
20) T   Dibenzo(ah)Anthracene    20.678      6247010   12.841 ug/l
21) T   Benzo(ghi)Perylene       20.975      5825315   12.662 ug/l
28) T   C9                        3.051      6231248   12.478 ug/L
29) T   C10                       4.151      6355182   12.561 ug/L
30) T   C12                       6.323      6420260   12.557 ug/L
32) T   C14                       8.279      6472789   12.569 ug/L
33) T   C16                      10.029      6524263   12.659 ug/L
35) T   C18                      11.602      6541383   12.661 ug/L
36) T   C19                      12.334      6617860   12.621 ug/L
37) T   C20                      13.042      6509613   12.670 ug/L
38) T   C21                      13.741      6426999   12.592 ug/L
40) T   C22                      14.426      6376002   12.380 ug/L
41) T   C24                      15.758      6246519   12.499 ug/L
42) T   C26                      17.021      6066063   12.219 ug/L
43) T   C28                      18.211      5891862   12.347 ug/L
44) T   C30                      19.333      5781554   12.348 ug/L
```

EPH3Y3347.M Sun Sep 25 16:42:56 2022   Page: 1

9.5.7

9

```
                    Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85352.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:53 pm
Operator  : thomasl
Sample    : ic3347-10
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 9   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:18:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


        Compound                   R.T.      Response    Conc Units
  -------------------------------------------------------------------------
45) T   C32                      20.388      5668965   12.497 ug/L
46) T   C34                      21.381      5434908   12.432 ug/L
47) T   C36                      22.414      5434914   12.467 ug/L
48) T   C38                      23.769      5295353   12.366 ug/L
49) T   C40                      25.626      5412633   12.470 ug/L
  -------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```

9.5.7

9

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85352.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   6:53 pm
Operator  : thomasl
Sample    : ic3347-10
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 9   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:18:32 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5                  Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um   Signal #2 Info : 30mx.32mm.x25um
```
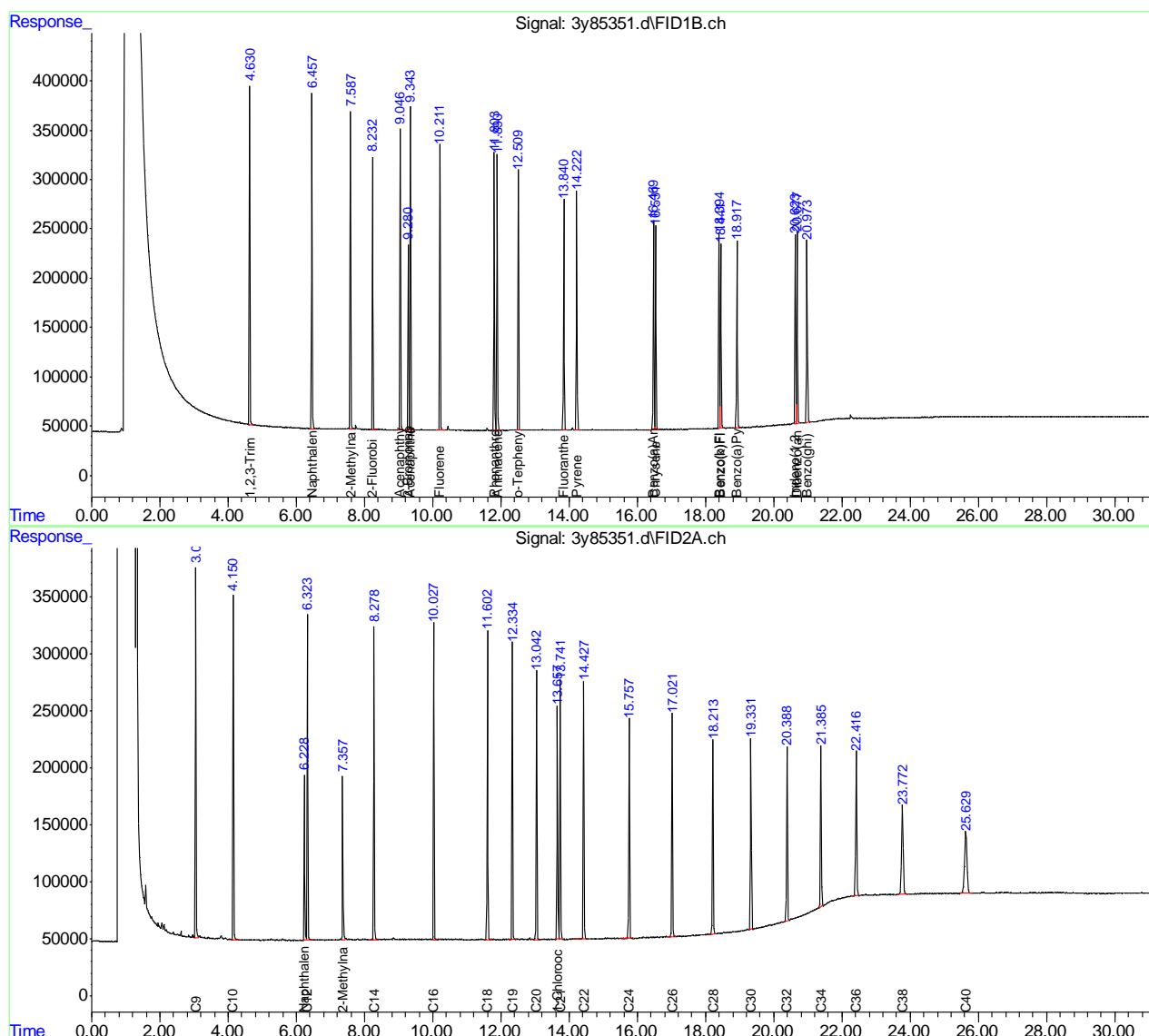
C:\msdchem\1\data\g3y3347\3y85352.d

Hydrocarbon Range Total Response

	Data File Name	**3y85352.d**
	Date Acquired	**9/22/2022 18:53**
	Sample Name	**ic3347-10**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	6253862
2)	Naphthalene	6502565
3)	C10-C12 Aromatics	12756426
4)	2-Methylnaphthalene	6396797
5)	Acenaphthylene	6173453
6)	Acenaphthene	6672549
7)	C12-C16 Aromatics	19242799
8)	Fluorene	6329759
9)	Phenanthrene	6249754
10)	Anthracene	6248497
11)	Fluoranthene	6129053
12)	Pyrene	6299772
13)	C16-C21 Aromatics	31256835
14)	Benzo(a)Anthracene	6186330
15)	Chrysene	6216859
16)	Benzo(b)Fluoranthene	6104371
17)	Benzo(k)Fluoranthene	5904738
18)	Benzo(a)Pyrene	5926284
19)	Indeno(1,2,3-cd)Pyrene	5793582
20)	Dibenzo(ah)Anthracene	6247010
21)	Benzo(ghi)Perylene	5825315
22)	C21-C36 Aromatics	48204490
23)	C11-C22 Aromatics (Unadj.)	105206688)
27)	SIGNAL #2	0
28)	C9	6231248
29)	C10	6355182
30)	C12	6420260
31)	C9-C12 Aliphatics	19006690
32)	C14	6472789
33)	C16	6524263
34)	C12-C16 Aliphatics	12997051
35)	C18	6541383
36)	C19	6617860
37)	C20	6509613
38)	C21	6426999
39)	C16-C21 Aliphatics	19477995
40)	C22	6376002
41)	C24	6246519
42)	C26	6066063
43)	C28	5891862
44)	C30	5781554
45)	C32	5668965
46)	C34	5434908
47)	C36	5434914

9.5.8

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C:\msdchem\1\data\g3y3347\3y85352.d

48)	C38	5295352.75
49)	C40	5412633.25
50)	C21-C40 Aliphatics	57608773.02
51)	C9-C18 Aliphatics	38545124.17
52)	C19-C36 Aliphatics	48924387.53

```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85353.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   7:30 pm
Operator  : thomasl
Sample    : ic3347-20
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 10   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:19:26 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


        Compound                  R.T.       Response   Conc Units
      ----------------------------------------------------------------

  System Monitoring Compounds
24) S  2-Fluorobiphenyl (S)       8.233      11627345   24.294 ug/L
25) S  2-Bromonaphthalene (S)     9.281       8028632   23.545 ug/L
26) S  o-Terphenyl  (S)          12.511      12359735   22.391 ug/L
53) S  Naphthalene (S)            6.226       7028929   12.711 ug/L
54) S  2-Methylnaphthalene (S)    7.355       7198598   13.335 ug/L
55) S  1-Chlorooctadecane (S)    13.659      11258779   25.545 ug/L


  Target Compounds
 1) T  1,2,3-Trimethylbenzene     4.631      13523735   25.530 ug/l
 2) T  Naphthalene                6.458      13994455   25.162 ug/L
 4) T  2-Methylnaphthalene        7.588      13602865   25.432 ug/L
 5) T  Acenaphthylene             9.047      12881188   23.321 ug/l
 6) T  Acenaphthene               9.343      13920854   22.137 ug/l
 8) T  Fluorene                  10.213      13085459   23.424 ug/l
 9) T  Phenanthrene              11.805      12577737   22.966 ug/l
10) T  Anthracene                11.892      12514615   22.549 ug/l
11) T  Fluoranthene              13.841      12010573   22.574 ug/l
12) T  Pyrene                    14.225      12291540   22.647 ug/l
14) T  Benzo(a)Anthracene        16.473      11782267   23.978 ug/l
15) T  Chrysene                  16.535      11822555   22.967 ug/l
16) T  Benzo(b)Fluoranthene      18.395      11574043   23.639 ug/l
17) T  Benzo(k)Fluoranthene      18.444      11199977   22.719 ug/l
18) T  Benzo(a)Pyrene            18.919      11303095   23.796 ug/l
19) T  Indeno(1,2,3-cd)Pyrene    20.628      11326296   24.337 ug/l
20) T  Dibenzo(ah)Anthracene     20.681      12228248   25.136 ug/l
21) T  Benzo(ghi)Perylene        20.980      11312958   24.589 ug/l
28) T  C9                         3.051      12760076   25.552 ug/L
29) T  C10                        4.152      13020134   25.735 ug/L
30) T  C12                        6.324      13189710   25.797 ug/L
32) T  C14                        8.281      13297548   25.821 ug/L
33) T  C16                       10.028      13359925   25.922 ug/L
35) T  C18                       11.603      13354524   25.847 ug/L
36) T  C19                       12.335      13509112   25.763 ug/L
37) T  C20                       13.042      13263294   25.816 ug/L
38) T  C21                       13.742      13145284   25.755 ug/L
40) T  C22                       14.429      13022249   25.285 ug/L
41) T  C24                       15.758      12760900   25.533 ug/L
42) T  C26                       17.022      12398664   24.974 ug/L
43) T  C28                       18.212      12071111   25.297 ug/L
44) T  C30                       19.334      11867026   25.344 ug/L
```

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JD53080

9.5.9

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```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85353.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   7:30 pm
Operator  : thomasl
Sample    : ic3347-20
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 10   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:19:26 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


        Compound                R.T.      Response    Conc Units
  -------------------------------------------------------------------
45) T   C32                     20.386    11700200    25.793 ug/L
46) T   C34                     21.383    11282712    25.809 ug/L
47) T   C36                     22.416    11272536    25.858 ug/L
48) T   C38                     23.771    10993578    25.673 ug/L
49) T   C40                     25.630    11245992    25.910 ug/L
  -------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                     (m)=manual int.
```
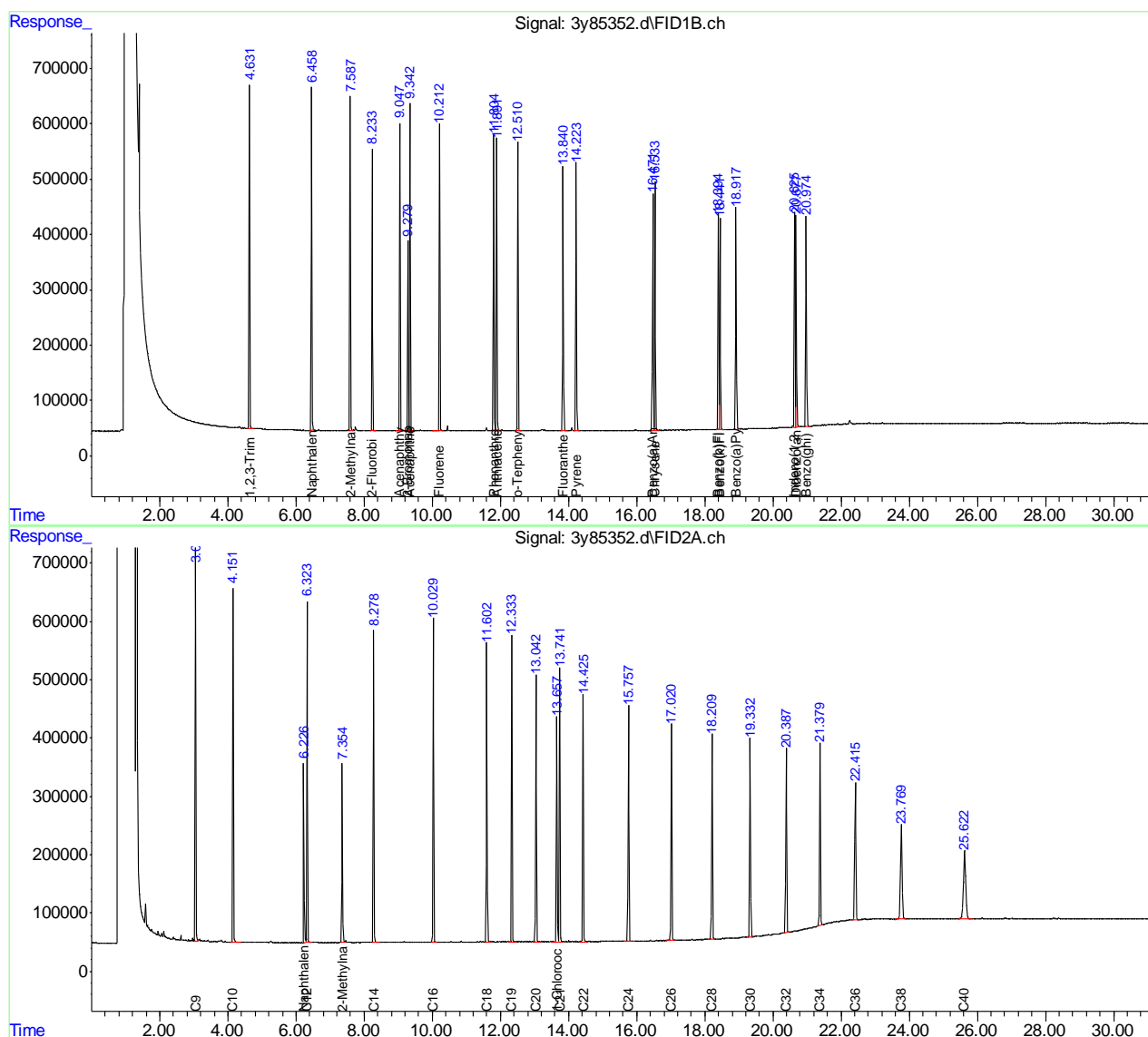
9.5.9

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EPH3Y3347.M Sun Sep 25 16:43:09 2022   Page: 2

SGS

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85353.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022    7:30 pm
Operator  : thomasl
Sample    : ic3347-20
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 10   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:19:26 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


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C:\msdchem\1\data\g3y3347\3y85353.d

Hydrocarbon Range Total Response

	Data File Name	**3y85353.d**
	Date Acquired	**9/22/2022 19:30**
	Sample Name	**ic3347-20**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	13523735
2)	Naphthalene	13994455
3)	C10-C12 Aromatics	27518189
4)	2-Methylnaphthalene	13602865
5)	Acenaphthylene	12881188
6)	Acenaphthene	13920854
7)	C12-C16 Aromatics	40404907
8)	Fluorene	13085459
9)	Phenanthrene	12577737
10)	Anthracene	12514615
11)	Fluoranthene	12010573
12)	Pyrene	12291540
13)	C16-C21 Aromatics	62479924
14)	Benzo(a)Anthracene	11782267
15)	Chrysene	11822555
16)	Benzo(b)Fluoranthene	11574043
17)	Benzo(k)Fluoranthene	11199977
18)	Benzo(a)Pyrene	11303095
19)	Indeno(1,2,3-cd)Pyrene	11326296
20)	Dibenzo(ah)Anthracene	12228248
21)	Benzo(ghi)Perylene	11312958
22)	C21-C36 Aromatics	92549440
23)	C11-C22 Aromatics (Unadj.)	209428726)
27)	SIGNAL #2	0
28)	C9	12760076
29)	C10	13020134
30)	C12	13189710
31)	C9-C12 Aliphatics	38969920
32)	C14	13297548
33)	C16	13359925
34)	C12-C16 Aliphatics	26657473
35)	C18	13354524
36)	C19	13509112
37)	C20	13263294
38)	C21	13145284
39)	C16-C21 Aliphatics	39763103
40)	C22	13022249
41)	C24	12760900
42)	C26	12398664
43)	C28	12071111
44)	C30	11867026
45)	C32	11700200
46)	C34	11282712
47)	C36	11272536

9/25/2022 4:43 PM　　　　　　**C:\msdchem\custrpt\ETPHIC.CRT**　　　　　　Page 1 of 2

C:\msdchem\1\data\g3y3347\3y85353.d

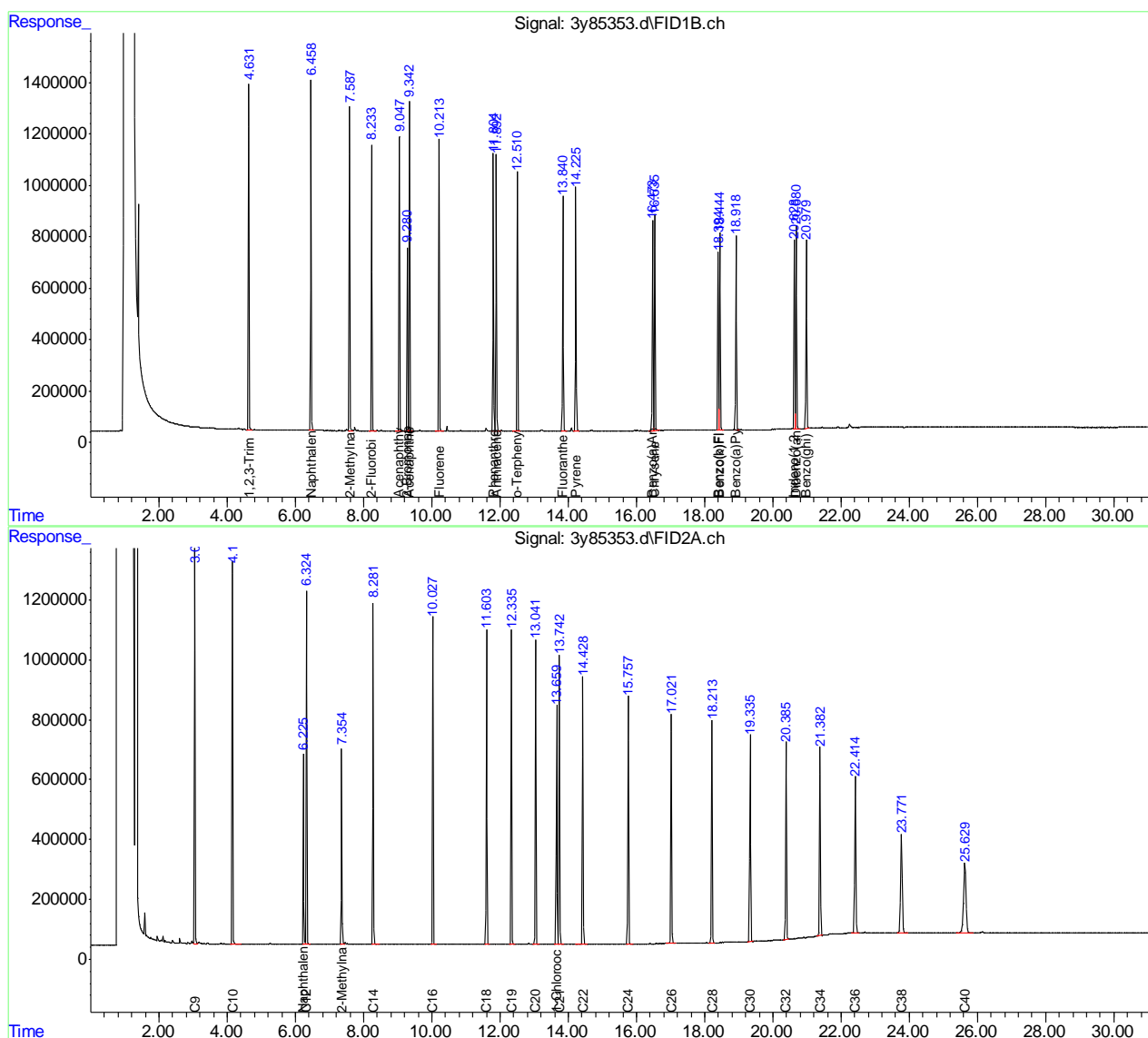|		
48)	C38	10993577.83
49)	C40	11245991.86
50)	C21-C40 Aliphatics	118614966.6
51)	C9-C18 Aliphatics	78981916.84
52)	C19-C36 Aliphatics	100164891.3

9.5.10

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```
                          Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85354.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   8:07 pm
Operator  : thomasl
Sample    : icc3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 11   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:20:33 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                R.T.       Response   Conc Units
  -------------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)      8.237     29973226   62.626 ug/L
25) S   2-Bromonaphthalene (S)    9.285     20769911   60.911 ug/L
26) S   o-Terphenyl  (S)         12.515     32772879   59.372 ug/L
53) S   Naphthalene (S)           6.225     16672974   30.151 ug/L
54) S   2-Methylnaphthalene (S)   7.354     16938115   31.377 ug/L
55) S   1-Chlorooctadecane (S)   13.661     26664310   60.498 ug/L

  Target Compounds
 1) T   1,2,3-Trimethylbenzene    4.634     33876096   63.950 ug/l
 2) T   Naphthalene               6.462     35411576   63.670 ug/L
 4) T   2-Methylnaphthalene       7.592     34664474   64.808 ug/L
 5) T   Acenaphthylene            9.052     33353999   60.385 ug/l
 6) T   Acenaphthene              9.351     35933733   57.142 ug/l
 8) T   Fluorene                 10.219     33967383   60.803 ug/l
 9) T   Phenanthrene             11.811     32950903   60.167 ug/l
10) T   Anthracene               11.899     32805441   59.110 ug/l
11) T   Fluoranthene             13.849     31658968   59.504 ug/l
12) T   Pyrene                   14.233     32376621   59.652 ug/l
14) T   Benzo(a)Anthracene       16.481     30324282   61.713 ug/l
15) T   Chrysene                 16.546     30357640   58.975 ug/l
16) T   Benzo(b)Fluoranthene     18.405     29496587   60.243 ug/l
17) T   Benzo(k)Fluoranthene     18.459     28493983   57.800 ug/l
18) T   Benzo(a)Pyrene           18.931     28796918   60.624 ug/l
19) T   Indeno(1,2,3-cd)Pyrene   20.641     28878860   62.052 ug/l
20) T   Dibenzo(ah)Anthracene    20.694     30734365   63.176 ug/l
21) T   Benzo(ghi)Perylene       20.997     28653278   62.280 ug/l
28) T   C9                        3.051     30433863   60.944 ug/L
29) T   C10                       4.154     30707597   60.695 ug/L
30) T   C12                       6.326     30956365   60.547 ug/L
32) T   C14                       8.284     31181507   60.547 ug/L
33) T   C16                      10.031     31338213   60.805 ug/L
35) T   C18                      11.606     31385828   60.746 ug/L
36) T   C19                      12.339     31870078   60.778 ug/L
37) T   C20                      13.046     31283991   60.891 ug/L
38) T   C21                      13.744     31049375   60.833 ug/L
40) T   C22                      14.432     30793572   59.790 ug/L
41) T   C24                      15.762     30255683   60.538 ug/L
42) T   C26                      17.026     29447029   59.314 ug/L
43) T   C28                      18.217     28866096   60.494 ug/L
44) T   C30                      19.338     28696028   61.286 ug/L
```

EPH3Y3347.M Sun Sep 25 16:43:22 2022   Page: 1

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85354.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   8:07 pm
Operator  : thomasl
Sample    : icc3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 11   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:20:33 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

```
         Compound                   R.T.      Response   Conc Units
 ---------------------------------------------------------------------
45) T  C32                         20.393    28527297   62.888 ug/L
46) T  C34                         21.387    27557750   63.037 ug/L
47) T  C36                         22.422    27619588   63.355 ug/L
48) T  C38                         23.778    26921237   62.868 ug/L
49) T  C40                         25.637    27355199   63.024 ug/L
 ---------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                         (m)=manual int.
```

Quantitation Report　　(QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85354.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   8:07 pm
Operator  : thomasl
Sample    : icc3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 11   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:20:33 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:10:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


9.5.11

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JD53080

C:\msdchem\1\data\g3y3347\3y85354.d

Hydrocarbon Range Total Response

	Data File Name	**3y85354.d**
	Date Acquired	**9/22/2022 20:07**
	Sample Name	**icc3347-50**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	33876096
2)	Naphthalene	35411576
3)	C10-C12 Aromatics	69287672
4)	2-Methylnaphthalene	34664474
5)	Acenaphthylene	33353999
6)	Acenaphthene	35933733
7)	C12-C16 Aromatics	103952206
8)	Fluorene	33967383
9)	Phenanthrene	32950903
10)	Anthracene	32805441
11)	Fluoranthene	31658968
12)	Pyrene	32376621
13)	C16-C21 Aromatics	163759316
14)	Benzo(a)Anthracene	30324282
15)	Chrysene	30357640
16)	Benzo(b)Fluoranthene	29496587
17)	Benzo(k)Fluoranthene	28493983
18)	Benzo(a)Pyrene	28796918
19)	Indeno(1,2,3-cd)Pyrene	28878860
20)	Dibenzo(ah)Anthracene	30734365
21)	Benzo(ghi)Perylene	28653278
22)	C21-C36 Aromatics	235735913
23)	C11-C22 Aromatics (Unadj.)	538859011)
27)	SIGNAL #2	0
28)	C9	30433863
29)	C10	30707597
30)	C12	30956365
31)	C9-C12 Aliphatics	92097825
32)	C14	31181507
33)	C16	31338213
34)	C12-C16 Aliphatics	62519720
35)	C18	31385828
36)	C19	31870078
37)	C20	31283991
38)	C21	31049375
39)	C16-C21 Aliphatics	93719195
40)	C22	30793572
41)	C24	30255683
42)	C26	29447029
43)	C28	28866096
44)	C30	28696028
45)	C32	28527297
46)	C34	27557750
47)	C36	27619588

C:\msdchem\1\data\g3y3347\3y85354.d

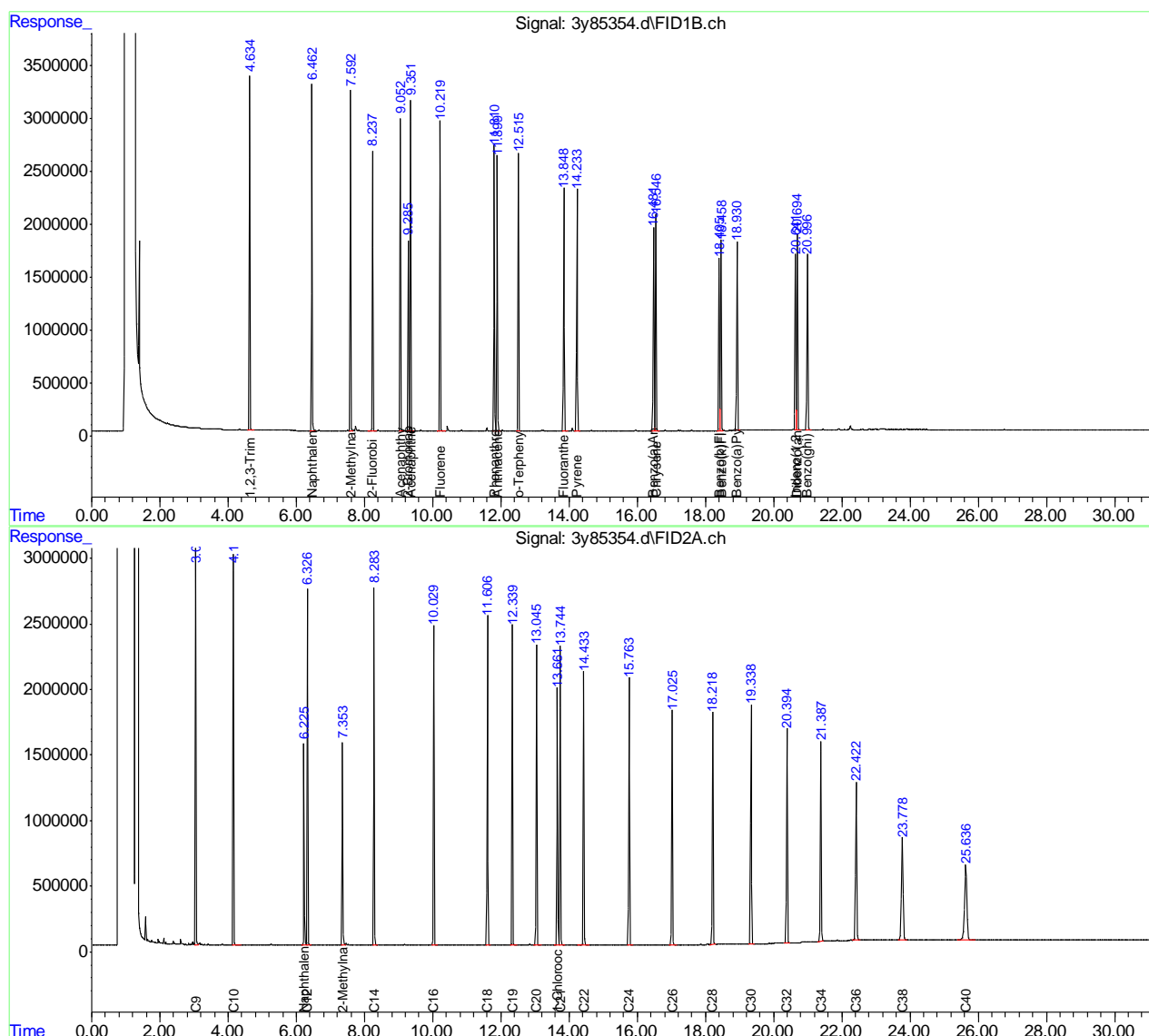|		
48)	C38	26921236.65
49)	C40	27355198.83
50)	C21-C40 Aliphatics	286039478.7
51)	C9-C18 Aliphatics	186003373.7
52)	C19-C36 Aliphatics	238832065.2

9.5.12

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Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85355.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   8:35 pm
Operator  : thomasl
Sample    : ic3347-100
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 12   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:28:08 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:27:34 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```

```
         Compound               R.T.      Response   Conc Units
    -------------------------------------------------------------------

 System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)      8.242     57075675  119.254 ug/L
25) S   2-Bromonaphthalene (S)    9.291     39700821  116.430 ug/L
26) S   o-Terphenyl  (S)         12.521     63227677  114.545 ug/L
53) S   Naphthalene (S)           6.227     32333104   58.471 ug/L
54) S   2-Methylnaphthalene (S)   7.357     32943947   61.026 ug/L
55) S   1-Chlorooctadecane (S)   13.666     51492019  116.830 ug/L


 Target Compounds
 1) T   1,2,3-Trimethylbenzene    4.638     64543608  121.843 ug/l
 2) T   Naphthalene               6.468     67664267  121.661 ug/L
 4) T   2-Methylnaphthalene       7.598     66179315  123.728 ug/L
 5) T   Acenaphthylene            9.059     63515459  114.991 ug/l
 6) T   Acenaphthene              9.359     68477242  108.893 ug/l
 8) T   Fluorene                 10.226     64932775  116.233 ug/l
 9) T   Phenanthrene             11.818     63808143  116.511 ug/l
10) T   Anthracene               11.908     63756816  114.879 ug/l
11) T   Fluoranthene             13.859     62834281  118.099 ug/l
12) T   Pyrene                   14.245     64603513  119.029 ug/l
14) T   Benzo(a)Anthracene       16.493     63460336  129.148 ug/l
15) T   Chrysene                 16.562     63644233  123.639 ug/l
16) T   Benzo(b)Fluoranthene     18.420     62710863  128.079 ug/l
17) T   Benzo(k)Fluoranthene     18.478     60369840  122.460 ug/l
18) T   Benzo(a)Pyrene           18.948     60854059  128.112 ug/l
19) T   Indeno(1,2,3-cd)Pyrene   20.657     61911625  133.030 ug/l
20) T   Dibenzo(ah)Anthracene    20.715     62999225  129.499 ug/l
21) T   Benzo(ghi)Perylene       21.021     60285565  131.034 ug/l
28) T   C9                        3.052     58525705  117.199 ug/L
29) T   C10                       4.157     59226482  117.064 ug/L
30) T   C12                       6.330     59894258  117.145 ug/L
32) T   C14                       8.288     60355966  117.198 ug/L
33) T   C16                      10.035     60514279  117.414 ug/L
35) T   C18                      11.611     60520869  117.136 ug/L
36) T   C19                      12.343     61359481  117.016 ug/L
37) T   C20                      13.051     60250725  117.272 ug/L
38) T   C21                      13.752     59886034  117.330 ug/L
40) T   C22                      14.438     59446443  115.424 ug/L
41) T   C24                      15.768     58678754  117.409 ug/L
42) T   C26                      17.032     57378187  115.575 ug/L
43) T   C28                      18.222     56871336  119.184 ug/L
44) T   C30                      19.343     56906300  121.535 ug/L
```

EPH3Y3347.M Sun Sep 25 16:43:32 2022   Page: 1

9.5.13

9

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85355.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   8:35 pm
Operator  : thomasl
Sample    : ic3347-100
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:28:08 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:27:34 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5               Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                  R.T.      Response   Conc Units
 ----------------------------------------------------------------------
45) T  C32                        20.398     56757911  125.122 ug/L
46) T  C34                        21.393     55014366  125.843 ug/L
47) T  C36                        22.430     55150238  126.507 ug/L
48) T  C38                        23.790     53912855  125.900 ug/L
49) T  C40                        25.655     55405664  127.650 ug/L
 ----------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                        (m)=manual int.
```
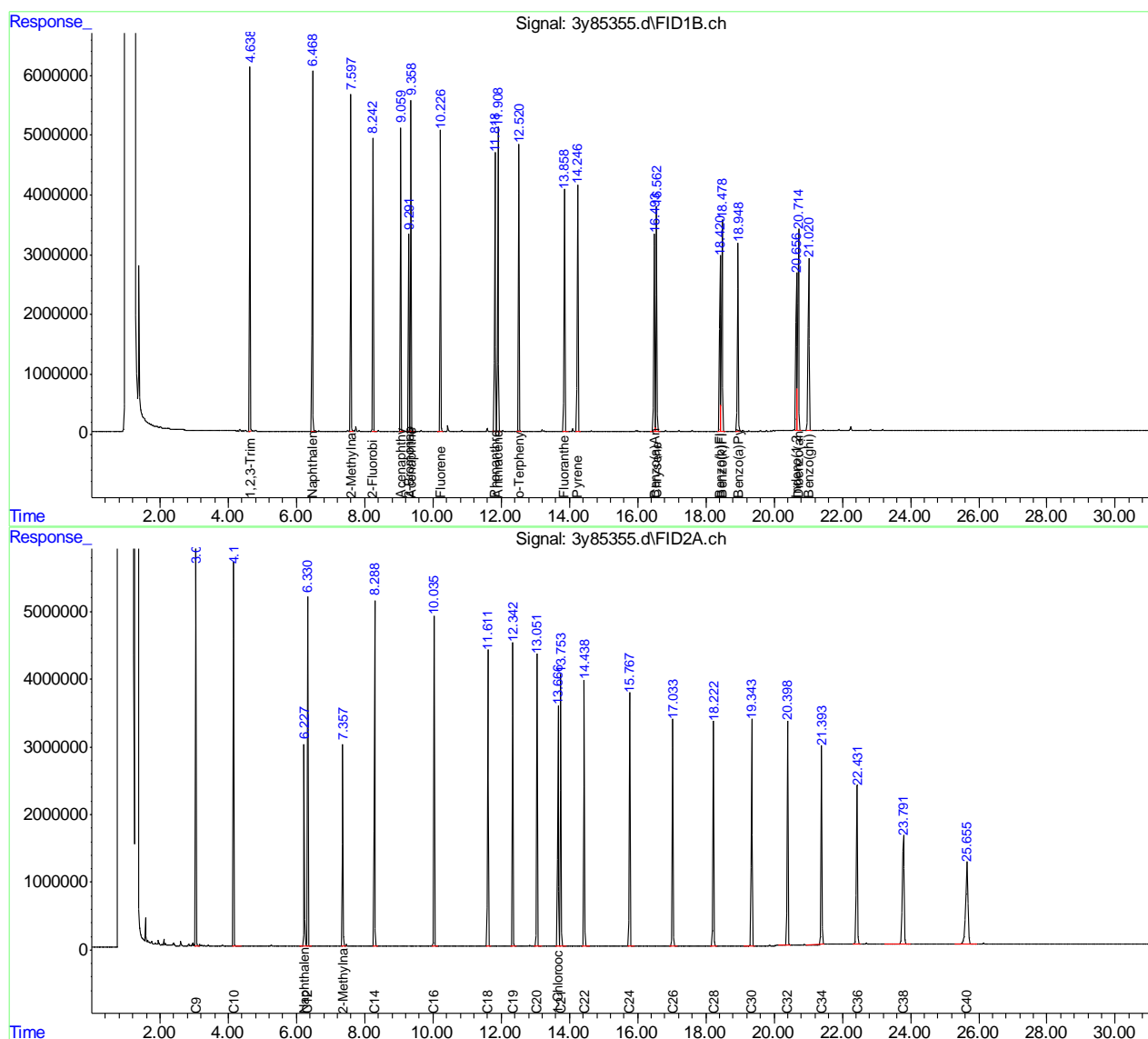
9.5.13

9

EPH3Y3347.M Sun Sep 25 16:43:32 2022   Page: 2

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85355.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On   : 22 Sep 2022   8:35 pm
Operator : thomasl
Sample   : ic3347-100
Misc   : op40644,g3y3347,15.0,,,2,1
ALS Vial : 12   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 11:28:08 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 11:27:34 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5   Signal #2 Phase: HP5
Signal #1 Info : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

C:\msdchem\1\data\g3y3347\3y85355.d

Hydrocarbon Range Total Response

	Data File Name	**3y85355.d**
	Date Acquired	**9/22/2022 20:35**
	Sample Name	**ic3347-100**

	Name	**Target Response**
1)	1,2,3-Trimethylbenzene	64543608
2)	Naphthalene	67664267
3)	C10-C12 Aromatics	132207874
4)	2-Methylnaphthalene	66179315
5)	Acenaphthylene	63515459
6)	Acenaphthene	68477242
7)	C12-C16 Aromatics	198172015
8)	Fluorene	64932775
9)	Phenanthrene	63808143
10)	Anthracene	63756816
11)	Fluoranthene	62834281
12)	Pyrene	64603513
13)	C16-C21 Aromatics	319935529
14)	Benzo(a)Anthracene	63460336
15)	Chrysene	63644233
16)	Benzo(b)Fluoranthene	62710863
17)	Benzo(k)Fluoranthene	60369840
18)	Benzo(a)Pyrene	60854059
19)	Indeno(1,2,3-cd)Pyrene	61911625
20)	Dibenzo(ah)Anthracene	62999225
21)	Benzo(ghi)Perylene	60285565
22)	C21-C36 Aromatics	496235746
23)	C11-C22 Aromatics (Unadj.)	1082007556)
27)	SIGNAL #2	0
28)	C9	58525705
29)	C10	59226482
30)	C12	59894258
31)	C9-C12 Aliphatics	177646445
32)	C14	60355966
33)	C16	60514279
34)	C12-C16 Aliphatics	120870246
35)	C18	60520869
36)	C19	61359481
37)	C20	60250725
38)	C21	59886034
39)	C16-C21 Aliphatics	180657628
40)	C22	59446443
41)	C24	58678754
42)	C26	57378187
43)	C28	56871336
44)	C30	56906300
45)	C32	56757911
46)	C34	55014366
47)	C36	55150238

9.5.14

9

9/25/2022 4:43 PM   **C:\msdchem\custrpt\ETPHIC.CRT**   Page 1 of 2

C:\msdchem\1\data\g3y3347\3y85355.d

48)	C38	53912855.25
49)	C40	55405664.42
50)	C21-C40 Aliphatics	565522054.5
51)	C9-C18 Aliphatics	359037559.7
52)	C19-C36 Aliphatics	466041464.2

9.5.14

9

9/25/2022 4:43 PM   **C:\msdchem\custrpt\ETPHIC.CRT**   Page 2 of 2

```
                       Quantitation Report    (QT Reviewed)


Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85356.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   9:12 pm
Operator  : thomasl
Sample    : icv3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 13   Sample Multiplier: 1


Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 17:09:38 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 16:53:06 2022
Response via : Initial Calibration
Integrator: ChemStation


Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


          Compound                   R.T.      Response    Conc Units
    -------------------------------------------------------------------------

  System Monitoring Compounds
53) S   Naphthalene (S)             6.226     35811562   55.642 ug/L
54) S   2-Methylnaphthalene (S)     7.356     36572092   55.984 ug/L

  Target Compounds
 1) T   1,2,3-Trimethylbenzene      4.635     33613984   50.809 ug/l
 2) T   Naphthalene                 6.462     34846187   50.619 ug/L
 4) T   2-Methylnaphthalene         7.592     34870823   51.634 ug/L
 5) T   Acenaphthylene              9.052     30314421   46.029 ug/l
 6) T   Acenaphthene                9.348     33056736   47.091 ug/l
 8) T   Fluorene                   10.218     32493626   49.040 ug/l
 9) T   Phenanthrene               11.810     31518320   48.943 ug/l
10) T   Anthracene                 11.898     31102093   48.529 ug/l
11) T   Fluoranthene               13.849     30142777   48.320 ug/l
12) T   Pyrene                     14.232     29763329   46.495 ug/l
14) T   Benzo(a)Anthracene         16.480     28138135   45.425 ug/l
15) T   Chrysene                   16.546     28545219   46.229 ug/l
16) T   Benzo(b)Fluoranthene       18.406     28065541   46.526 ug/l
17) T   Benzo(k)Fluoranthene       18.458     28182050   48.167 ug/l
18) T   Benzo(a)Pyrene             18.931     27803409   47.454 ug/l
19) T   Indeno(1,2,3-cd)Pyrene     20.642     28118629   48.499 ug/l
20) T   Dibenzo(ah)Anthracene      20.695     29013149   46.426 ug/l
21) T   Benzo(ghi)Perylene         20.996     28671883   49.524 ug/l
28) T   C9                          3.051     31587604   53.627 ug/L
29) T   C10                         4.153     32171132   53.571 ug/L
30) T   C12                         6.325     32691799   53.383 ug/L
32) T   C14                         8.282     33554371   54.626 ug/L
33) T   C16                        10.030     33243940   53.560 ug/L
35) T   C18                        11.605     33631722   53.807 ug/L
37) T   C20                        13.047     33203388   53.431 ug/L
38) T   C21                        13.744     32937329   53.421 ug/L
40) T   C22                        14.430     32705333   53.132 ug/L
41) T   C24                        15.761     31984612   53.335 ug/L
42) T   C26                        17.026     30827382   52.667 ug/L
43) T   C28                        18.216     30031332   53.141 ug/L
44) T   C30                        19.337     29110293   52.413 ug/L
45) T   C32                        20.390     28300333   51.800 ug/L
46) T   C34                        21.386     28063534   53.534 ug/L
47) T   C36                        22.419     27335481   52.125 ug/L
48) T   C38                        23.771     27095141   52.687 ug/L
49) T   C40                        25.629     27185599   51.862 ug/L
```

EPH3Y3347.M Sun Sep 25 17:09:43 2022   Page: 1

3Y85356.D: G3Y3347-ICV3347 Initial Calibration Verification (50)   page 1 of 3
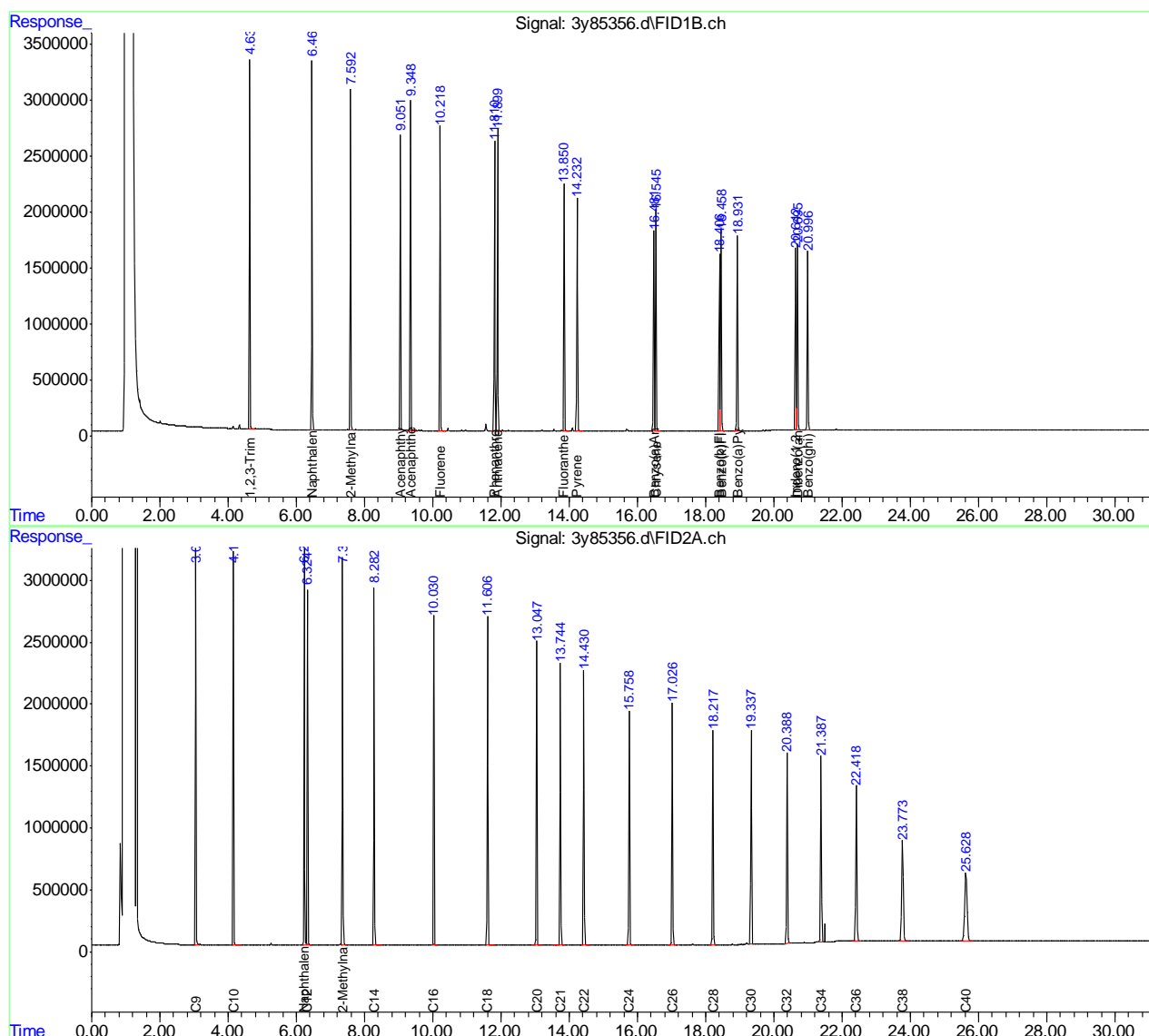
```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85356.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   9:12 pm
Operator  : thomasl
Sample    : icv3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 17:09:38 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 16:53:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                 Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um


         Compound                     R.T.      Response   Conc Units
  --------------------------------------------------------------------------
  --------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                            (m)=manual int.
```

EPH3Y3347.M Sun Sep 25 17:09:43 2022   Page: 2

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85356.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022   9:12 pm
Operator  : thomasl
Sample    : icv3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 13   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 17:09:38 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 16:53:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


9.5.15

9

C:\msdchem\1\data\g3y3347\3y85356.d

Hydrocarbon Range Total Response

	Data File Name	**3y85356.d**
	Date Acquired	**9/22/2022 21:12**
	Sample Name	**icv3347-50**

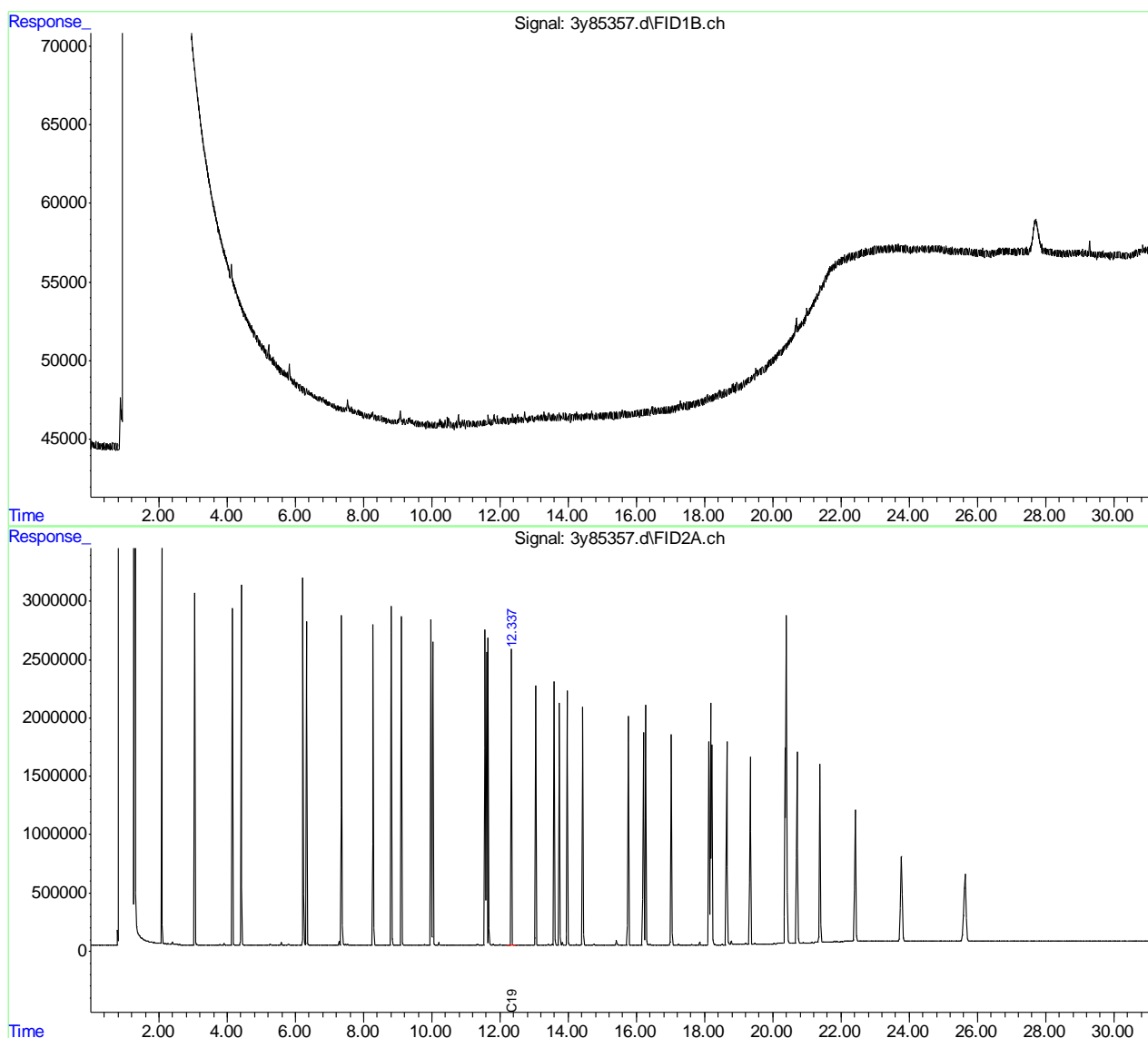|	Name	Target Response	AvgRF	CCRF	%D
1)	1,2,3-Trimethylbenzene	33613984			
2)	Naphthalene	34846187			
3)	C10-C12 Aromatics	68460171	6.75E+05	684601.7096	-1.4
4)	2-Methylnaphthalene	34870823			
5)	Acenaphthylene	30314421			
6)	Acenaphthene	33056736			
7)	C12-C16 Aromatics	98241980	678640.4343	654946.5304	3.5
8)	Fluorene	32493626			
9)	Phenanthrene	31518320			
10)	Anthracene	31102093			
11)	Fluoranthene	30142777			
12)	Pyrene	29763329			
13)	C16-C21 Aromatics	155020146	642285.1546	620080.5837	3.5
14)	Benzo(a)Anthracene	28138135			
15)	Chrysene	28545219			
16)	Benzo(b)Fluoranthene	28065541			
17)	Benzo(k)Fluoranthene	28182050			
18)	Benzo(a)Pyrene	27803409			
19)	Indeno(1,2,3-cd)Pyrene	28118629			
20)	Dibenzo(ah)Anthracene	29013149			
21)	Benzo(ghi)Perylene	28671883			
22)	C21-C36 Aromatics	226538017	599350.3432	566345.0416	5.5
27)	SIGNAL #2				
28)	C9	31587604			
29)	C10	32171132			
30)	C12	32691799			
31)	C9-C12 Aliphatics	96450535	600653.6024	643003.5642	-7.1
32)	C14	33554371			
33)	C16	33243940			
34)	C12-C16 Aliphatics	66798311	617472.8721	667983.1087	-8.2
35)	C18	33631722			
37)	C20	33203388			
38)	C21	32937329			
39)	C16-C21 Aliphatics	99772438	621009.1871	665149.5861	-7.1
40)	C22	32705333			
41)	C24	31984612			
42)	C26	30827382			
43)	C28	30031332			
44)	C30	29110293			
45)	C32	28300333			
46)	C34	28063534			
47)	C36	27335481			
48)	C38	27095141.18			
49)	C40	27185599.37			
50)	C21-C40 Aliphatics	292639040.3	555452.5925	585278.0805	-5.4
	For MAEPH				
23)	C11-C22 Aromatics (Unadj.)	514646329)	631209)	605466)	4.1
36)	C19	0			
51)	C9-C18 Aliphatics	196880567.2	610324.8207	656268.5573	-7.5
52)	C19-C36 Aliphatics	215197820.4	587241.5002	614850.9154	-4.7

9.5.16

9

```
                    Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85357.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022    9:49 pm
Operator  : thomasl
Sample    : icv3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 17:08:47 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 16:53:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

        Compound                    R.T.      Response    Conc Units
 --------------------------------------------------------------------------

 System Monitoring Compounds

 Target Compounds
36) T   C19                         12.337    31729410   50.285 ug/L
 --------------------------------------------------------------------------

(f)=RT Delta > 1/2 Window                         (m)=manual int.
```

EPH3Y3347.M Sun Sep 25 17:08:53 2022   Page: 1

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\g3y3347\
Data File : 3y85357.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 22 Sep 2022    9:49 pm
Operator  : thomasl
Sample    : icv3347-50
Misc      : op40644,g3y3347,15.0,,,2,1
ALS Vial  : 14    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 25 17:08:47 2022
Quant Method : C:\MSDCHEM\1\METHODS\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Sun Sep 25 16:53:06 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.    : 1ul/col
Signal #1 Phase : HP5                Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um   Signal #2 Info : 30mx.32mm.x25um
```


9.5.17

9

EPH3Y3347.M Sun Sep 25 17:08:53 2022   Page: 2

```
                        Quantitation Report     (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85977.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022   6:10 pm
Operator  : thomasl
Sample    : cc3347-50
Misc      : op42602,g3y3363,16.5,,,2,1
ALS Vial  : 3    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:04:27 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5             Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

        Compound                  R.T.     Response    Conc Units
    -----------------------------------------------------------------------

  System Monitoring Compounds
24) S   2-Fluorobiphenyl (S)       8.196    32323436    55.339 ug/L
25) S   2-Bromonaphthalene (S)     9.245    22791833    56.237 ug/L
26) S   o-Terphenyl  (S)          12.469    36437320    57.153 ug/L
53) S   Naphthalene (S)            6.190    15129704    23.508 ug/L
54) S   2-Methylnaphthalene (S)    7.318    17586400    26.921 ug/L
55) S   1-Chlorooctadecane (S)    13.603    26563152    50.473 ug/L


  Target Compounds
 1) T   1,2,3-Trimethylbenzene     4.598    34204529    51.702 ug/l
 2) T   Naphthalene                6.423    36894464    53.594 ug/L
 4) T   2-Methylnaphthalene        7.552    36915804    54.662 ug/L
 5) T   Acenaphthylene             9.011    36214663    54.988 ug/l
 6) T   Acenaphthene               9.308    39383131    56.103 ug/l
 8) T   Fluorene                  10.177    37481386    56.568 ug/l
 9) T   Phenanthrene              11.769    36755572    57.075 ug/l
10) T   Anthracene                11.857    36228434    56.528 ug/l
11) T   Fluoranthene              13.804    35770751    57.342 ug/l
12) T   Pyrene                    14.188    36534048    57.072 ug/l
14) T   Benzo(a)Anthracene        16.433    34168043    55.159 ug/l
15) T   Chrysene                  16.499    34257969    55.480 ug/l
16) T   Benzo(b)Fluoranthene      18.360    32897654    54.537 ug/l
17) T   Benzo(k)Fluoranthene      18.410    31800406    54.351 ug/l
18) T   Benzo(a)Pyrene            18.885    32018368    54.648 ug/l
19) T   Indeno(1,2,3-cd)Pyrene    20.597    32151474    55.455 ug/l
20) T   Dibenzo(ah)Anthracene     20.649    34594644    55.357 ug/l
21) T   Benzo(ghi)Perylene        20.951    32383082    55.934 ug/l
28) T   C9                         3.012    30146346    51.180 ug/L m
29) T   C10                        4.110    30949890    51.537 ug/L
30) T   C12                        6.278    33701356    55.032 ug/L
32) T   C14                        8.233    32118037    52.288 ug/L
33) T   C16                        9.979    31783530    51.207 ug/L
35) T   C18                       11.552    31413655    50.258 ug/L
36) T   C19                       12.283    31790986    50.382 ug/L
37) T   C20                       12.989    31068289    49.995 ug/L
38) T   C21                       13.686    30924184    50.156 ug/L
40) T   C22                       14.371    30609439    49.727 ug/L
41) T   C24                       15.698    30099853    50.192 ug/L
42) T   C26                       16.960    29456181    50.325 ug/L
43) T   C28                       18.148    29095047    51.484 ug/L
44) T   C30                       19.268    29005583    52.225 ug/L
45) T   C32                       20.320    28794537    52.704 ug/L
46) T   C34                       21.314    28077975    53.562 ug/L
47) T   C36                       22.331    28494882    54.335 ug/L
48) T   C38                       23.646    28175072    54.787 ug/L
49) T   C40                       25.456    28930344    55.190 ug/L
    -----------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window                    (m)=manual int.
```
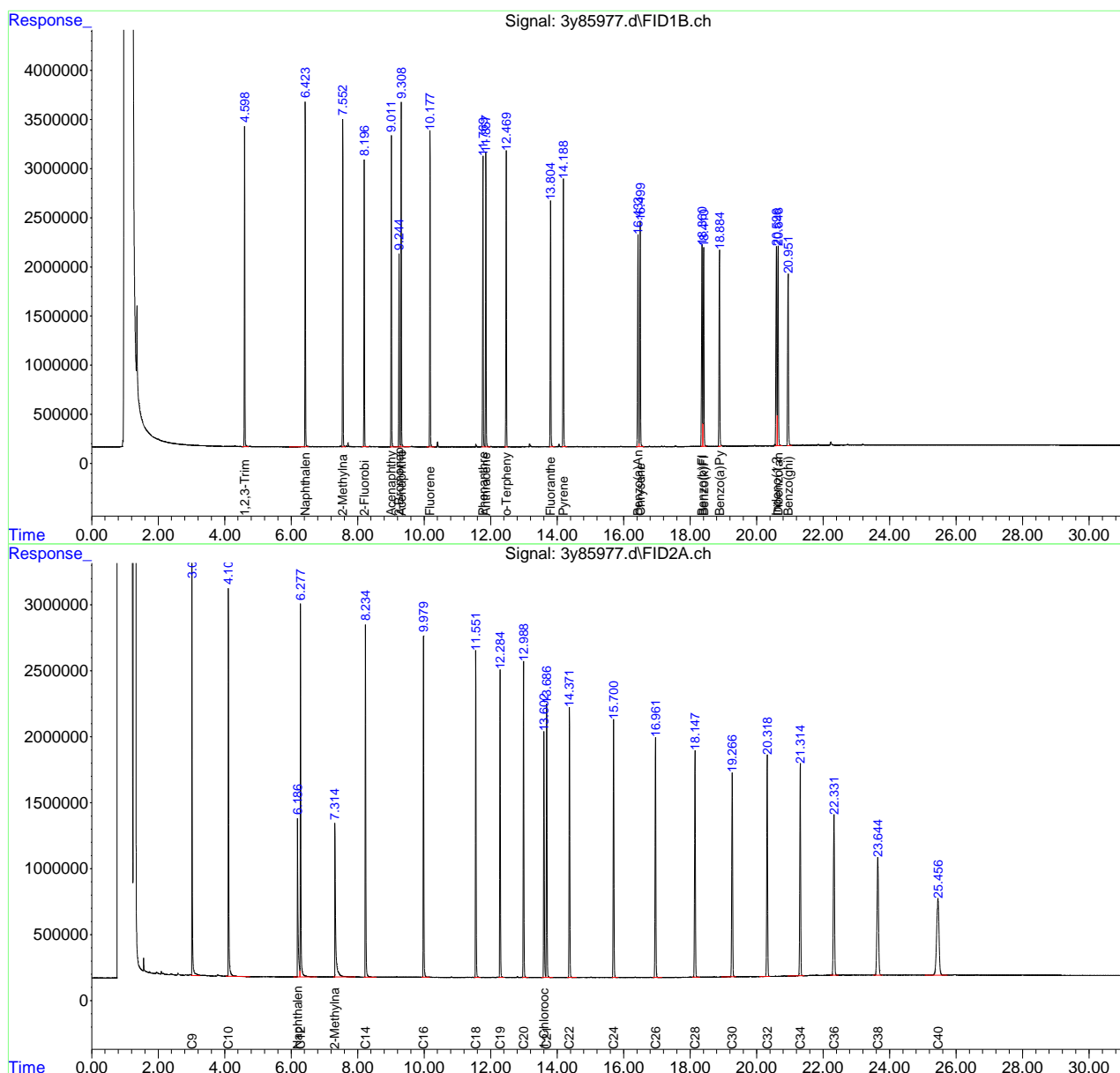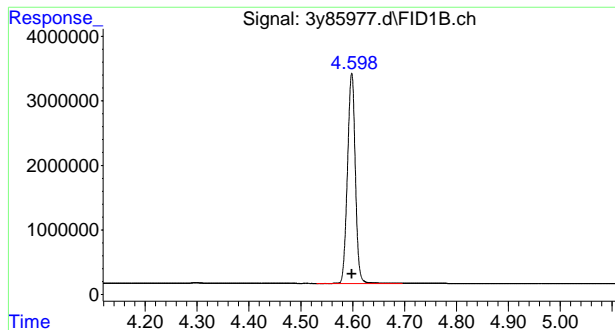
EPH3Y3347.M Fri Oct 28 08:36:38 2022

Quantitation Report   (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85977.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On   : 26 Oct 2022   6:10 pm
Operator : thomasl
Sample   : cc3347-50
Misc   : op42602,g3y3363,16.5,,,2,1
ALS Vial : 3   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 07:04:27 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5   Signal #2 Phase: HP5
Signal #1 Info : 30mx.25mm.x.25um Signal #2 Info : 30mx.32mm.x25um

EPH3Y3347.M Fri Oct 28 08:36:38 2022

Page: 2

#1 1,2,3-Trimethylbenzene

```
        R.T.:    4.598 min
Delta R.T.:    0.000 min
  Response:  34204529
      Conc:  51.70 ug/l
```
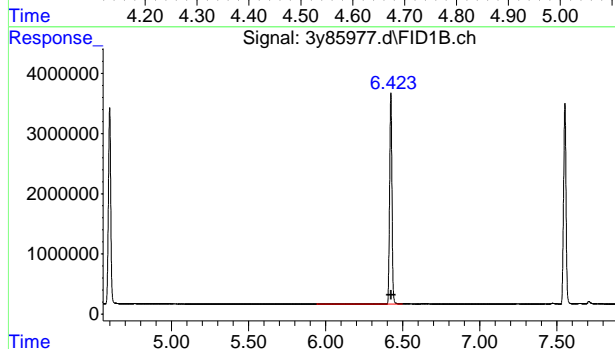
#2 Naphthalene

```
        R.T.:    6.423 min
Delta R.T.:    0.000 min
  Response:  36894464
      Conc:  53.59 ug/L
```
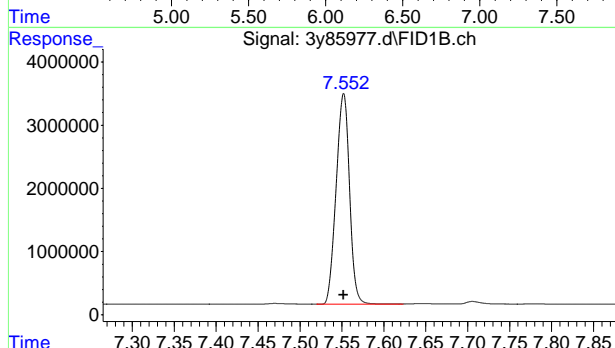
#4 2-Methylnaphthalene

```
        R.T.:    7.552 min
Delta R.T.:    0.000 min
  Response:  36915804
      Conc:  54.66 ug/L
```
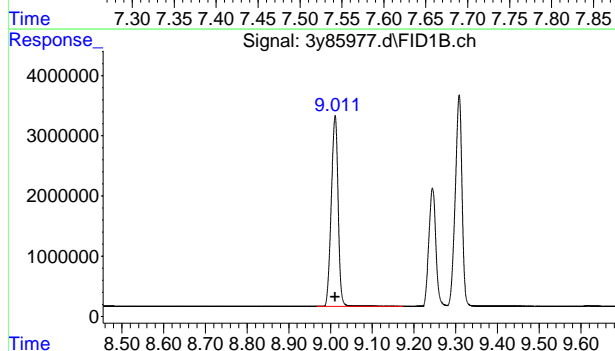
#5 Acenaphthylene

```
        R.T.:    9.011 min
Delta R.T.:    0.000 min
  Response:  36214663
      Conc:  54.99 ug/l
```

9.5.18

9
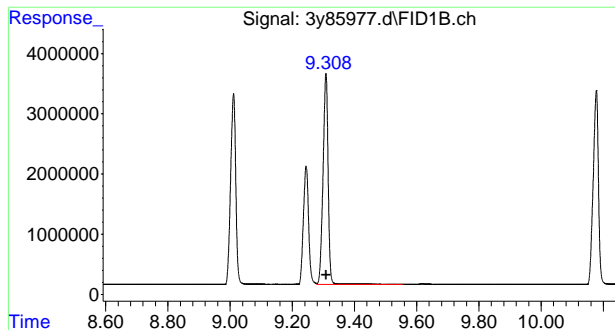
#6   Acenaphthene

```
      R.T.:    9.308 min
Delta R.T.:    0.000 min
  Response:  39383131
      Conc:   56.10 ug/l
```
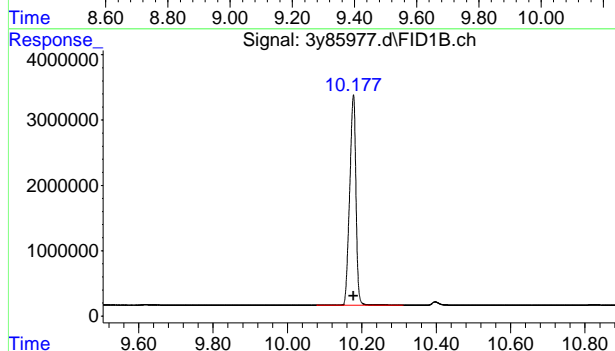
#8   Fluorene

```
      R.T.:   10.177 min
Delta R.T.:    0.000 min
  Response:  37481386
      Conc:   56.57 ug/l
```
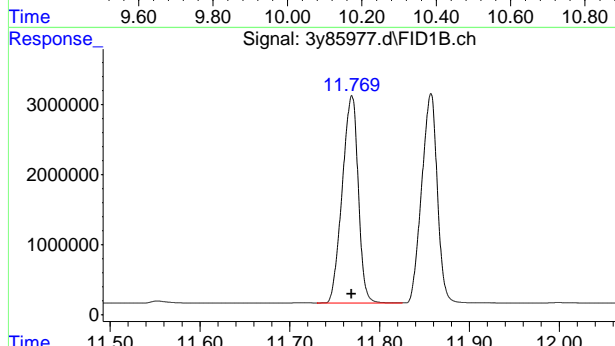
#9   Phenanthrene

```
      R.T.:   11.769 min
Delta R.T.:    0.000 min
  Response:  36755572
      Conc:   57.08 ug/l
```
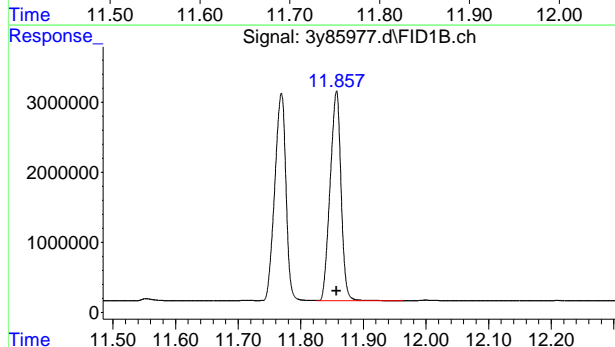
#10 Anthracene

```
      R.T.:   11.857 min
Delta R.T.:    0.000 min
  Response:  36228434
      Conc:   56.53 ug/l
```

9.5.18

9
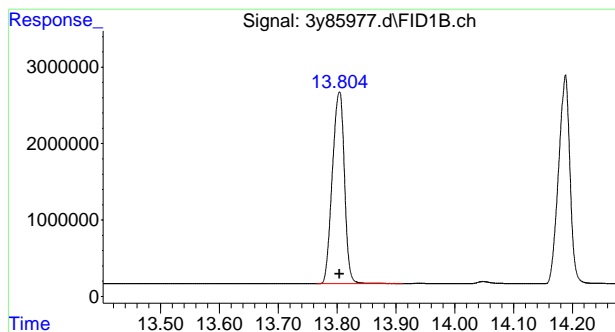
#11 Fluoranthene

```
       R.T.:    13.804 min
Delta R.T.:     0.000 min
  Response:    35770751
      Conc:    57.34 ug/l
```
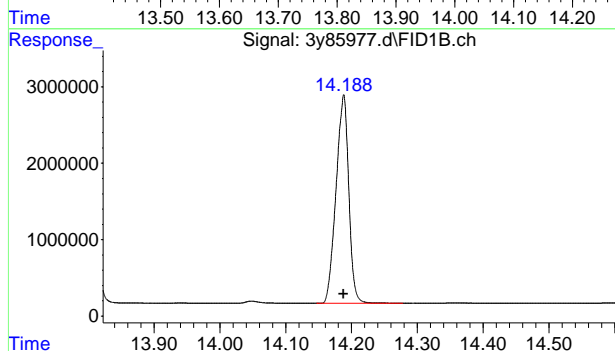
#12 Pyrene

```
       R.T.:    14.188 min
Delta R.T.:     0.000 min
  Response:    36534048
      Conc:    57.07 ug/l
```
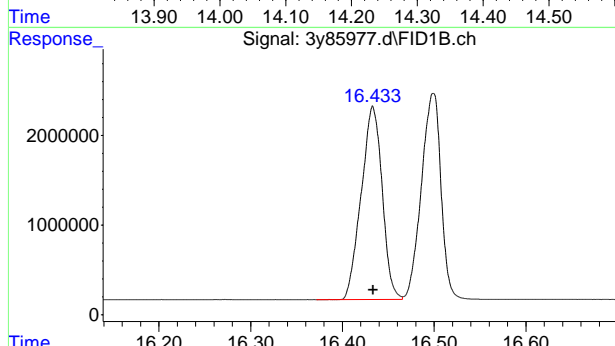
#14 Benzo(a)Anthracene

```
       R.T.:    16.433 min
Delta R.T.:     0.000 min
  Response:    34168043
      Conc:    55.16 ug/l
```
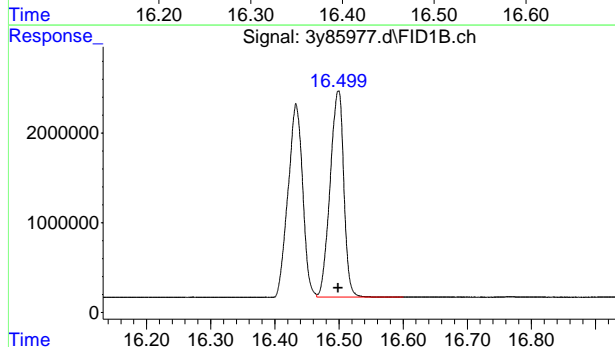
#15 Chrysene

```
       R.T.:    16.499 min
Delta R.T.:     0.000 min
  Response:    34257969
      Conc:    55.48 ug/l
```
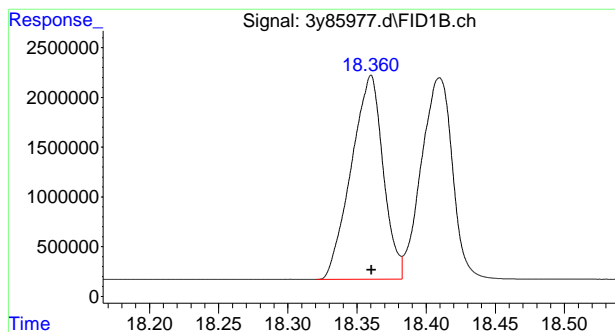
#16   Benzo(b)Fluoranthene

           R.T.:   18.360 min
Delta R.T.:   0.000 min
  Response: 32897654
        Conc: 54.54 ug/l
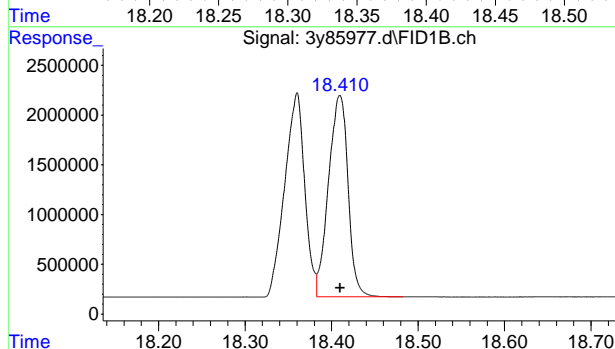
#17   Benzo(k)Fluoranthene

           R.T.:   18.410 min
Delta R.T.:   0.000 min
  Response: 31800406
        Conc: 54.35 ug/l
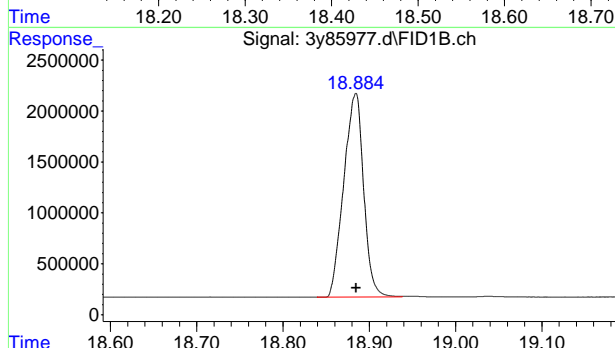
#18   Benzo(a)Pyrene

           R.T.:   18.885 min
Delta R.T.:   0.000 min
  Response: 32018368
        Conc: 54.65 ug/l
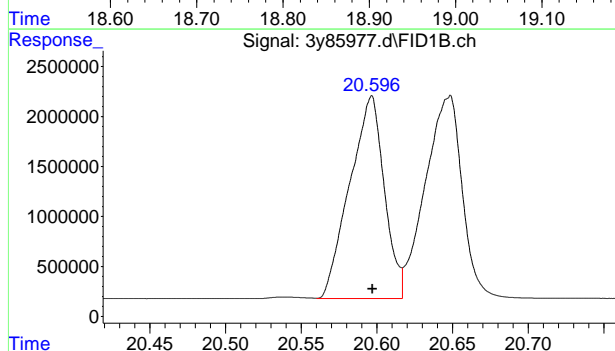
#19   Indeno(1,2,3-cd)Pyrene

           R.T.:   20.597 min
Delta R.T.:   0.000 min
  Response: 32151474
        Conc: 55.46 ug/l

9.5.18

9
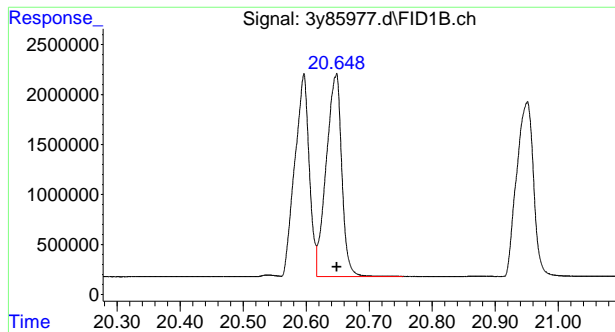
#20   Dibenzo(ah)Anthracene

```
        R.T.:    20.649 min
Delta R.T.:     0.000 min
  Response:   34594644
       Conc:   55.36 ug/l
```
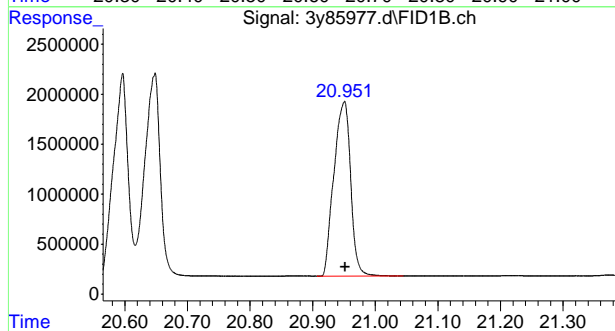

#21   Benzo(ghi)Perylene

```
        R.T.:    20.951 min
Delta R.T.:     0.000 min
  Response:   32383082
       Conc:   55.93 ug/l
```
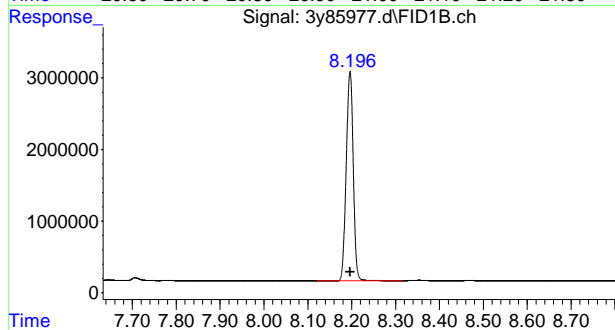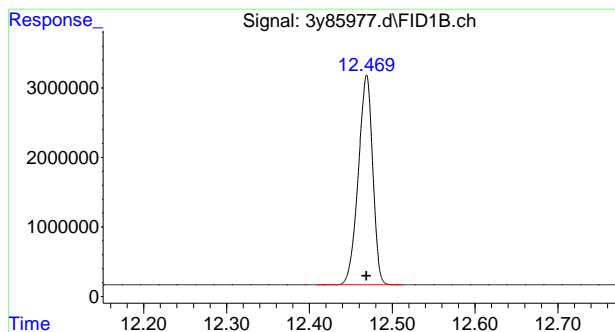

#24   2-Fluorobiphenyl (S)

```
        R.T.:     8.196 min
Delta R.T.:     0.000 min
  Response:   32323436
       Conc:   55.34 ug/L
```
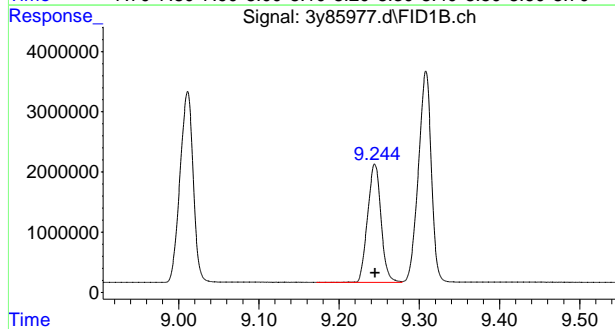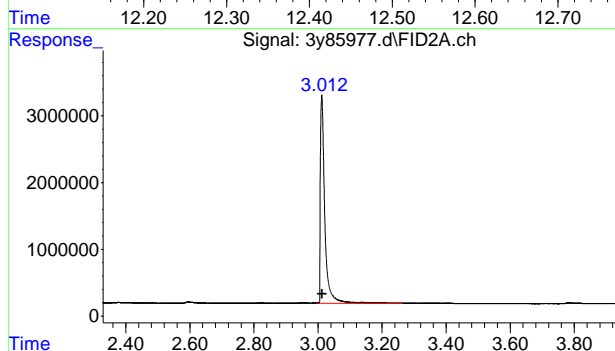

#25   2-Bromonaphthalene (S)

```
        R.T.:     9.245 min
Delta R.T.:     0.000 min
  Response:   22791833
       Conc:   56.24 ug/L
```
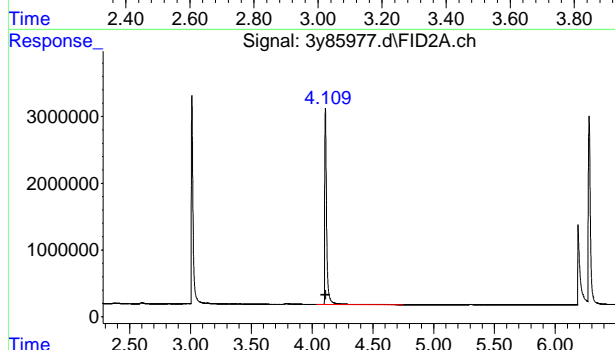
9.5.18

9

#26 o-Terphenyl (S)

```
        R.T.:   12.469 min
Delta R.T.:    0.000 min
 Response:   36437320
      Conc:   57.15 ug/L
```

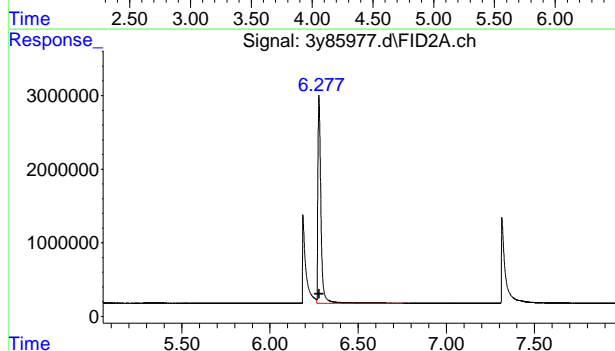#28 C9

```
        R.T.:    3.012 min
Delta R.T.:   -0.001 min
 Response:   30146346
      Conc:   51.18 ug/L m
```

#29 C10

```
        R.T.:    4.110 min
Delta R.T.:    0.000 min
 Response:   30949890
      Conc:   51.54 ug/L
```
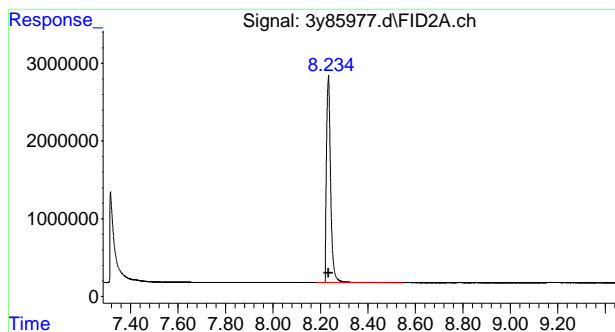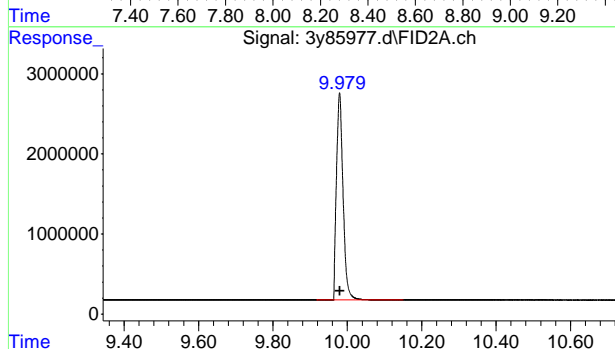
#30 C12

```
        R.T.:    6.278 min
Delta R.T.:    0.000 min
 Response:   33701356
      Conc:   55.03 ug/L
```
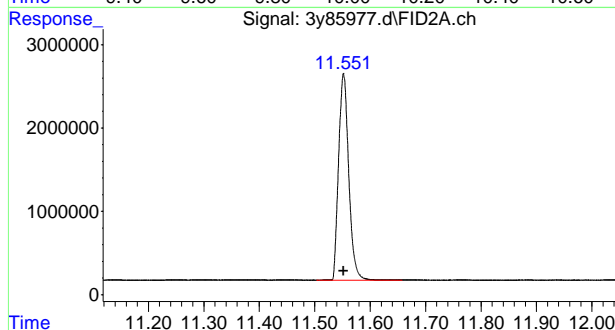
9.5.18

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Signal: 3y85977.d\FID2A.ch

#32 C14

```
       R.T.:     8.233 min
Delta R.T.:      0.000 min
  Response:  32118037
      Conc:    52.29 ug/L
```

Signal: 3y85977.d\FID2A.ch

#33 C16

```
       R.T.:     9.979 min
Delta R.T.:      0.000 min
  Response:  31783530
      Conc:    51.21 ug/L
```

Signal: 3y85977.d\FID2A.ch

#35 C18

```
       R.T.:    11.552 min
Delta R.T.:      0.000 min
  Response:  31413655
      Conc:    50.26 ug/L
```

Signal: 3y85977.d\FID2A.ch
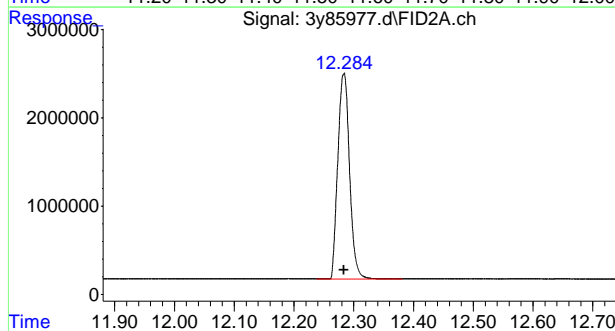
#36 C19

```
       R.T.:    12.283 min
Delta R.T.:      0.000 min
  Response:  31790986
      Conc:    50.38 ug/L
```

9.5.18

9
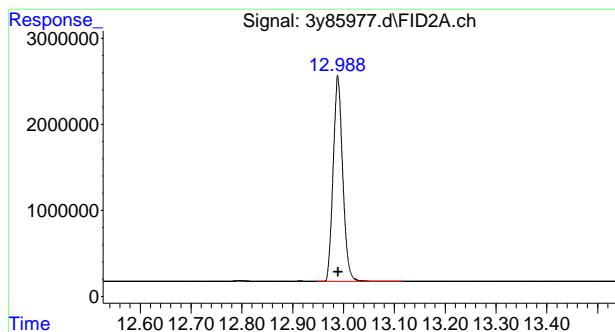
#37 C20

R.T.:   12.989 min
Delta R.T.:   0.000 min
Response: 31068289
Conc: 50.00 ug/L

#38 C21

R.T.:   13.686 min
Delta R.T.:   0.000 min
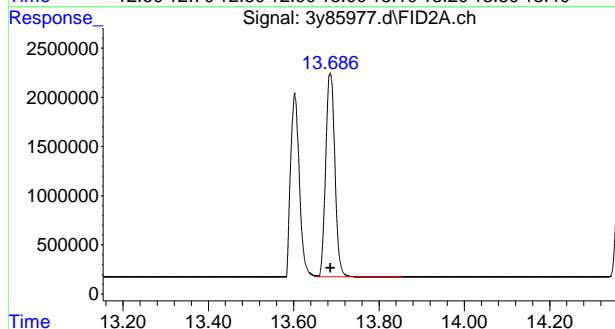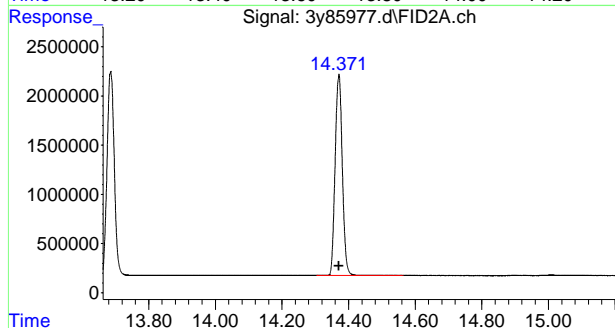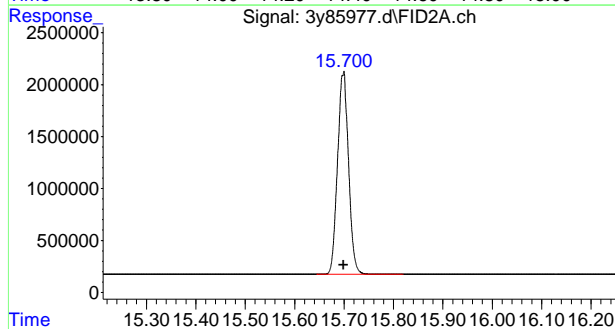Response: 30924184
Conc: 50.16 ug/L

#40 C22

R.T.:   14.371 min
Delta R.T.:   0.000 min
Response: 30609439
Conc: 49.73 ug/L

#41 C24

R.T.:   15.698 min
Delta R.T.:   0.000 min
Response: 30099853
Conc: 50.19 ug/L

Signal: 3y85977.d\FID2A.ch

#42 C26

R.T.:   16.960 min
Delta R.T.:   0.000 min
Response: 29456181
Conc: 50.32 ug/L

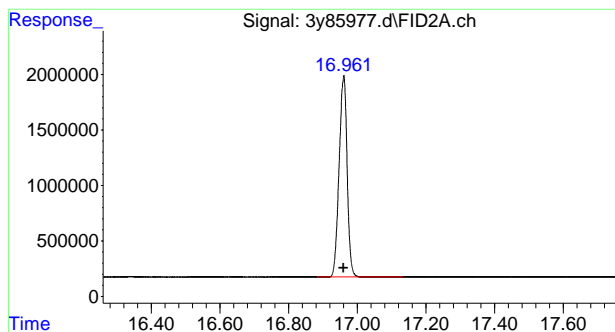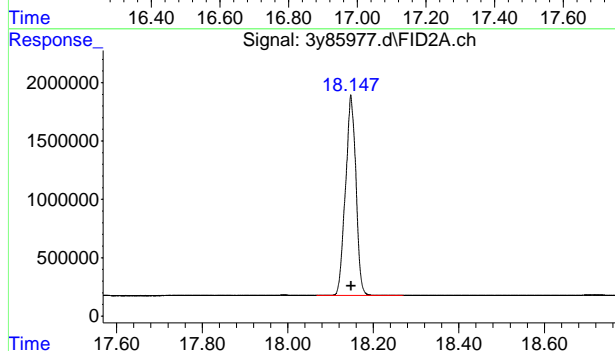#43 C28

R.T.:   18.148 min
Delta R.T.:   0.000 min
Response: 29095047
Conc: 51.48 ug/L
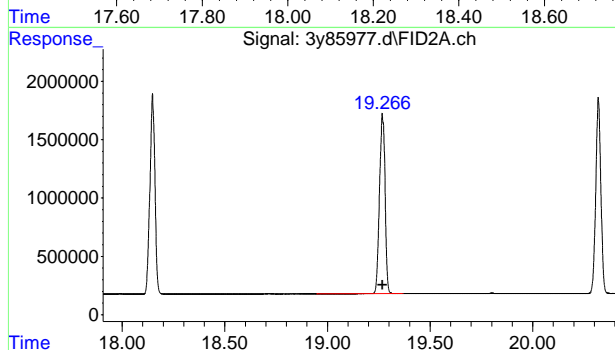
#44 C30

R.T.:   19.268 min
Delta R.T.:   0.000 min
Response: 29005583
Conc: 52.22 ug/L
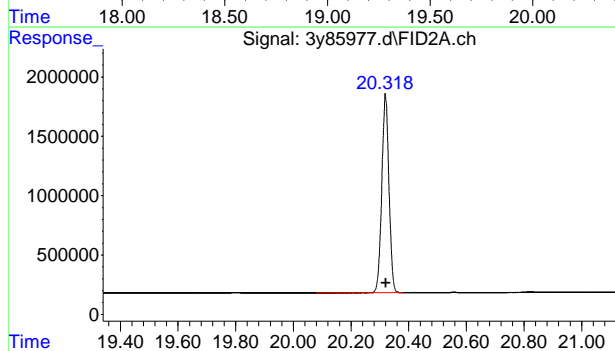
#45 C32

R.T.:   20.320 min
Delta R.T.:   0.000 min
Response: 28794537
Conc: 52.70 ug/L

3y85977.d EPH3Y3347.M   Fri Oct 28 08:36:41 2022
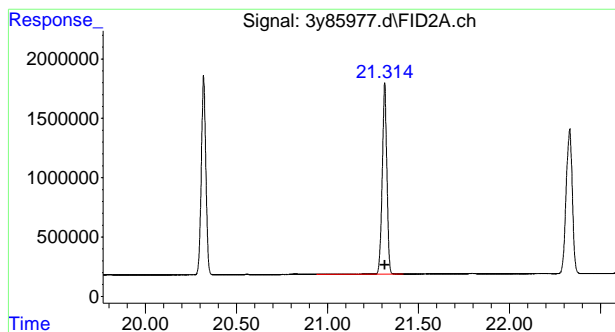
#46 C34

```
      R.T.:   21.314 min
Delta R.T.:    0.000 min
  Response: 28077975
      Conc:  53.56 ug/L
```
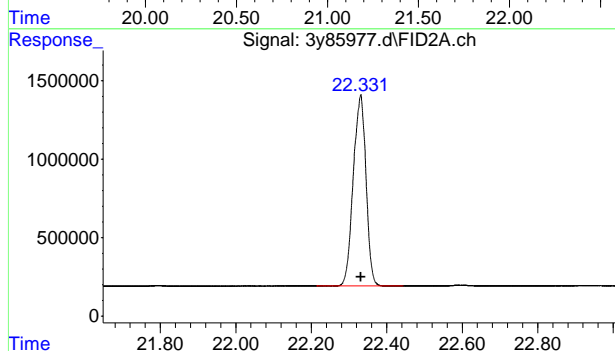
#47 C36

```
      R.T.:   22.331 min
Delta R.T.:    0.000 min
  Response: 28494882
      Conc:  54.34 ug/L
```
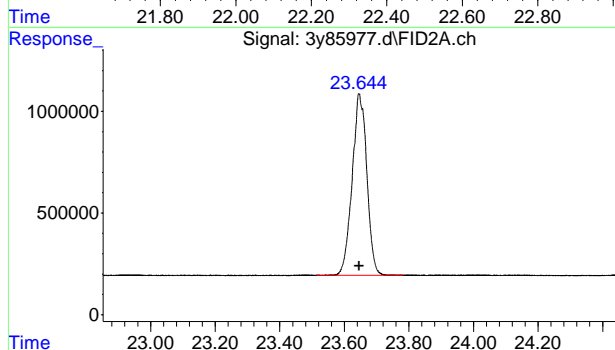
#48 C38

```
      R.T.:   23.646 min
Delta R.T.:    0.000 min
  Response: 28175072
      Conc:  54.79 ug/L
```
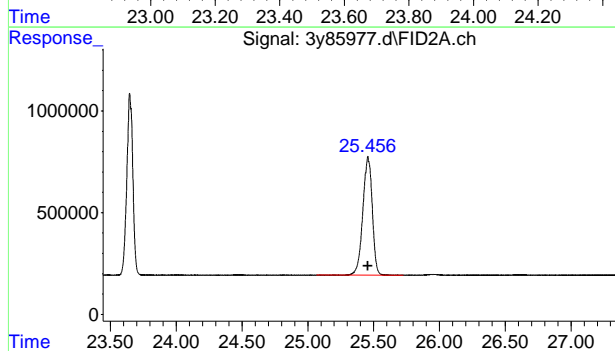
#49 C40

```
      R.T.:   25.456 min
Delta R.T.:    0.000 min
  Response: 28930344
      Conc:  55.19 ug/L
```

9.5.18

9

3y85977.d EPH3Y3347.M   Fri Oct 28 08:36:41 2022
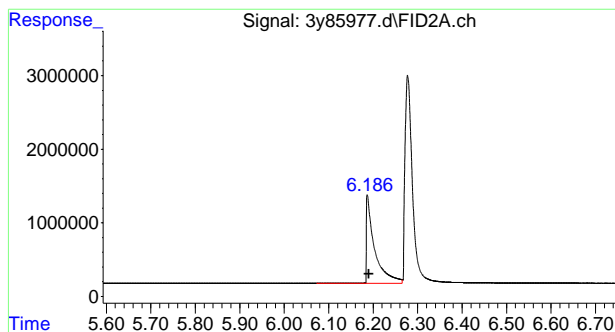
#53 Naphthalene (S)

```
          R.T.:     6.190 min
Delta R.T.:     0.000 min
   Response:  15129704
       Conc:   23.51 ug/L
```
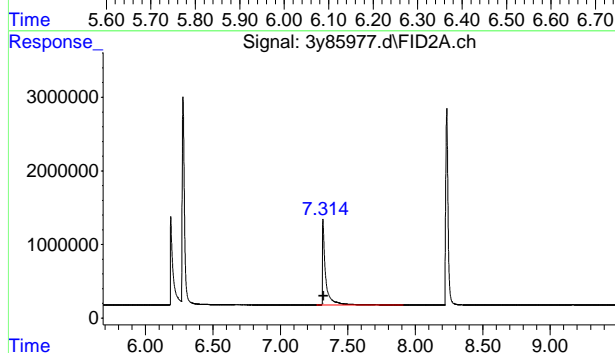
#54 2-Methylnaphthalene (S)

```
          R.T.:     7.318 min
Delta R.T.:     0.000 min
   Response:  17586400
       Conc:   26.92 ug/L
```
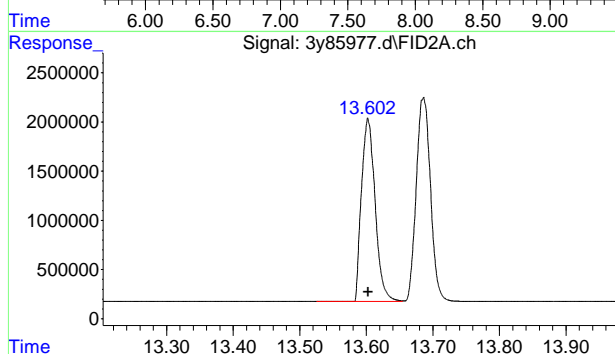
#55 1-Chlorooctadecane (S)

```
          R.T.:    13.603 min
Delta R.T.:     0.000 min
   Response:  26563152
       Conc:   50.47 ug/L
```

9.5.18

9

Manual Integration Approval Summary

Sample Number: G3Y3363-CC3347   **Method:** NJDEP EPH
Lab FileID: 3Y85977.D   **Analyst approved:** 10/28/22 04:45 MaryAnne Loyola
Injection Time: 10/26/22 18:10   **Supervisor approved:** 10/29/22 21:05 Gwendolyn Burns

Parameter	CAS	Sig#	R.T. (min.)	Reason
C9		2	3.01	Poorly defined baseline

```
                        Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85977.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 26 Oct 2022   6:10 pm
Operator  : thomasl
Sample    : cc3347-50
Misc      : op42602,g3y3363,16.5,,,2,1
ALS Vial  : 3   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 06:38:33 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5            Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


Signal: 3y85977.d\FID2A.ch

9.5.18.2

9

QEdit

(28) C9 (T)

3.013min   51.470 ug/L

response 30316969

```
(+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 06:39:31 2022                    Page: 1
```

3Y85977.D edits: C9

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y85977.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 26 Oct 2022   6:10 pm
Operator  : thomasl
Sample    : cc3347-50
Misc      : op42602,g3y3363,16.5,,,2,1
ALS Vial  : 3    Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 06:38:33 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```


9.5.18.3

9

(28) C9 (T)

3.012min   51.180 ug/L m

response 30146346

```
(+) = Expected Retention Time
EPH3Y3347.M Fri Oct 28 06:40:40 2022                    Page: 1
```

C:\msdchem\1\data\maryann\g3y3363\3y85977.d

Hydrocarbon Range Total Response

	Data File Name	**3y85977.d**
	Date Acquired	**10/26/2022 18:10**
	Sample Name	**cc3347-50**

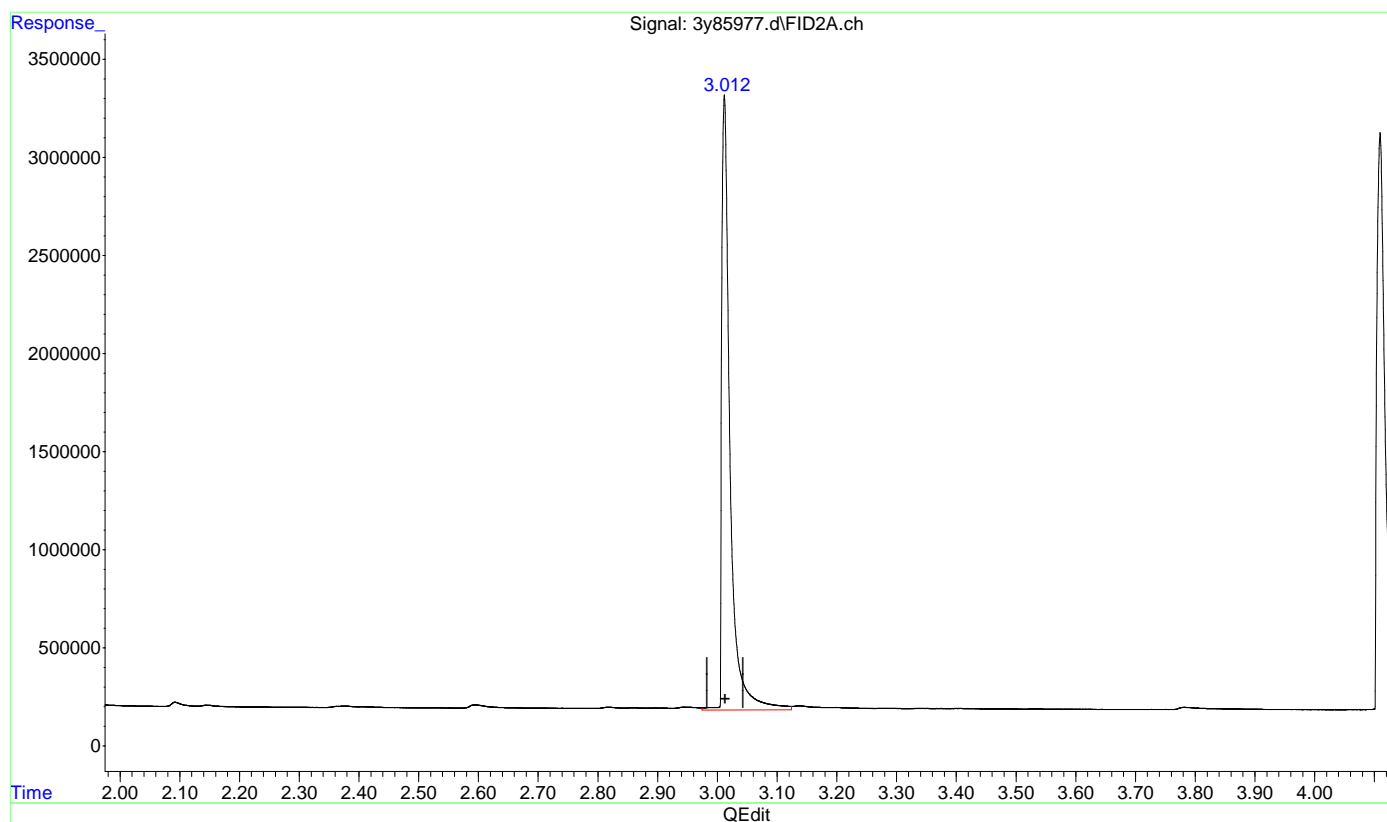|	**Name**	**Target Response**	AvgRF	CCRF	%D
1)	1,2,3-Trimethylbenzene	34204529			
2)	Naphthalene	36894464			
3)	C10-C12 Aromatics	71098993	6.75E+05	710989.9299	-5.3
4)	2-Methylnaphthalene	36915804			
5)	Acenaphthylene	36214663			
6)	Acenaphthene	39383131			
7)	C12-C16 Aromatics	112513597	678640.4343	750090.6497	-10.5
8)	Fluorene	37481386			
9)	Phenanthrene	36755572			
10)	Anthracene	36228434			
11)	Fluoranthene	35770751			
12)	Pyrene	36534048			
13)	C16-C21 Aromatics	182770192	642285.1546	731080.7666	-13.8
14)	Benzo(a)Anthracene	34168043			
15)	Chrysene	34257969			
16)	Benzo(b)Fluoranthene	32897654			
17)	Benzo(k)Fluoranthene	31800406			
18)	Benzo(a)Pyrene	32018368			
19)	Indeno(1,2,3-cd)Pyrene	32151474			
20)	Dibenzo(ah)Anthracene	34594644			
21)	Benzo(ghi)Perylene	32383082			
22)	C21-C36 Aromatics	264271641	599350.3432	660679.1025	-10.2
27)	SIGNAL #2				
28)	C9	30146346			
29)	C10	30949890			
30)	C12	33701356			
31)	C9-C12 Aliphatics	94797592	600653.6024	631983.9485	-5.2
32)	C14	32118037			
33)	C16	31783530			
34)	C12-C16 Aliphatics	63901567	617472.8721	639015.6704	-3.5
35)	C18	31413655			
37)	C20	31068289			
38)	C21	30924184			
39)	C16-C21 Aliphatics	93406128	621009.1871	622707.517	-0.3
40)	C22	30609439			
41)	C24	30099853			
42)	C26	29456181			
43)	C28	29095047			
44)	C30	29005583			
45)	C32	28794537			
46)	C34	28077975			
47)	C36	28494882			
48)	C38	28175071.96			
49)	C40	28930344.41			
50)	C21-C40 Aliphatics	290738913.2	555452.5925	581477.8263	-4.7
	For MAEPH				
23)	C11-C22 Aromatics (Unadj.)	596449895)	631209)	701706)	-11.2
36)	C19	31790986.21			
51)	C9-C18 Aliphatics	190112814.6	610324.8207	633709.3819	-3.8
52)	C19-C36 Aliphatics	239620259.4	587241.5002	599050.6485	-2.0

9.5.19

9

```
                        Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y86001.d
Signal(s) : Signal #1: FID1B.ch  Signal #2: FID2A.ch
Acq On    : 27 Oct 2022   9:57 am
Operator  : thomasl
Sample    : cc3347-20
Misc      : op42418,g3y3363,1000,,,2,1
ALS Vial  : 2   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 08:35:16 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um

         Compound                 R.T.      Response    Conc Units
 -----------------------------------------------------------------------

  System Monitoring Compounds
 24) S   2-Fluorobiphenyl (S)      8.191    11420931    19.553 ug/L
 25) S   2-Bromonaphthalene (S)    9.239     7979431    19.689 ug/L
 26) S   o-Terphenyl  (S)         12.462    13241593    20.770 ug/L
 53) S   Naphthalene (S)           6.208f    5195292     8.072 ug/L
 54) S   2-Methylnaphthalene (S)   7.340f    7438028    11.386 ug/L
 55) S   1-Chlorooctadecane (S)   13.602    11572746    21.990 ug/L


  Target Compounds
  1) T   1,2,3-Trimethylbenzene    4.594    12590767    19.031 ug/l
  2) T   Naphthalene               6.418    13264348    19.268 ug/L
  4) T   2-Methylnaphthalene       7.547    13144634    19.463 ug/L
  5) T   Acenaphthylene            9.005    12850852    19.513 ug/l
  6) T   Acenaphthene              9.300    14001929    19.946 ug/l
  8) T   Fluorene                 10.170    13317473    20.099 ug/l
  9) T   Phenanthrene             11.761    13276843    20.617 ug/l
 10) T   Anthracene               11.848    13085441    20.417 ug/l
 11) T   Fluoranthene             13.795    13291993    21.308 ug/l
 12) T   Pyrene                   14.177    13719459    21.432 ug/l
 14) T   Benzo(a)Anthracene       16.423    13595080    21.947 ug/l
 15) T   Chrysene                 16.485    13727335    22.231 ug/l
 16) T   Benzo(b)Fluoranthene     18.349    13536685    22.441 ug/l
 17) T   Benzo(k)Fluoranthene     18.396    13103181    22.395 ug/l
 18) T   Benzo(a)Pyrene           18.869f   13176872    22.490 ug/l
 19) T   Indeno(1,2,3-cd)Pyrene   20.582    12863072    22.186 ug/l
 20) T   Dibenzo(ah)Anthracene    20.632    14369853    22.994 ug/l
 21) T   Benzo(ghi)Perylene       20.932    13145390    22.705 ug/l
 28) T   C9                        3.017    13068959    22.187 ug/L
 29) T   C10                       4.112    13498039    22.477 ug/L
 30) T   C12                       6.278    15721303    25.672 ug/L
 32) T   C14                       8.234    13977951    22.756 ug/L
 33) T   C16                       9.979    13973727    22.513 ug/L
 35) T   C18                      11.551    13865834    22.184 ug/L
 36) T   C19                      12.281    13994714    22.179 ug/L
 37) T   C20                      12.986    13745947    22.120 ug/L
 38) T   C21                      13.683    13663244    22.160 ug/L
 40) T   C22                      14.367    13467326    21.879 ug/L
 41) T   C24                      15.695    13223304    22.050 ug/L
 42) T   C26                      16.955    12890656    22.023 ug/L
 43) T   C28                      18.144    12667316    22.415 ug/L
 44) T   C30                      19.263    12463145    22.440 ug/L
 45) T   C32                      20.316    12270595    22.460 ug/L
 46) T   C34                      21.310    11761364    22.436 ug/L
 47) T   C36                      22.324    11754438    22.414 ug/L
 48) T   C38                      23.638    11394277    22.156 ug/L
 49) T   C40                      25.445    11659848    22.244 ug/L
 -----------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window                        (m)=manual int.

EPH3Y3347.M Fri Oct 28 08:38:09 2022                           Page:  1
```
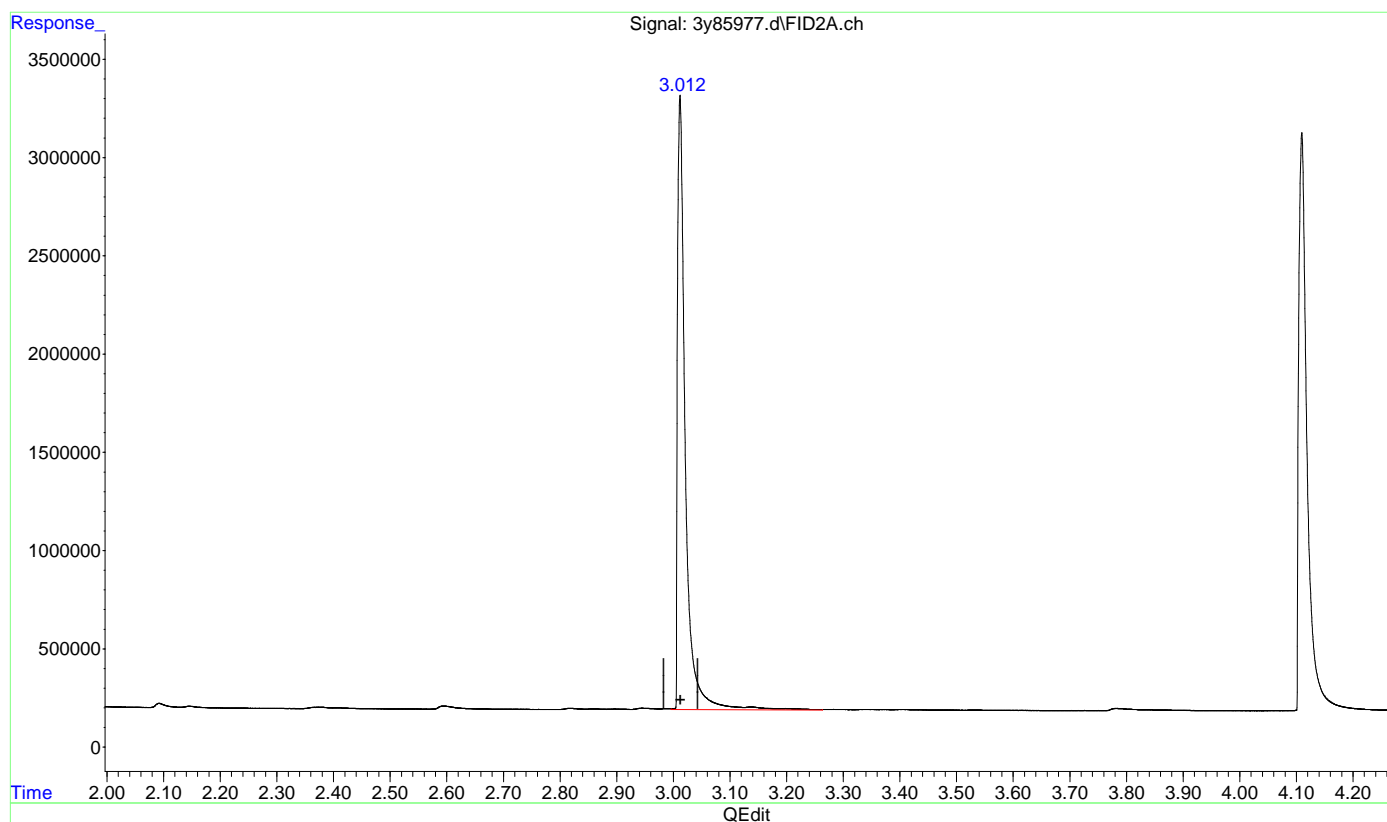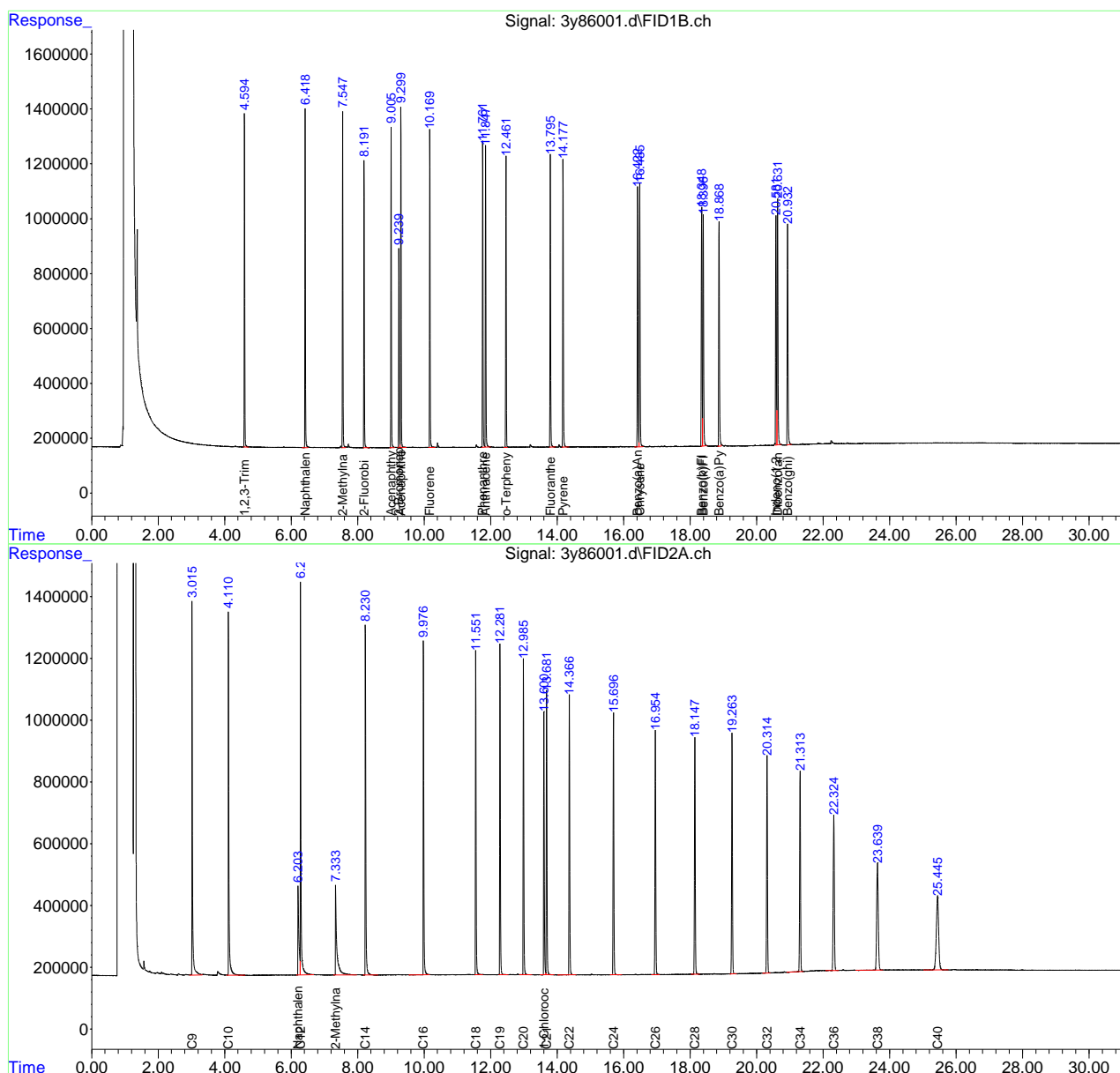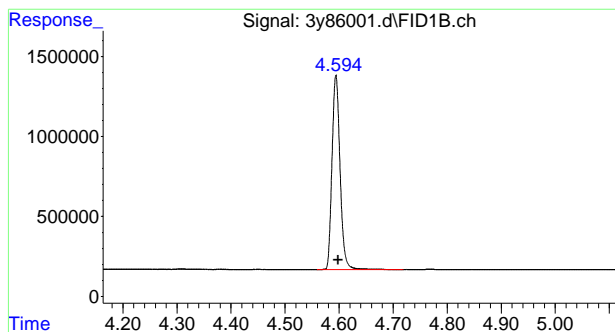
9.5.20

9

Quantitation Report   (QT Reviewed)

```
Data Path : C:\msdchem\1\data\maryannl\g3y3363\
Data File : 3y86001.d
Signal(s) : Signal #1: FID1B.ch   Signal #2: FID2A.ch
Acq On    : 27 Oct 2022   9:57 am
Operator  : thomasl
Sample    : cc3347-20
Misc      : op42418,g3y3363,1000,,,2,1
ALS Vial  : 2   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 28 08:35:16 2022
Quant Method : C:\msdchem\1\data\maryannl\g3y3363\EPH3Y3347.M
Quant Title  : NJDEP Extractable Petroleum Hydrocarbons
QLast Update : Fri Oct 28 06:38:11 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 1ul/col
Signal #1 Phase : HP5              Signal #2 Phase: HP5
Signal #1 Info  : 30mx.25mm.x.25um  Signal #2 Info : 30mx.32mm.x25um
```
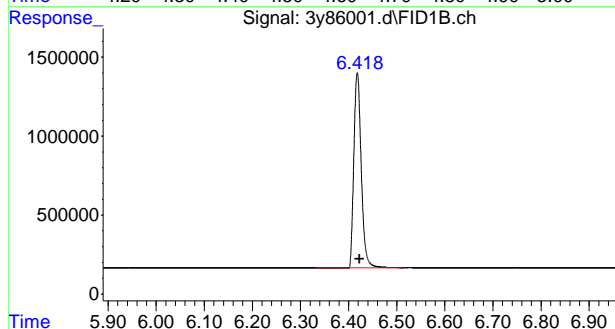

EPH3Y3347.M Fri Oct 28 08:38:09 2022

#1 1,2,3-Trimethylbenzene

           R.T.:   4.594 min
    Delta R.T.:   -0.004 min
      Response: 12590767
          Conc: 19.03 ug/l

#2 Naphthalene

           R.T.:   6.418 min
    Delta R.T.:   -0.004 min
      Response: 13264348
          Conc: 19.27 ug/L
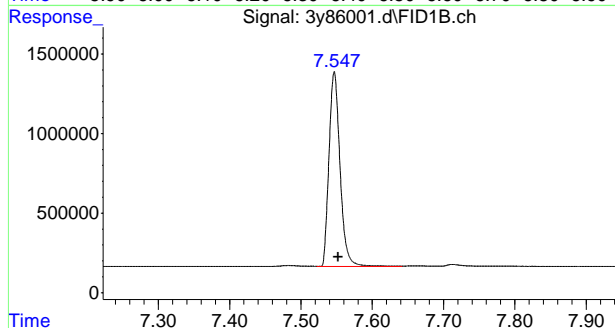
#4 2-Methylnaphthalene
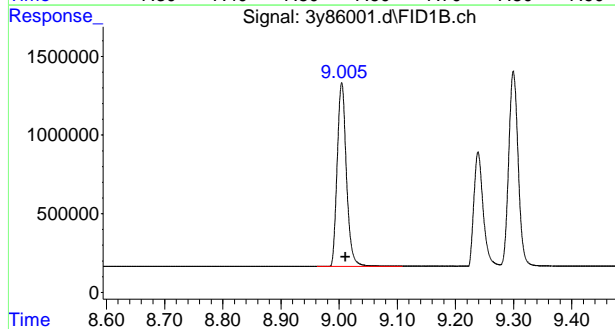
           R.T.:   7.547 min
    Delta R.T.:   -0.005 min
      Response: 13144634
          Conc: 19.46 ug/L

#5 Acenaphthylene

           R.T.:   9.005 min
    Delta R.T.:   -0.006 min
      Response: 12850852
          Conc: 19.51 ug/l

9.5.20

9
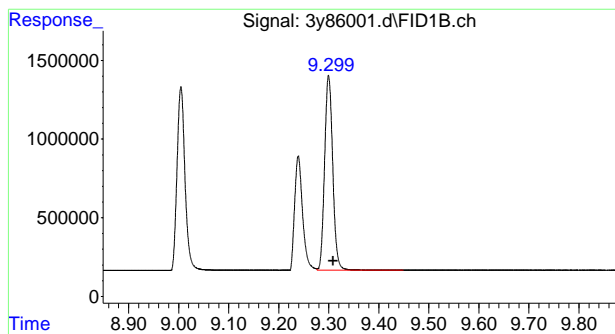
#6   Acenaphthene

```
       R.T.:    9.300 min
Delta R.T.:   -0.008 min
  Response:  14001929
      Conc:   19.95 ug/l
```
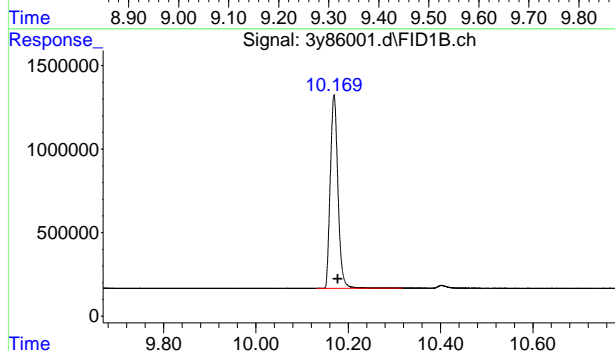
#8   Fluorene

```
       R.T.:   10.170 min
Delta R.T.:   -0.008 min
  Response:  13317473
      Conc:   20.10 ug/l
```
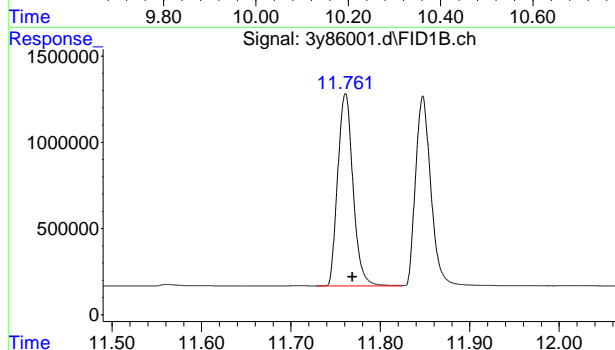
#9   Phenanthrene

```
       R.T.:   11.761 min
Delta R.T.:   -0.008 min
  Response:  13276843
      Conc:   20.62 ug/l
```
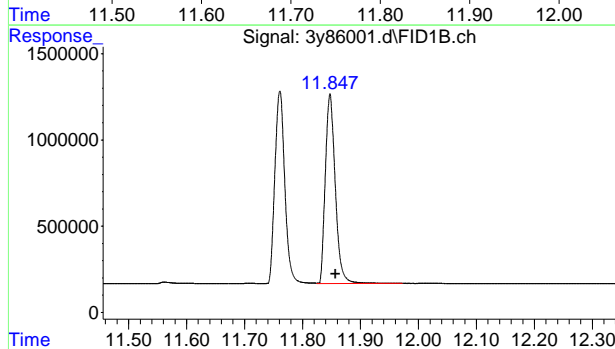
#10 Anthracene

```
       R.T.:   11.848 min
Delta R.T.:   -0.009 min
  Response:  13085441
      Conc:   20.42 ug/l
```

9.5.20

9
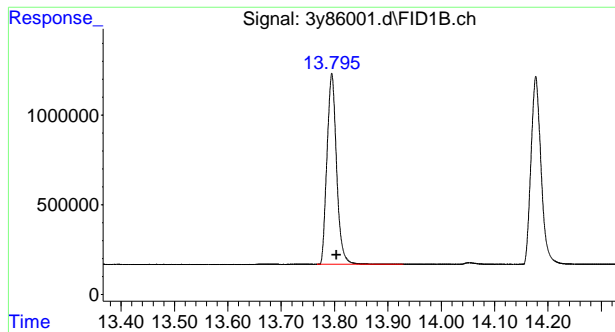
#11   Fluoranthene

```
      R.T.:    13.795 min
Delta R.T.:   -0.009 min
  Response:   13291993
      Conc:   21.31 ug/l
```
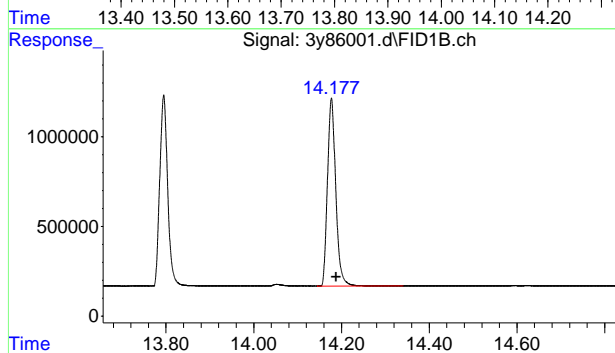

#12   Pyrene

```
      R.T.:    14.177 min
Delta R.T.:   -0.010 min
  Response:   13719459
      Conc:   21.43 ug/l
```
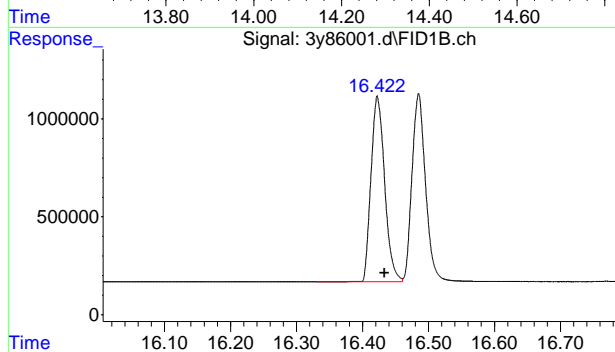

#14   Benzo(a)Anthracene

```
      R.T.:    16.423 min
Delta R.T.:   -0.011 min
  Response:   13595080
      Conc:   21.95 ug/l
```
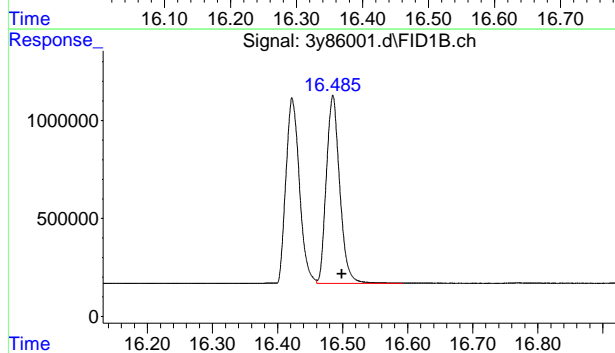

#15   Chrysene

```
      R.T.:    16.485 min
Delta R.T.:   -0.014 min
  Response:   13727335
      Conc:   22.23 ug/l
```

9.5.20

9
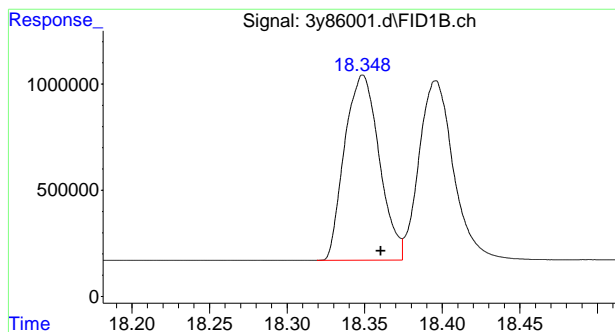
#16   Benzo(b)Fluoranthene

```
      R.T.:    18.349 min
Delta R.T.:   -0.012 min
  Response:   13536685
      Conc:   22.44 ug/l
```
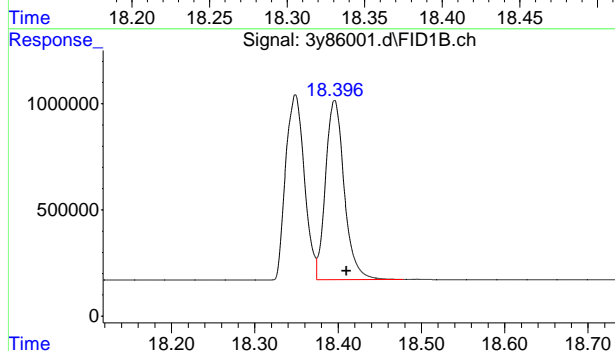

#17   Benzo(k)Fluoranthene

```
      R.T.:    18.396 min
Delta R.T.:   -0.014 min
  Response:   13103181
      Conc:   22.39 ug/l
```
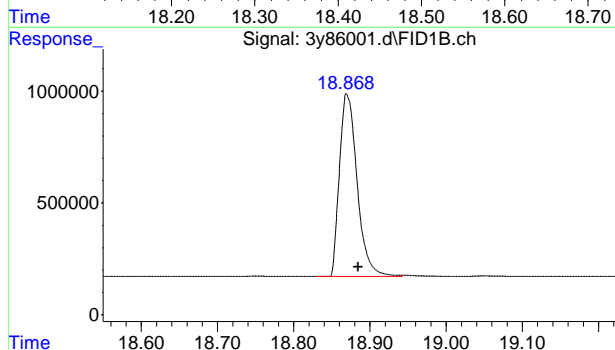

#18   Benzo(a)Pyrene

```
      R.T.:    18.869 min
Delta R.T.:   -0.015 min
  Response:   13176872
      Conc:   22.49 ug/l
```
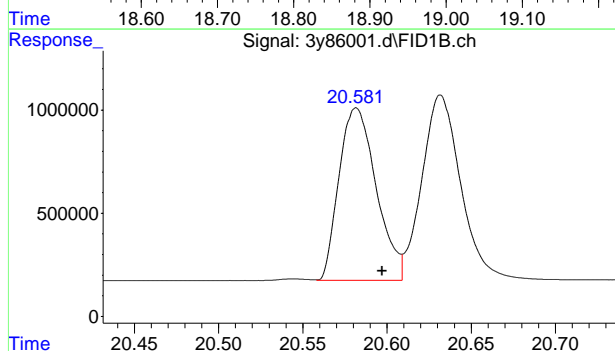

#19   Indeno(1,2,3-cd)Pyrene

```
      R.T.:    20.582 min
Delta R.T.:   -0.015 min
  Response:   12863072
      Conc:   22.19 ug/l
```

9.5.20

9
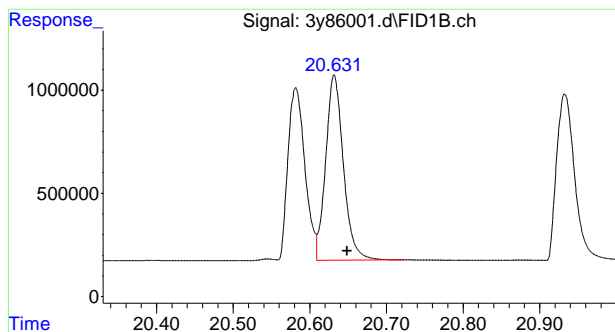
#20 Dibenzo(ah)Anthracene

```
     R.T.:    20.632 min
Delta R.T.:   -0.017 min
  Response:   14369853
     Conc:    22.99 ug/l
```
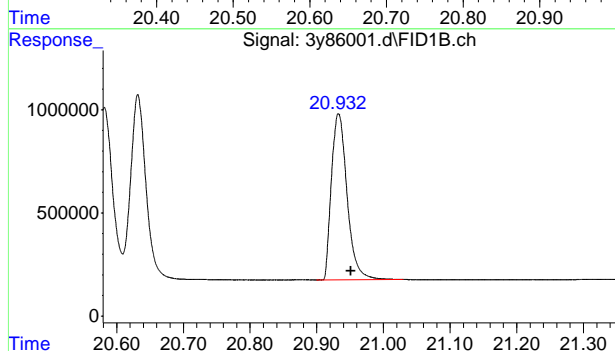
#21 Benzo(ghi)Perylene

```
     R.T.:    20.932 min
Delta R.T.:   -0.019 min
  Response:   13145390
     Conc:    22.71 ug/l
```
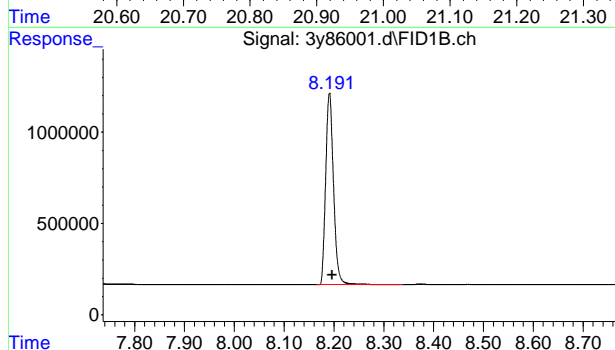
#24 2-Fluorobiphenyl (S)

```
     R.T.:     8.191 min
Delta R.T.:   -0.005 min
  Response:   11420931
     Conc:    19.55 ug/L
```
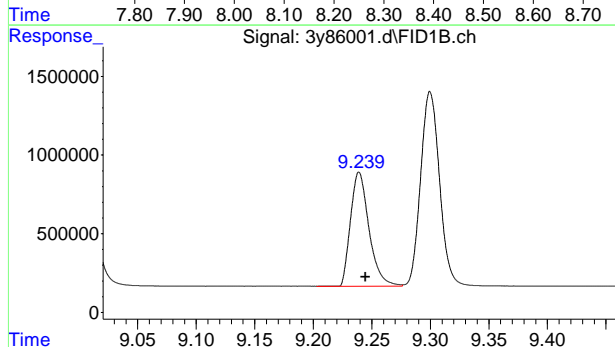
#25 2-Bromonaphthalene (S)

```
     R.T.:     9.239 min
Delta R.T.:   -0.005 min
  Response:   7979431
     Conc:    19.69 ug/L
```

9.5.20

9
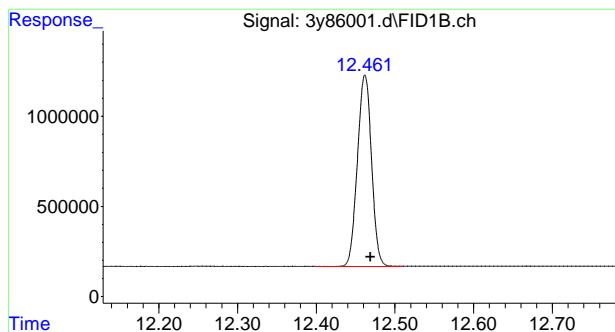
#26 o-Terphenyl (S)

```
        R.T.:   12.462 min
Delta R.T.:   -0.007 min
  Response:   13241593
      Conc:   20.77 ug/L
```
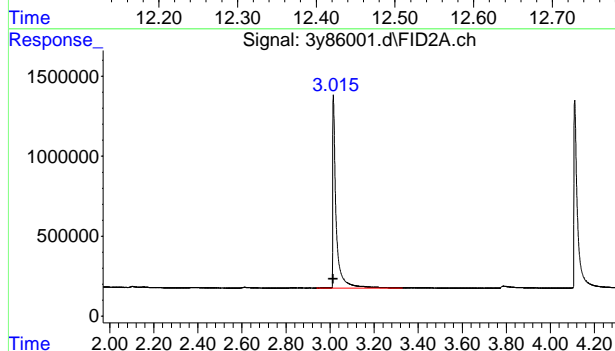
#28 C9

```
        R.T.:    3.017 min
Delta R.T.:    0.005 min
  Response:   13068959
      Conc:   22.19 ug/L
```
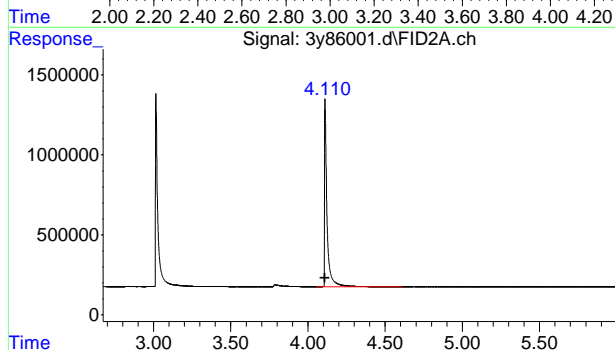
#29 C10

```
        R.T.:    4.112 min
Delta R.T.:    0.002 min
  Response:   13498039
      Conc:   22.48 ug/L
```
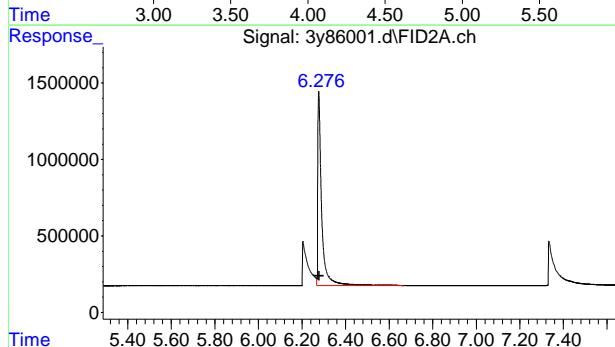
#30 C12

```
        R.T.:    6.278 min
Delta R.T.:    0.000 min
  Response:   15721303
      Conc:   25.67 ug/L
```

3y86001.d EPH3Y3347.M   Fri Oct 28 08:38:11 2022
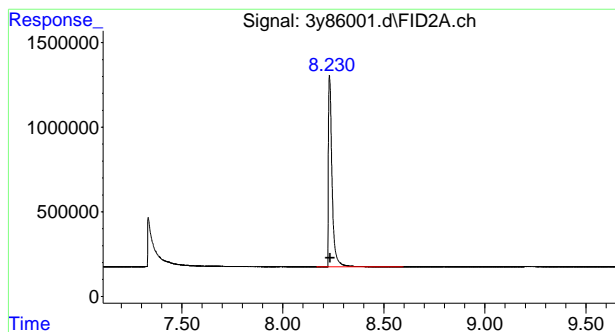
#32 C14

```
        R.T.:     8.234 min
Delta R.T.:     0.000 min
   Response:  13977951
       Conc:   22.76 ug/L
```
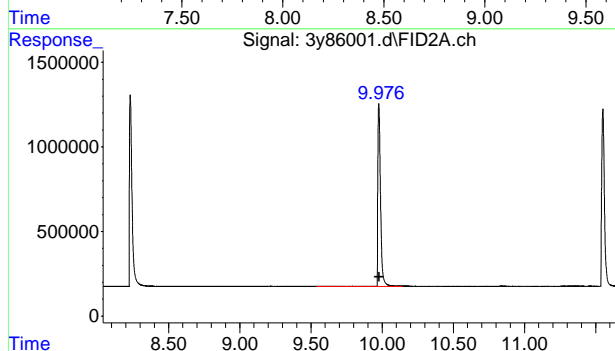

#33 C16

```
        R.T.:     9.979 min
Delta R.T.:     0.000 min
   Response:  13973727
       Conc:   22.51 ug/L
```
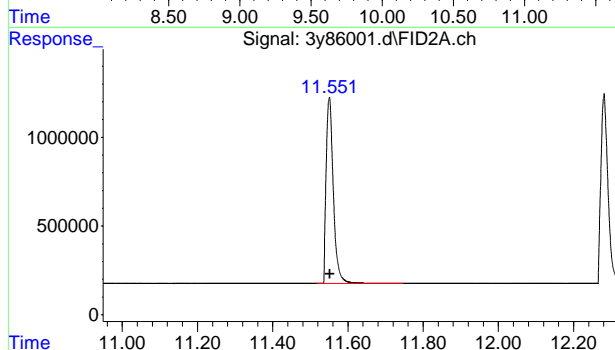

#35 C18

```
        R.T.:    11.551 min
Delta R.T.:    -0.001 min
   Response:  13865834
       Conc:   22.18 ug/L
```
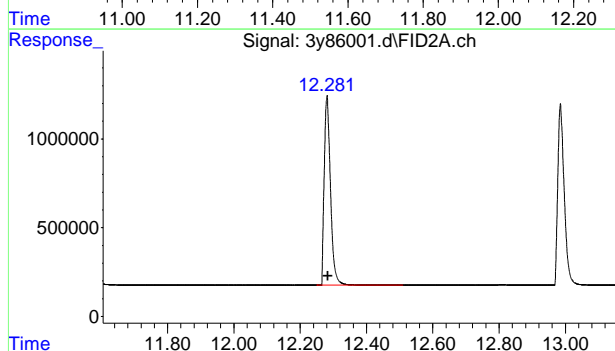

#36 C19

```
        R.T.:    12.281 min
Delta R.T.:    -0.002 min
   Response:  13994714
       Conc:   22.18 ug/L
```

9.5.20

9
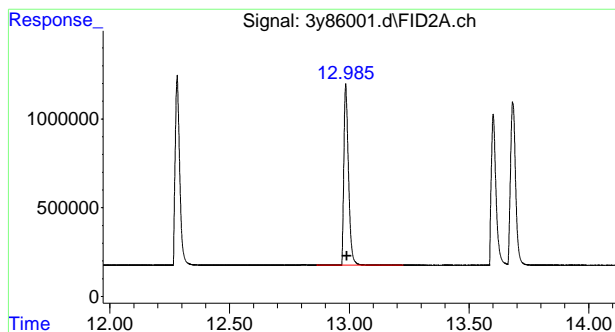
#37 C20

```
      R.T.:   12.986 min
Delta R.T.:   -0.003 min
  Response:   13745947
      Conc:   22.12 ug/L
```
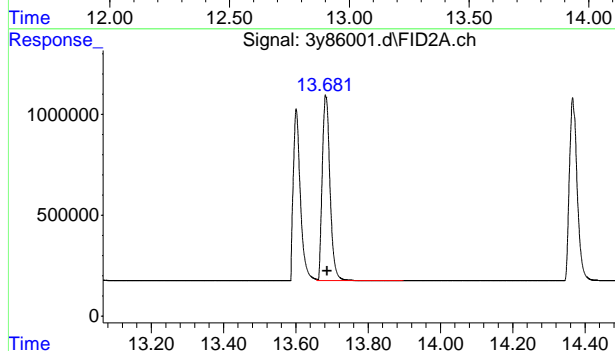
#38 C21

```
      R.T.:   13.683 min
Delta R.T.:   -0.003 min
  Response:   13663244
      Conc:   22.16 ug/L
```
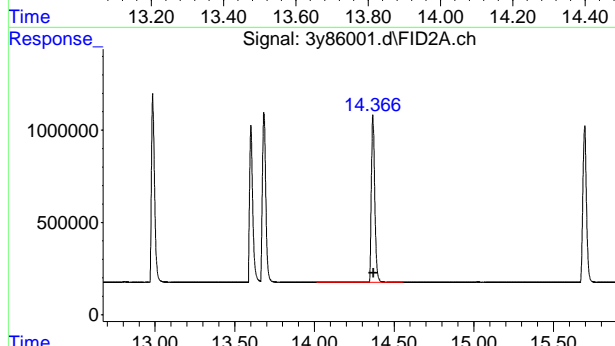
#40 C22

```
      R.T.:   14.367 min
Delta R.T.:   -0.004 min
  Response:   13467326
      Conc:   21.88 ug/L
```
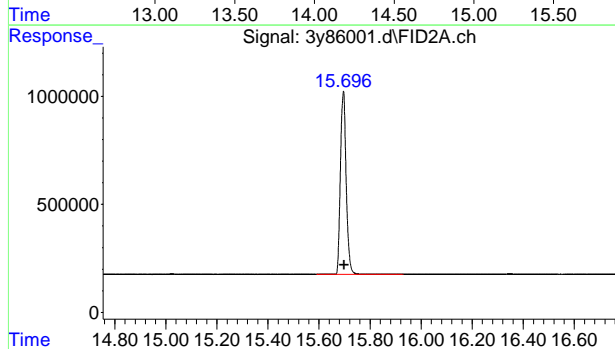
#41 C24

```
      R.T.:   15.695 min
Delta R.T.:   -0.004 min
  Response:   13223304
      Conc:   22.05 ug/L
```

9.5.20

9

Signal: 3y86001.d\FID2A.ch
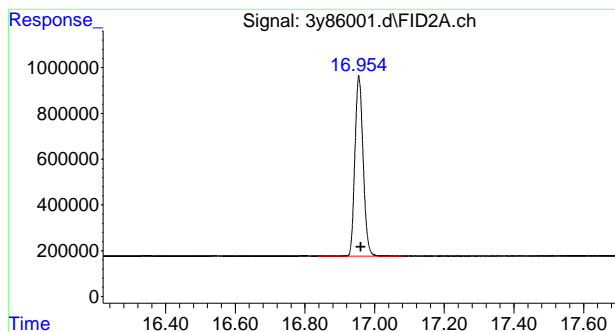
#42 C26

R.T.:   16.955 min
Delta R.T.:   -0.005 min
Response: 12890656
Conč: 22.02 ug/L
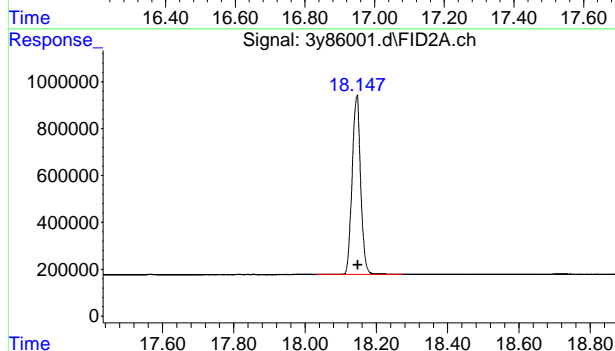
#43 C28

R.T.:   18.144 min
Delta R.T.:   -0.004 min
Response: 12667316
Conč: 22.41 ug/L
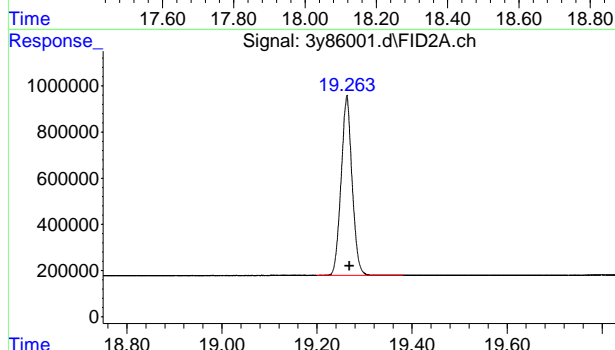
#44 C30

R.T.:   19.263 min
Delta R.T.:   -0.005 min
Response: 12463145
Conč: 22.44 ug/L
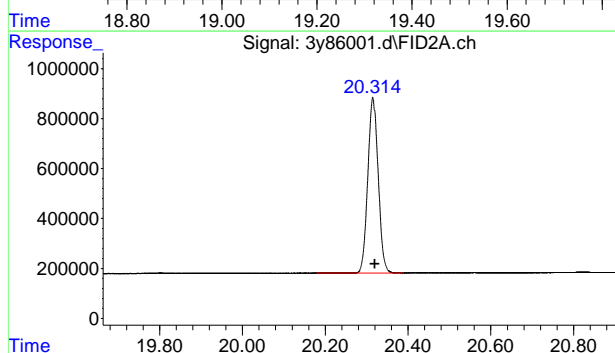
#45 C32

R.T.:   20.316 min
Delta R.T.:   -0.004 min
Response: 12270595
Conč: 22.46 ug/L

9.5.20

9
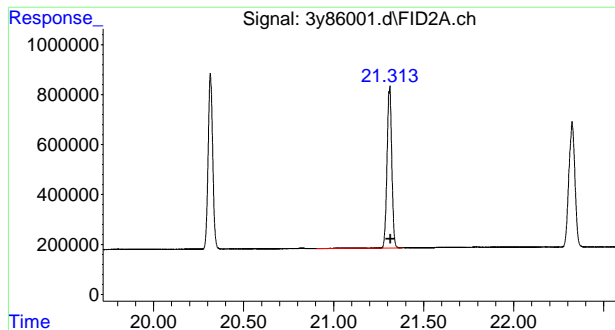
#46 C34

R.T.:   21.310 min
Delta R.T.:   -0.004 min
Response: 11761364
Conc: 22.44 ug/L
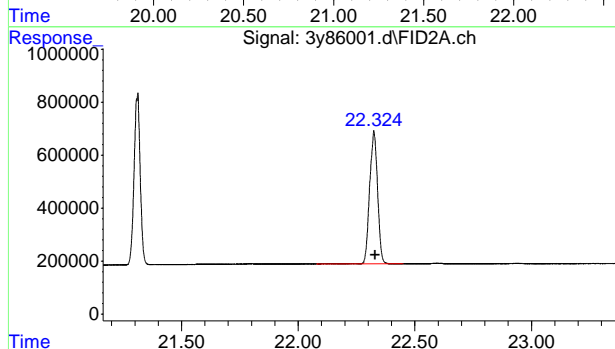
#47 C36

R.T.:   22.324 min
Delta R.T.:   -0.006 min
Response: 11754438
Conc: 22.41 ug/L
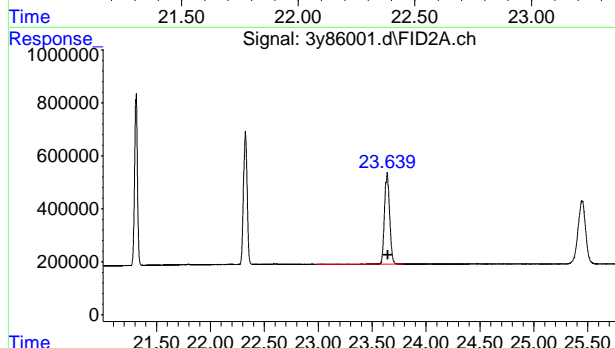
#48 C38

R.T.:   23.638 min
Delta R.T.:   -0.008 min
Response: 11394277
Conc: 22.16 ug/L
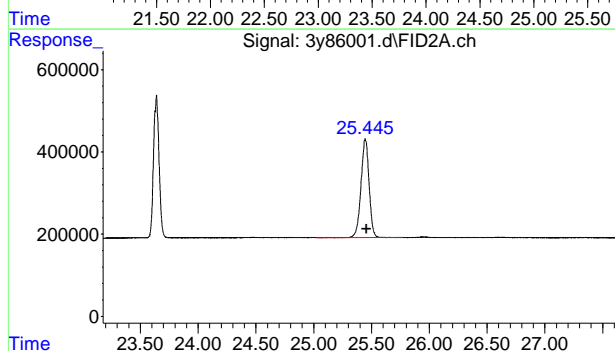
#49 C40

R.T.:   25.445 min
Delta R.T.:   -0.010 min
Response: 11659848
Conc: 22.24 ug/L

9.5.20

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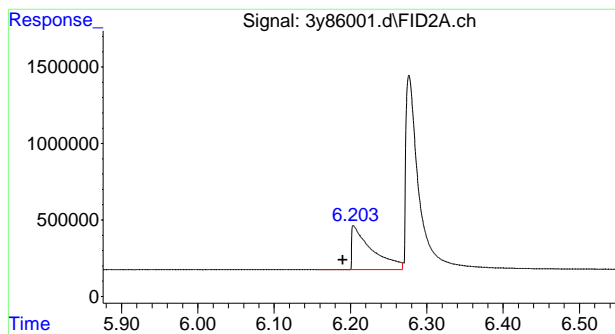
#53   Naphthalene (S)

```
        R.T.:      6.208 min
Delta R.T.:      0.018 min
   Response:   5195292
        Conc:   8.07 ug/L
```
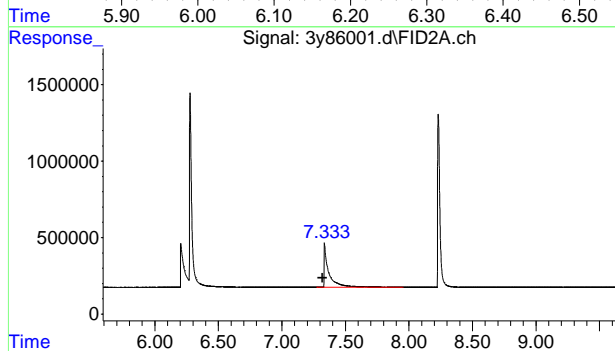

#54   2-Methylnaphthalene (S)

```
        R.T.:      7.340 min
Delta R.T.:      0.022 min
   Response:   7438028
        Conc:   11.39 ug/L
```
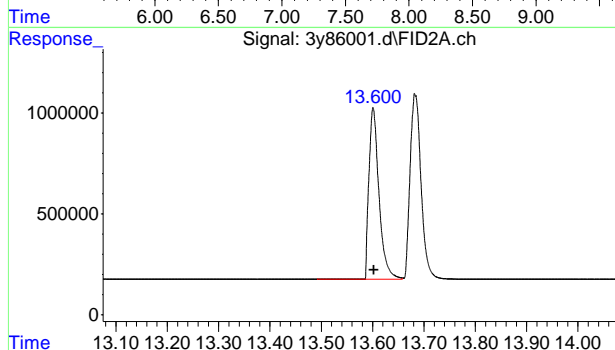

#55   1-Chlorooctadecane (S)

```
        R.T.:     13.602 min
Delta R.T.:      0.000 min
   Response:  11572746
        Conc:   21.99 ug/L
```

9.5.20

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C:\msdchem\1\data\maryann\g3y3363\3y86001.d

Hydrocarbon Range Total Response

	Data File Name	**3y86001.d**
	Date Acquired	**10/27/2022 9:57**
	Sample Name	**cc3347-20**

	Name	**Target Response**	AvgRF	CCRF	%D
1)	1,2,3-Trimethylbenzene	12590767			
2)	Naphthalene	13264348			
3)	C10-C12 Aromatics	25855115	6.75E+05	646377.866	4.2
4)	2-Methylnaphthalene	13144634			
5)	Acenaphthylene	12850852			
6)	Acenaphthene	14001929			
7)	C12-C16 Aromatics	39997415	678640.4343	666623.5876	1.8
8)	Fluorene	13317473			
9)	Phenanthrene	13276843			
10)	Anthracene	13085441			
11)	Fluoranthene	13291993			
12)	Pyrene	13719459			
13)	C16-C21 Aromatics	66691209	642285.1546	666912.0884	-3.8
14)	Benzo(a)Anthracene	13595080			
15)	Chrysene	13727335			
16)	Benzo(b)Fluoranthene	13536685			
17)	Benzo(k)Fluoranthene	13103181			
18)	Benzo(a)Pyrene	13176872			
19)	Indeno(1,2,3-cd)Pyrene	12863072			
20)	Dibenzo(ah)Anthracene	14369853			
21)	Benzo(ghi)Perylene	13145390			
22)	C21-C36 Aromatics	107517468	599350.3432	671984.1724	-12.1
27)	SIGNAL #2				
28)	C9	13068959			
29)	C10	13498039			
30)	C12	15721303			
31)	C9-C12 Aliphatics	42288301	600653.6024	704805.0126	-17.3
32)	C14	13977951			
33)	C16	13973727			
34)	C12-C16 Aliphatics	27951678	617472.8721	698791.945	-13.2
35)	C18	13865834			
37)	C20	13745947			
38)	C21	13663244			
39)	C16-C21 Aliphatics	41275026	621009.1871	687917.0933	-10.8
40)	C22	13467326			
41)	C24	13223304			
42)	C26	12890656			
43)	C28	12667316			
44)	C30	12463145			
45)	C32	12270595			
46)	C34	11761364			
47)	C36	11754438			
48)	C38	11394276.7			
49)	C40	11659847.75			
50)	C21-C40 Aliphatics	123552270.2	555452.5925	617761.3512	-11.2
	For MAEPH				
23)	C11-C22 Aromatics (Unadj.)	227470440)	631209)	669031)	-6.0
36)	C19	13994713.72			
51)	C9-C18 Aliphatics	84105812.9	610324.8207	700881.7742	-14.8
52)	C19-C36 Aliphatics	104206847.8	587241.5002	651292.7988	-10.9

9.5.21

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SGS

JD53080

3Y86001.D: G3Y3363-CC3347 Continuing Calibration (20) (additional data) page 1 of 1

SEMIVOLATILE by GC ANALYSIS LOG

Batch ID: G3y3347

Print Analyst Name: Thomas Lally

Analyst Signature: TL

Date: 9/22/22

Columns: DBUI 8270 D / DBUI 82i

Method: EPH

Initial Cal. Method: EPH 3y 3347

Injection Volume: 1.0 μL

Date Archived: _____

Standard Data

Lot #	Description	Conc.
SK21-2835-133	Aliphatic Stock	200ppm
-123	Aliphatic 2nd	200 ppm
223504	hexane (Fisher)	—
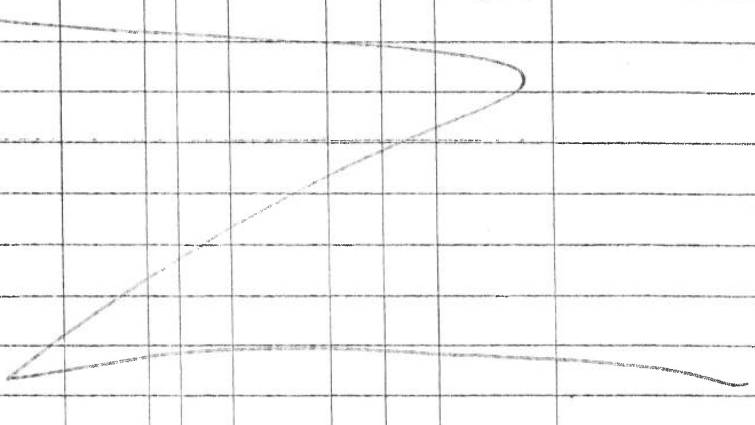
Standard Data

Lot #	Description	Conc.
SK21-2835-134	Aromatic Stock	200ppm
-124	Aromatic 2nd	200 ppm
223823	dcm (Fisher)	—

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: _____ Date: 9/27/22

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution	IS	SU	Status (Data)	Comments
	3y85348	IB				51/1				OK	
	349	IC3347-1				56/6	200x			OK	
	350	-2				57/7	100x			OK	
	351	-5				58/8	40x			OK	
	352	-10				59/9	20x			OK	
	353	-20				60/10	10x			OK	
	354	ICC3347-50				61/11	4x			OK	
	355	IC3347-100				62/12	2x			OK	
	356	ICV3347-50	2nd			63/13	4x			OK	
	357	-50	3rd			64/14	2x			OK	SK21-2742-70 @ 100 ppm

MTX = Matrix . Designate W for water, S for soil, O for oil.. IS = Internal Standard Area. (if used) SU = Surrogate.
Sample volume/weight refer to extraction log.
All strikeouts must be initialed, dated, and reason applied if not transcription error

TL 9/25

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Form: OR016-09
Rev. Date: 5/25/17

9.6.1

9

SGS

418 of 421

JD53080

SEMIVOLATILE by GC ANALYSIS LOG

Date: 10/26/22

Batch ID: G3Y3363

Print Analyst Name: Thomas Lally

Analyst Signature: TL

Columns: DBVI8270D/PBVI8270D

Method: EPH

Initial Cal. Method: EPH3Y3347

Injection Volume: 1.0 mL

Date Archived: _____

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
Sv 22-2928166	Aliphatic Std	20 ppm
·16D	↓	50 ppm
·17C	Aromatic Std	20 ppm
·17D	↓	50 ppm
·03	IB	50 ppm
223504	hexane (Fisher)	—
223823	dcm (Fisher)	✓

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of SGS SOP EQA044.

Supervisor Signature: TL   Date: 10/31/22

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution	IS	SU	Status (Data)	Comments
	3y85969	CC 3347-20			·	52/2			↓	Not using	
	970	BS 0.5 #1				55/5				OK	
	971	BS 1.0				56/6				OK	
	972	CC 3347-20				52/2			↑	NG	~~remake std~~ TL 10/26
	973	CC 3347-20				52/2			✗	OK	passing ↑
	974	BS-0.5 #2				57/7				OK	
	975	BS-0.25				58/8				OK	
	976	BS-14.2				59/9				OK	HPLC Timing Check
	977	CC 3347-50				53/3			/	OK	
	978	IB				51/1			/	OK	
	979	BS-0.5 #3				60/10				OK	
	980	JD53286-8	42360	NJEPH	S	61/11				Not using	
	981	OP42283-MB1	42283	MAEPH	W	62/12			/	OK	Fractioned on refraction setting
	982	-BS1				63/13			/	OK	
	983	-BSD				64/14			/	OK	
	984	JD53080-8				65/15			/	OK	
	985	OP42283-9MS				66/16			/	OK	
	986	-MSD				67/17			/	OK	
	987	JD53080-9				68/18			/	OK	✓

MTX = Matrix . Designate W for water, S for soil, O for oil..   IS = Internal Standard Area. (if used) SU = Surrogate.

Sample volume/weight refer to extraction log.

All strikeouts must be initialed, dated, and reason applied if not transcription error

OR016-10
9/28/2022

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9.6.2

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SEMIVOLATILE by GC ANALYSIS LOG

Date: 10/26/22

Batch ID: G3Y3363

Print Analyst Name: Thomas Lally

Analyst Signature: TL

Columns: DBUI8270D / DBUI8270D

Method: EPH

Initial Cal. Method: EPH3y3347

Injection Volume: 1.0 mL

Date Archived: _____

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
	See pg 45	

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of SGS SOP EQA044.

Supervisor Signature: TL   Date: 10/31/22

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution	IS	SU	Status (Data)	Comments
	3y85988	OP42416-MB1	42418	MAEPH	W	69/14			/	OK	Fractional on
	989	-BS1				70/20			/	OK	refraction setting
	990	-BSD				71/21			/	OK	
	991	JD53379-1				72/22				OK	
	992	-2				73/23			/	OK	
	993	-3				74/24			/	OK	
	994	-4				75/25			/	OK	
	995	-5				76/26			/	OK	
	996	-6				77/27			/	OK	
	997	JD53341-1				78/28			/	OK	
	998	JD53342-1				79/29			/	OK	
	999	Hex				80/30				OK	
	3y86000	BS				81/31				OK	
	001	CC3347-20				52/2			/	OK	
	002	IB				51/1			/	OK	

TL 10/31

MTX = Matrix . Designate W for water, S for soil, O for oil..   IS = Internal Standard Area. (if used) SU = Surrogate.
Sample volume/weight refer to extraction log.
All strikeouts must be initialed, dated, and reason applied if not transcription error.

OR016-10
9/28/2022

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9.6.2

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Aqueous Extraction Logbook (Mixed Waters)

LOGBOOK ID:

Date Started: 10/7/22   Time Started: 11:38
Date Finished: Td 7/22 Time Finished: 13:00   10/10/22   14:00

Extract Method (CHECK OFF "√"/DO NOT CIRCLE):

Separatory Funnel: SW846 3510C/GCLP/other √   EPA 600 series ___   SIM ___
Continuous Liquid Liquid: SW846 3520C/GCLP/other ___

BATCH # GC OR42283   RACK# R-57

Set-up by: SAMSK EYL
Extracted by: EYL
Concentrated by: AL
Final Vol. Top-up: AL
Vialed by:

Supervisor Review: NK 10/10/2022

	Observed Temp (°C)	Corrective Factor (°C)	Corrected Temp (°C)	Pressure/ Flowrate
Equipment/Range	ID			
Buchi (65-71°C)				
Buchi Chiller				
Waterbath (70-80°C)	5	76	12	78	OK
	F-3	16	—	—	OK
Warmbath (32-38°C: LPM)	3	35	11	36	10"
NEVAP (32-38°C: LPM)				

	LOT #	CONC (ppm)	AMT (mL)
SURROGATE			
DRO			
EPH	212742-55	100	0.4
Fraction	A014U229	10,000	10 mL
WITNESS SIGN	AG	SPIKE SIGN EYL	
MATRIX SPIKE			
DRO			
EPH	212742-99	100	0.5
WITNESS SIGN	AG	SPIKE SIGN EYL	

SOLVENT	LOT #	BRAND	AMT (mL)
METH CHLOR	223504	Fisher	60x3
HEXANE	223504	Fisher	20

REAGENT	LOT #	BAKE BATCH #	BRAND
37% HCl	28C454		40000x
SODIUM SULFATE	216844		Fisher
GLASS WOOL	0370		Lab
FILTER PAPER			
VIALS	220116200		Agilent

Special Client Spike Instructions

QC ID# for Special Spike	Amt to Spike	Spike ID	Lot #	Conc	Amt. Spiked

WITNESS SIGN ___   SPIKE SIGN ___
Manager/Supervisor/Team Lead Approval ___

Sample #	Analysis Type	Sample Bottle #	pH	Sample Description	Sample Volume (mL)	<2 HCl	>11 NaOH	Color	Vol(mL)	Comments
	MBI MAEPH			Di H₂O	1000			Clear	2	+
	BSI			Di H₂O	1000			l. Yellow	2	+
SD53080-8	MS	1		Clear	1030	1		l. Yellow	2	+
1	MSD	2		Clear	1000			l. Yellow	2	+
	BSD			Di H₂O	1000			l. Yellow	2	+
	MS									
	MSD									
SD53080-8 MAEPH	7		Clear	900			Clear	2	√
-9	1		Clear	1040	•		Clear	2	+

SPECIAL PROCESSING INSTRUCTIONS

Rx Reason:

Spiking:

Weights/Volumes:

Required MS/MSD: SD53080-8

Final Volume:

Other:

COMMENTS   QC Samples (MS, MSD, LINK and/or DUP, Link) Confirmed by:

that emptied up what pulled for fractioning.
put back to rotd. The 10/25/22 Sample mistake for another sample
in another of fractions like normal.
+Fractioned on re-fraction setting due to instrument error.

HT: idle   Dre 10/10
Dre 10/10

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SGS
Form: OP001-14
Rev. Date: 4/19/22